



AIDAA
ASSOCIAZIONE ITALIANA
DI AERONAUTICA E ASTRONAUTICA

CEAS
Council of European
Aerospace Societies

AIAA
SHAPING THE FUTURE OF AEROSPACE



Aeroacoustics 2024

4-7 June, Roma, Italy

The 30th AIAA/CEAS Aeroacoustics Conference

CALL FOR PAPERS

Please submit your abstract online

www.aidaa.it/aeroacoustics/

Before 8 December 2023

CONFERENCE OVERVIEW

The AIAA/CEAS Aeroacoustics Conference has established itself as the premier international forum for the field of aeroacoustics. It offers scientists and engineers from industry, government, and universities an exceptional opportunity to exchange knowledge and results of current studies and to discuss directions for future research. Papers that address all aspects of the generation, propagation, and control of vehicle noise, as well as the effect of noise on structures and individuals, are being solicited. The program's technical content will include theoretical, experimental, and numerical



contributions that describe original research results and/or innovative design concepts. In addition, in-depth reviews and timely surveys will be considered. Topics for the conference are listed below. Studies in other related areas, particularly the application of aerospace noise suppression technologies in other industries, and papers on non-aerospace research with potential applications to the aerospace industry are encouraged.

CONFERENCE TOPICS

▪ Acoustic / Fluid Dynamics Interactions

Analysis, measurements, and control of subsonic and supersonic flows, boundary layer flows, flow acoustic interactions and resonance, acoustic scattering, and acoustic shielding. Active Control of noise, vibration, and flows; development of associated sensors and actuators; and feedback and feed-forward control strategies.

▪ Advanced Testing Techniques

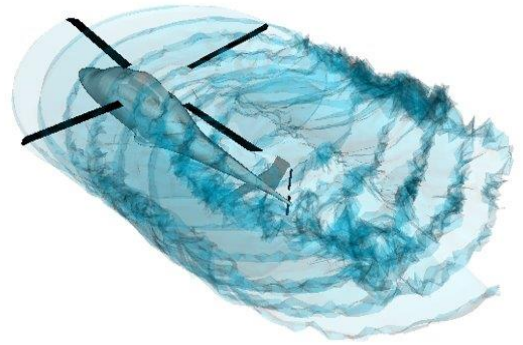
Development and application of novel testing techniques, advanced diagnostic methods, and test facilities. Topics of particular interest are detailed measurements of mean and turbulent flow phenomena that contribute to noise generation and/or affect the radiated sound; source localization, including phased arrays; properties of sound-absorbing materials; interior-noise test facilities and comparison of model and full-scale testing.

▪ Airframe / High-Lift Noise

Noise source mechanisms of flow/surface interaction as related to airframe acoustics. Measurement, analysis, and prediction methods for wing, flap, slat, and landing gear noise. Noise reduction strategies, including devices and methods of circulation and boundary layer control.

- **Community Noise, Sonic Boom, and Metrics**

Response of individuals and the community to aircraft noise. Virtual acoustic simulations. Noise assessment methodologies and metrics. Whole aircraft noise prediction, in-flight noise (including sonic boom). Airport noise prediction, including tools for land-use planning with respect to aircraft noise and noise monitoring methods. Noise abatement procedures.



- **Computational Aeroacoustics**

Development of numerical techniques for aeroacoustics applications, including integral methods, adjoint and scattering methods, turbulence-resolving methods such as Large Eddy Simulation (LES) or Lattice Boltzmann Method (LBM), high order schemes and enabling methods such as boundary conditions and simulated turbulence generation. Applications of computational aeroacoustics in academic and industrial research.

- **Duct Acoustics**

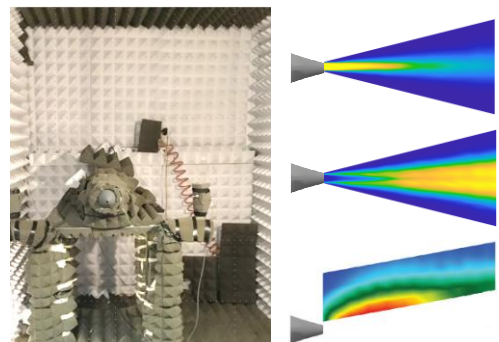
New and innovative methods to analyze, predict, and control the turbomachinery noise propagating through nacelle ducts. In-duct beamforming and source separation. Passive and active/adaptive acoustic liners.

