

183rd Meeting of the Acoustical Society of America

The 183rd meeting of the Acoustical Society of America will be held Monday through Friday, 5–9 December 2022 at the Grand Hyatt Nashville Hotel, Nashville, Tennessee, USA.

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1. HOTEL INFORMATION

The Grand Hyatt Nashville is the headquarters hotel where all meeting events will be held.

The cut-off date for reserving rooms at special rates has passed. Please contact the Grand Hyatt (Grand Hyatt Nashville Hotel, 1000 Broadway, Nashville, Tennessee, United States,

37203; +1 615 622 1234; <https://www.hyatt.com/en-US/hotel/tennessee/grand-hyatt-nashville/bnarn>)

2. TRANSPORTATION AND TRAVEL

Ground transportation options include Taxis (From the airport, the meter starts at \$9 and the rate is \$2.50 per mile. There is a flat rate of \$30 to the downtown area), Uber, Rental Cars, and Airport Shuttles & Ride Shares.

3. REGISTRATION

Registration is required for all attendees and accompanying persons. Registration badges must be worn in order to participate in technical sessions and other meeting activities.

Registration will open on Monday, 5 December, at 7:00 a.m. in Summit D (see floor plan on page A9).

Visa, MasterCard and American Express credit cards and checks in US dollars drawn on a bank in the US will be accepted for payment of registration. Meeting attendees who have pre-registered may pick up their badges and registration materials at the pre-registration desk.

The registration fees (in USD) are \$775 for members of the Acoustical Society of America; \$925 for non-members, \$250 for Emeritus members (Emeritus status pre-approved by ASA), \$425 for ASA Early Career members (for ASA members within three years of their most recent degrees – proof of date of degree required), \$200 for ASA Student members, \$300 for students who are not members of ASA, \$25 for Undergraduate Students, and \$250 for accompanying persons.

One-day registration is available at \$425 for members and \$500 for nonmembers (one-day means attending the meeting on only one day either to present a paper and/or to attend sessions). A nonmember who pays the \$925 nonmember registration fee and simultaneously applies for Associate Membership in the Acoustical Society of America will be given a \$50 discount off their dues payment for 2023 dues.

Invited speakers who are members of the Acoustical Society of America are expected to pay the Member full-week or one-day registration fees. Nonmember invited speakers who participate in the meeting only on the day of their presentation may register without charge. The registration fee for nonmember invited speakers who wish to participate for more than one day is \$400 and includes a one-year Associate Membership in the ASA upon completion of an application form.

Special note to students who pre-registered online: You will also be required to show your student id card when picking-up your registration materials at the meeting.

4. ACCESSIBILITY

If you have special accessibility requirements, please indicate this by informing ASA (1305 Walt Whitman Road, Suite 110, Melville, NY 11747-4300; asa@acousticalsociety.org) at a minimum of forty-five days in advance of the meeting. Please provide a cell phone number, email address, and detailed information including the nature of the special accessibility so that we may contact you directly.

5. TECHNICAL SESSIONS

The technical program includes 103 sessions with over 925 abstracts scheduled for presentation during the meeting.

A floor plan of the Grand Hyatt Nashville appears on page A9. Session Chairs have been instructed to adhere strictly to the printed time schedule, both to be fair to all speakers and to permit attendees to schedule moving from one session to another to hear specific papers. If an author is not present to deliver a lecture-style paper, the Session Chairs have been instructed either to call for additional discussion of papers already given or to declare a short recess so that subsequent papers are not given ahead of the designated times.

Several sessions are scheduled in poster format, with the display times indicated in the program schedule.

6. TECHNICAL SESSION DESIGNATIONS

Abstract code examples: 1aAA1, 2pBAb4, 1eID1

The first character is a number indicating the day the session will be held, as follows:

- 1-Monday, 5 December
- 2-Tuesday, 6 December
- 3-Wednesday, 7 December
- 4-Thursday, 8 December
- 5-Friday, 9 December

The second character is a lower case “a” for a.m., “p” for p.m., or “e” for evening corresponding to the time of day the session will take place. The third and fourth characters are capital letters indicating the primary Technical Committee that organized the session using the following abbreviations or codes:

- AA Architectural Acoustics
- AB Animal Bioacoustics
- AO Acoustical Oceanography
- BA Biomedical Acoustics
- CA Computational Acoustics
- EA Engineering Acoustics
- ED Education in Acoustics
- ID Interdisciplinary
- MU Musical Acoustics
- NS Noise
- PA Physical Acoustics
- PP Psychological and Physiological Acoustics
- SA Structural Acoustics and Vibration
- SC Speech Communication
- SP Signal Processing in Acoustics
- UW Underwater Acoustics

In sessions where the same group is the primary organizer of more than one session scheduled in the same morning or afternoon, a fifth character, either lower-case “a,” or “b,” is used to distinguish the sessions. Each paper within a session is identified by a paper number following the session-designating characters, in conventional manner. As hypothetical examples: paper 2pEA3 would be the third paper in a session on Tuesday afternoon organized by the Engineering Acoustics Technical Committee; 3pSAb5 would be the fifth paper in the second of two sessions on Wednesday afternoon sponsored by the Structural Acoustics and Vibration Technical Committee.

Note that technical sessions are listed both in the calendar and the body of the program in the numerical and alphabetical

order of the session designations rather than the order of their starting times. For example, session 3aAA would be listed ahead of session 3aAO even if the latter session begins earlier in the same morning.

7. SOLUTIONS SHOWCASE

In an effort to provide industry members and supporting companies better visibility at the meetings, ASA is hosting the second Solutions Showcase in Nashville on Monday, 5 December, 1:00 p.m. to 5:30 p.m. in Summit B. This will be an opportunity to present a product, service, or solution in a setting similar to a technical session, but without restricting the commercial character of the talk.

8. EXHIBIT AND EXHIBIT OPENING RECEPTION

An instrument and equipment exhibition will be located in the Summit foyer on the 4th floor and will open on Monday, 5 December, with an evening reception serving a complimentary drink. Exhibit hours are Monday, 5 December, 5:30 p.m. to 7:00 p.m., Tuesday, 6 December, 9:00 a.m. to 5:00 p.m., and Wednesday, 7 December, 9:00 a.m. to 12:00 noon.

The Exhibit will include computer-based instrumentation, scientific books, sound level meters, sound intensity systems, signal processing systems, devices for noise control and acoustical materials, active noise control systems, and other exhibits on acoustics.

9. TUTORIAL: EFFECTIVE MEDIA INTERACTIONS TRAINING WORKSHOP

The Public Relations Committee and the AIP Media Services team present this hands-on workshop for meeting attendees who are interested in effectively communicating scientific work to the public. The tutorial will be held on Monday evening, 5 December, 7:00 p.m. to 9:00 p.m. in Summit A. This workshop counts as the required media training for anyone interested in serving as a media liaison for their Technical Committee.

The workshop will consist of presentations by media professionals to provide a toolkit of techniques for engaging the media. The registration fee is USD \$25 (USD \$12 for students with current student IDs).

10. HOT TOPICS SESSION

The Hot Topics session (3pID) will be held on Wednesday, 7 December, at 2:15 p.m. in Grand Hall C.

11. TECHNICAL TOUR TO BELMONT UNIVERSITY

A technical tour of Belmont University is scheduled to be held on Thursday, 8 December, 3:30 p.m. to 6:15 p.m. (including travel time). The tour participation fee is \$10.00.

Located in the capital of music, Belmont University offers an impressive list of unique programs only available at a handful of colleges, including songwriting, music business, audio engineering, motion pictures, commercial music composition, and more. This technical tour will explore some of the world-class facilities at Belmont University.

12. ROSSING PRIZE IN ACOUSTICS EDUCATION AND ACOUSTICS EDUCATION PRIZE LECTURE

The 2022 Rossing Prize in Acoustics Education will be presented at the Nashville meeting during the Plenary Session on Wednesday, 7 December, in Grand Hall D.

Dr. Kathleen Wage will present the 2022 Acoustics Education Prize Lecture on Wednesday, 7 December, in session 3pED at 1:00 p.m. in Grand Hall C.

13. TECHNICAL COMMITTEE OPEN MEETINGS

Technical Committees will hold open meetings on Tuesday, Wednesday, and Thursday. The schedule and rooms for each Committee meeting are given on page A14.

These are working, collegial meetings. Much of the work of the Society 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.

14. PLENARY SESSION AND AWARDS CEREMONY

A plenary session will be held Wednesday, 7 December, at 3:30 p.m. in Grand Hall D.

ASA scholarship recipients will be introduced. The Rossing Prize in Acoustics Education, and the Gold Medal will be presented, Certificates will be presented to Fellows elected at the Denver meeting. See page A202 for a list of fellows and award recipients.

All attendees are welcome and encouraged to attend. Please join us to honor and congratulate these medalists and other award recipients.