- **General Acoustics**

Theoretical, numerical, and experimental research involving all areas of physical acoustics and those involving noise associated with commercial systems.

- **Interior Noise / Structural Acoustics and Metamaterials**

Reduction of interior noise and vibration associated with aircraft, launch vehicles, automobiles, and trains. Noise transmission through structures, vibroacoustic testing, and prediction methods. Acoustic metamaterials and mechanical metamaterials targeting noise reduction.

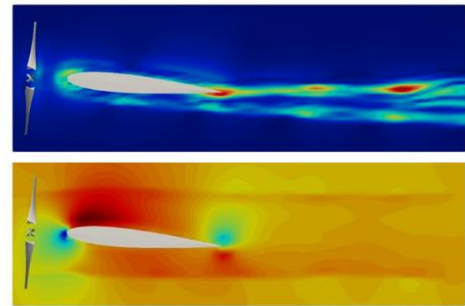


- **Jet Aeroacoustics**

Aerodynamics and aeroacoustics of jets focusing on identifying and modeling noise production mechanisms; near-field noise; shock noise; turbulence prediction and characterization for subsonic and supersonic, circular, noncircular, and multi-stream jets including those associated with launch vehicles; and suppression methods for both subsonic and supersonic jet noise.

- **Propeller, Rotorcraft and V/STOL Noise**

Conventional and advanced single and counter-rotating propellers; tonal and broadband noise; propagation and ground reflection effects; fuselage boundary layer refraction and scattering; noise source control; effects of inflow distortions; and installation effects. Rotorcraft source studies, including rotor harmonic noise, high-speed impulsive and blade/vortex interaction noise, blade/turbulence interaction noise, and jet/surface interaction noise, including both ground and aircraft surfaces. Component and system noise prediction and validation, ground and flight test measurements, and noise control/ reduction strategies. Gearbox noise.



- **Turbomachinery and Core Noise**

Generation, propagation, and control of noise from fans, compressors, and turbines; combustion noise; propagation and interaction with the mean flow field; transmission and reflection from blade and vane rows; control using active or passive techniques; and measurement techniques for source identification.

- **Urban Air Mobility / Unmanned Air Vehicle and Electric Aircraft**

Generation, propagation, and control of noise from urban air mobility and unmanned air vehicles, including propulsor, airframe, and electric motor noise. Operational noise, including in-flight noise, noise-based route selection, and research related to noise regulation.

COURSES, WORKSHOPS, SPECIAL SESSIONS

Special Session on Hybrid Anechoic Wind Tunnels hosted by William J. Devenport (Virginia Tech), devenport@vt.edu

Session Scope: The Hybrid Anechoic Tunnel Workshop is a forum that brings together researchers interested in hybrid anechoic aeroacoustic wind tunnels and their application. A major goal is to develop common test cases to cross-validate and characterize hybrid anechoic wind tunnels and provide data on canonical test cases to the broader aeroacoustics community.

The purpose of the special session is (a) for participants to present papers describing measurements on current common test cases (including NACA 63018, NACA 0012, and 30P30N airfoil configurations) or a configuration they would like to propose as a common test case, and (b) for participants to present papers describing quantitative and comparative characterizations, or methods for characterization, of Hybrid Anechoic Wind Tunnels using laser impulse calibration.

Fan Broadband Noise Panel hosted by Edmane Envia and Damiano Casalino: edmane.envia-1@nasa.gov, d.casalino@tudelft.nl

AWARDS

AIAA/CEAS Aeroacoustics Best Paper Award

Conference papers of superb technical quality, originality, and scholarly accuracy will be considered for the 2025 AIAA/CEAS Aeroacoustics Best Paper Award.

Student Paper Award

Undergraduate and graduate students are encouraged to submit papers to the Aeroacoustics Student Paper Competition by *selecting the "Student Paper Competition"* presentation type when uploading abstracts. Student papers should report on thesis-related work conducted in collaboration with faculty advisors. The primary author must have been a student in May 2024 and must present the paper. The award will be based on the technical quality of the paper and the clarity of the presentation. The winning student will receive a monetary award and certificate.

ABSTRACT SUBMISSION

Abstracts will be due no later than the **8th of December 2023**. Authors will be notified of paper acceptance by the 5th of February 2024.