15. ANSI STANDARDS COMMITTEES

Meetings of ANSI Accredited Standards Committees will not be held at the Nashville meeting.

People interested in attending and in becoming involved in working group activities should contact the ASA Standards Manager for further information about these groups, or about the ASA Standards Program in general, at the following address: Nancy Blair-DeLeon, ASA Standards Manager, Standards Secretariat, Acoustical Society of America, 1305 Walt Whitman Road, Suite 110, Melville, NY 11747-4300; T: 631-390-0215; E: asastds@acousticalsociety.org

16. COFFEE BREAKS

Morning coffee breaks will be held daily from 9:30 a.m. to 11:00 a.m. and an afternoon break will be held on Wednesday from 2:00 p.m. to 3:00 p.m. in the Summit Foyer.

17. A/V PREVIEW ROOM

Diplomat A will be set up as an A/V preview room for authors' convenience and will be available on Monday through Thursday from 7:00 a.m. to 5:00 p.m. and Friday from 7:00 a.m. to 3:00 p.m.

18. INTERNET ZONE

Wi-Fi will be available in all ASA meeting rooms and spaces.

Tables with power cords will be set up in the Summit D for attendees to gather and to power-up their electronic devices.

19. MOTHERS ROOM

A Mothers Toom for ASA meeting attendees will be available Monday to Friday, 5-9 December in Platform E. The hours are Monday to Thursday, 8:00 a.m. to 5:00 p.m. and Friday, 8:00 a.m. to 12:00 noon.

20. SOCIALS

Socials will be held on Tuesday and Thursday evenings, 6:00 p.m. to 7:30 p.m. in Grand Hall D/E.

The ASA hosts these social hours to provide a relaxing setting for meeting attendees to meet and mingle with their friends and colleagues as well as an opportunity for new members and first-time attendees to meet and introduce themselves to others in the field. A second goal of the socials is to provide a sufficient meal so that meeting attendees can attend the open meetings of Technical Committees that begin immediately after the socials.

21. SOCIETY LUNCHEON AND LECTURE

The Society Luncheon and Lecture, sponsored by the College of Fellows, will be held Thursday, 8 December, at 12:00 noon in Grand Hall D.

This luncheon is open to all attendees and their guests. Purchase your tickets at the Registration Desk before 10:00 a.m. on Thursday, 8 December. The cost is USD \$30.00 per ticket.

22. STUDENT EVENTS: NEW STUDENTS/ FIRST-TIME ATTENDEE ORIENTATION, MEET AND GREET, STUDENT RECEPTION

Follow the student twitter throughout the meeting @ASASStudents.

A New Students/First-Time Attendee Orientation will be held on Monday, 5 December, from 5:00 p.m. to 5:30 p.m. in Grand Hall C. This will be followed by the Student Meet and Greet from 5:30 p.m. to 6:45 p.m. in North Coast B where refreshments and a cash bar will be available.

The Students' Reception will be held on Wednesday, 7 December, from 6:00 p.m. to 8:00 p.m. in Grand Hall B. This reception, sponsored by Reality Labs Research, will provide an opportunity for students to meet informally with fellow students and other members of the Acoustical Society. All students are encouraged to attend, especially students who are first time attendees or those from smaller universities.

To encourage student participation, limited funds are available to defray partially the cost of travel expenses of students to attend Acoustical Society meetings. Instructions for applying for travel subsidies are given in the Call for Papers which can be found online at <http://acousticalsociety.org>. The deadline for the present meeting has passed but this information may be useful in the future.

23. WOMEN IN ACOUSTICS LUNCHEON

The Women in Acoustics luncheon will be held at 11:30 a.m. on Wednesday, 7 December, in Grand Hall A. Those who wish to attend must purchase their tickets in advance by 10:00 a.m. on Wednesday, 7 December. The fee is USD \$35 for non-students and USD \$15 for students.

24. JAM SESSION

You are invited to The JAM (at a location to be announced) on Wednesday night, 8 December, from 8:00 p.m. to midnight for the ASA Jam. Bring your axe, horn, sticks, voice, or anything else that makes music. Musicians and non-musicians are all welcome to attend. A full PA system, backline equipment, guitars, bass, keyboard, and drum set will be provided. All attendees will enjoy live music, a cash bar with snacks, and all-around good times. Don't miss out.

25. ACCOMPANYING PERSONS PROGRAM

Spouses and other visitors are welcome at the Nashville meeting. The on-site registration fee for accompanying persons is USD \$250. A hospitality room for accompanying persons will be open in Platform D, 8:00 a.m. to 10:00 a.m. Monday through Thursday. This entitles you access to the accompanying persons room, social events on Tuesday and Thursday, the Jam Session, and the Plenary Session on Wednesday afternoon.