Abstract Instructions

An extended abstract of at least 1000 words, with key figures and extended references to existing publications, is required. Authors must clearly identify in the abstract new or significant aspects of their work. Abstract reviewers will base their recommendations on the acceptance or rejection of the following:

1. Whether the abstracts meet the requirements described above
2. The relevance of the work
3. The originality of the work
4. Contribution to the field: Does it advance the current state of knowledge?
5. Are significant results presented to ensure timely completion of the paper?

An Authors' Kit containing detailed instructions and guidelines for submitting papers to AIAA will be made available to authors of accepted papers. Authors of accepted papers must provide a complete manuscript to AIAA online by the 1st of May 2024 for inclusion in online proceedings and for the right to present at the conference. It is the responsibility of those authors whose presentations or papers are accepted to ensure that a representative attends to present the paper. Sponsor and/or employer approval of each paper is the author's responsibility. Authors should determine the extent of approval necessary early in the paper presentation process to preclude paper withdrawals or late submission. The abstract submission system will be online and will open on the 16th of October, 2023 (please visit www.aidaa.it/aeroacoustics/ for details).

"No Paper, No Podium" and "No Podium, No Paper" Policies

If a written paper is not submitted by the final manuscript deadline, authors will not be permitted to present the paper at the conference. It is the responsibility of those authors

whose papers or presentations are accepted to ensure that a representative attends the conference to present the paper in person. If a paper is not presented at the conference, it will be withdrawn from the conference proceedings. These policies are intended to eliminate no-shows and to improve the quality of the conference for attendees.

IMPORTANT DATES

- 16 October 2023 - Launch of the call for abstracts
- 1 November 2023 - Opening of the registrations
- 8 December 2023 (18.00 US Eastern, Midnight Italy) - Extended abstract due
- 5 February 2024 - Notification to authors
- 15 February 2024 - Deadline for early-bird rates
- 10 April 2024 (18.00 US Eastern, Midnight Italy) - Complete manuscript for student competition e-mailed to Educational Subcommittee Chair
- 1 May 2024 - Complete manuscript submitted for online proceedings
- 5 May 2024 - Deadline for online registrations



Contact Information

Questions about abstracts should be referred to:

Kent Gee, kentgee@byu.edu – AIAA Technical Co-Chair

Francesco Marulo, francesco.marulo@unina.it – CEAS Technical Co-Chair

Roberto Camussi, roberto.camussi@uniroma3.it – Administrative Chair

Damiano Casalino, d.casalino@tudelft.nl – CEAS Student Paper Chair

Cliff Brown, clifford.a.brown@nasa.gov – AIAA Student Paper Chair

ABOUT AIDAA

AIDAA (www.aidaa.it), founded in 1920, was one of the first Aerospace Associations worldwide and aims to promote the development and diffusion of aeronautical and space science. AIDAA's journal is *Aerotecnica Missili e Spazio*, www.springer.com, launched and continuously released since 1920 and is now under the umbrella of Springer. Submissions to ATMS related to Aerospace Science and Engineering are welcome, including Aeronautics, Aviation, and Space.

AIDAA is the hosting society of three world congresses in 2024: the International Astronautical Congress (IAC 2024, Milano); the Congress of the International Council of Aeronautical Sciences (ICAS, Firenze); the AIAA/CEAS Aeroacoustics Congress (Roma). For the first time, these congresses are hosted by the same country just a few weeks apart. To pave the way to 2024, AIDAA launched the Aerospace Italy 2024 Initiative, www.aidaa.it/aerospaceitaly2024/, to promote and support the organization of events in Italy and define the Road to 2024. Please [visit www.aidaa.it/become-a-member/](http://www.aidaa.it/become-a-member/) to become a member of AIDAA and www.aidaa.it/support-us/ to support it.



CONFERENCE VENUE

Università degli Studi Roma Tre was founded in 1992. Their buildings and departments were built to pursue urban renewal of abandoned industrial areas of the city. The conference venue will be the Department of Humanities, which was formerly a factory of Alfa Romeo, the famous Italian car manufacturer. The plant was built in the 1930s and was mainly devoted to producing trucks and aircraft engines for the Italian Army. After World War II, the factory was reconverted for the production of racing cars and heavy-duty engines and for the assisted sale of cars. The old showroom is now the lecture hall of the Department of Humanities, with more than 500 seats. A permanent photographic exhibition pays tribute to those who made glorious the Alfa Romeo brand.