26. PROCEEDINGS OF MEETINGS ON ACOUSTICS (POMA)

The Nashville meeting will have a published proceedings, and submission is optional. The proceedings will be a separate volume of the online journal, "Proceedings of Meetings on Acoustics" (POMA). This is an open access journal, so that its articles are available in pdf format for downloading without charge to anyone in the world. Authors who are scheduled to present papers at the meeting are encouraged to prepare a suitable version in pdf format that will appear in POMA. It is not necessary to wait until after the meeting to submit one's paper to POMA. Further information regarding POMA can be found at the site <http://acousticsauthors.org>. Published papers from previous meeting can be seen at the site <http://asadl/poma>.

27. WEATHER

In December Nashville has an average high of 50°F and an average low of 33°F. There might also be a small chance of rain. Attendees should pack a warm jacket and umbrella.

28. TECHNICAL PROGRAM ORGANIZING COMMITTEE

Michael Haberman, Technical Program Chair; Christopher Bassett, Acoustical Oceanography; Rolf Mueller, Animal Bioacoustics; Brandon Cuedquest, David Manley, Architectural Acoustics; Kang Kim, Libertario Demi, Biomedical Acoustics; Amanda Hanford, Computational Acoustics; Daniel Russell, Education in Acoustics; Thomas Blanford, Engineering Acoustics; Kurt Hoffman, Taffeta Elliott, Musical Acoustics; Aaron Vaughn, James Phillips, Hales Swift; Noise; Ralph Herman, Samuel Wallen, Physical Acoustics; Gregory Ellis, Psychological and Physiological Acoustics; Kai Gemba, Trevor Jerome, Signal Processing in Acoustics; Pasquale Bottalico, Matthew Masapollo, Benjamin Tucker, Speech Communication; Anthony Bonomo, Stephanie Konarski, Structural Acoustics and Vibration; David Dall'Osto, Underwater Acoustics; Zane Rusk, Student Council

29. MEETING ORGANIZING COMMITTEE

Veerle M. Keppens, Chair; Michael Haberman, Technical Program Chair

30. PHOTOGRAPHING AND RECORDING

Photographing and recording during regular sessions are not permitted without prior permission from the Acoustical Society.

31. ABSTRACT ERRATA

This meeting program is Part 2 of the November 2022 issue of *The Journal of the Acoustical Society of America*.

Corrections, for printer's errors only, may be submitted for publication in the Errata section of the *Journal*.

32. GUIDELINES FOR ORAL PRESENTATIONS

Preparation of Visual Aids

- See the guidelines for computer projection in section 41 below.
- Allow at least one minute of your talk for each slide (e.g., PowerPoint). No more than 12 slides for a 15-minute talk (with 3 minutes for questions and answers).
- Minimize the number of lines of text on one visual aid. 12 lines of text should be a maximum. Include no more than 2 graphs/plots/figures on a single slide. Too little information is better than too much.
- Presentations should contain simple, legible text that is readable from the back of the room.
- Characters should be at least 0.25 inches (6.5 mm) in height to be legible when projected. A good rule of thumb is that text should be 20 point or larger (including labels in inserted graphics). Anything smaller is difficult to read.
- Make symbols at least 1/3 the height of a capital letter.
- For computer presentations, use all of the available screen area using landscape orientation with very thin margins. If your institutions logo must be included, place it at the bottom of the slide.
- Sans serif fonts (e.g., Arial, Calibri, and Helvetica) are much easier to read than serif fonts (e.g., Times New Roman) especially from afar. Avoid thin fonts (e.g., the horizontal bar of an e may be lost at low resolution thereby registering as a c.)
- Do not use underlining to emphasize text. It makes the text harder to read.
- All axes on figures should be labeled.
- No more than 3–5 major points per slide.
- Consistency across slides is desirable. Use the same background, font, font size, etc. across all slides.
- Use appropriate colors. Avoid complicated backgrounds and do not exceed four colors per slide. Backgrounds that change from dark to light and back again are difficult to read. Keep it simple.
- If using a dark background (dark blue works best), use white or yellow lettering. If you are preparing slides that may be printed to paper, a dark background is not appropriate.
- If using light backgrounds (white, off-white), use dark blue, dark brown or black lettering.
- DVDs should be in standard format.

Presentation

- Organize your talk with introduction, body, and summary or conclusion. Include only ideas, results, and concepts that can be explained in the allotted time. Four elements to include are:
 - Statement of research problem
 - Research methodology
 - Review of results
 - Conclusions
- No more than 3–5 key points can be covered adequately in a 15-minute talk so keep it concise.

- Rehearse your talk so you can confidently deliver it in the allotted time. Session Chairs have been instructed to adhere to the time schedule and to stop your presentation if you run over.
- An A/V preview room will be available for viewing computer presentations before your session starts. It is advisable to preview your presentation because in most cases you will be asked to load your presentation onto a computer which may have different software or a different configuration from your own computer.
- Arrive early enough so that you can meet the session chair, load your presentation on the computer provided, and familiarize yourself with the microphone, computer slide controls, laser pointer, and other equipment that you will use during your presentation. There will be many presenters loading their materials just prior to the session so it is very important that you check that all multi-media elements (e.g., sounds or videos) play accurately prior to the day of your session.
- Each time you display a visual aid the audience needs time to interpret it. Describe the abscissa, ordinate, units, and the legend for each figure. If the shape of a curve or some other feature is important, tell the audience what they should observe to grasp the point. They won't have time to figure it out for themselves. A popular myth is that a technical audience requires a lot of technical details. Less can be more.
- Turn off your cell phone prior to your talk and put it away from your body. Cell phones can interfere with the speakers and the wireless microphone.

33. SUGGESTIONS FOR EFFECTIVE POSTER PRESENTATIONS

Content

The poster should be centered around two or three key points supported by the title, figures, and text. The poster should be able to “stand alone.” That is, it should be understandable even when you are not present to explain, discuss, and answer questions. This quality is highly desirable since you may not be present the entire time posters are on display, and when you are engaged in discussion with one person, others may want to study the poster without interrupting an ongoing dialogue.

- To meet the “stand alone” criteria, it is suggested that the poster include the following elements, as appropriate:
 - Background
 - Objective, purpose, or goal
 - Hypotheses
 - Methodology
 - Results (including data, figures, or tables)
 - Discussion
 - Implications and future research
 - References and Acknowledgment

Design and layout

- A board approximately 8 ft. wide × 4 ft. high will be provided for the display of each poster. Supplies will be available for attaching the poster to the display board. Each board will be marked with an abstract number.
- Typically, posters are arranged from left to right and top to bottom. Numbering sections or placing arrows between sections can help guide the viewer through the poster.

- Centered at the top of the poster, include a section with the abstract number, paper title, and author names and affiliations. An institutional logo may be added. Keep the design simple and uncluttered. Avoid glossy paper.

Lettering and text

- Font size for the title should be large (e.g., 70-point font)
- Font size for the main elements should be large enough to facilitate readability from 2 yards away (e.g., 32-point font). The font size for other elements, such as references, may be smaller (e.g., 20–24 point font).
- Sans serif fonts (e.g., Arial, Calibri, Helvetica) are much easier to read than serif fonts (e.g., Times New Roman).
- Text should be brief and presented in a bullet-point list as much as possible. Long paragraphs are difficult to read in a poster presentation setting.

Visuals

- Graphs, photographs, and schematics should be large enough to see from 2 yards (e.g., 8 × 10 inches).
- Figure captions or bulleted annotation of major findings next to figures are essential. To ensure that all visual elements are “stand alone,” axes should be labeled and all symbols should be explained.
- Tables should be used sparingly and presented in a simplified format.

Presentation

- Prepare a brief oral summary of your poster and short answers to questions in advance.
- The presentation should cover the key points of the poster so that the audience can understand the main findings. Further details of the work should be left for discussion after the initial poster presentation.
- It is recommended that authors practice their poster presentation in front of colleagues before the meeting. Authors should request feedback about the oral presentation as well as poster content and layout.

Other suggestions

- You may wish to prepare reduced-size copies of the poster (e.g., 8 1/2 × 11 sheets) to distribute to interested audience members.

34. GUIDELINES FOR USE OF COMPUTER PROJECTION

A PC computer with monaural audio playback capability and projector will be provided in each meeting room on which all authors who plan to use computer projection should load their presentations. Authors should bring computer presentations on a CD or USB drive to load onto the provided computer and should arrive at the meeting rooms at least 30 minutes before the start of their sessions. Assistance in loading presentations onto the computers will be provided. Note that only PC format will be supported so authors using Macs must save their presentations for projection in PC format. Also, authors who plan to play audio during their presentations should ensure that their sound files are also saved on the CD or USB drive.