

## **Applied Aerodynamics**

Papers are solicited in the areas of theoretical, experimental, and computational approaches to aerodynamics applications. Relevant areas of interest include, but are not limited to, flight or ground vehicle aerodynamic design, analysis of wing/rotor/vehicle aerodynamic performance, methods for modeling aerodynamic bodies, and novel studies or technological applications related to aerodynamic applications. Specific areas of interest are listed below:

- Aerodynamic Design: Analysis, Methodologies, and Optimization Techniques (joint session APA/MDO)
- Aerodynamic Testing: Ground, Wind-Tunnel, and Flight Testing (joint session APA/GT)
- Aerodynamic Flow Control: Analytical, Computational, and Experimental
- Aerodynamics of Inlets and Nozzles (joint session APA/HSABP/INPSI)
- Aero-Propulsive Interactions and Aerodynamics of Integrated Propeller Systems
- Airfoil/Wing/Configuration Aerodynamics (joint session APA/ACD)
- Applied Aeroelasticity and Aerodynamic-Structural Dynamics Interaction
- Applied Computational Fluid Dynamics
- Boundary-Layer Transition for Aerodynamic Applications
- CFD Methods for Aerodynamics Applications (joint session APA/CFD/MST)
- High-Speed and Low-Speed Flows: Optical Diagnostics and Experimental Techniques (joint session APA/PDL)
- Hypersonic Aerodynamics (joint session APA/FD)
- Integration of Ground Testing with CFD and Flight Testing (joint session APA/GT)
- Low Speed, Low Reynolds Number Aerodynamics
- Missile/Projectile/Munition Aerodynamics, Carriage & Store Separation
- Propeller/Rotorcraft/Wind Turbine Aerodynamics
- Reduced Order Aerodynamics Modeling & System Identification
- Small/Medium Uncrewed, Bio-Inspired, and Solar Powered Aircraft Systems (joint session APA/TF)
- Transonic and Supersonic Aerodynamics (joint session APA/SPSN)
- Unsteady Aerodynamics and Massively Separated Flows (joint session APA/FD)

### **Call for Paper Special Sessions:**

- Special Session: Overview of the X-59 Supersonic Flight Test Activities (invited)
- Special Session: Cavity Flow Effects on Stores and Store Separation (not invited)
- Special session: NATO/STO AVT-351 on Enhanced Computational Performance and Stability & Control Prediction for NATO Military Vehicles (invited)
- Special Session: The North Atlantic Treaty Organization Science and Technology Organization (invited)
- Special Session: AVT-390: Further studies of the aerodynamic characteristics of a generic missile airframe (invited)

### **Special Session Details:**

**Session title:** Overview of the X-59 Supersonic Flight Test Activities

**Brief description:** This session will include invited papers and presentation pertaining to the preparation of the X-59 flight test.

**Is this an invited session?** YES

**POC:** Alaa Elmilgui

**Session title:** Cavity Flow Effects on Stores and Store Separation

**Type:** Special

**Description:** This session includes work regarding the study of cavity flow and its effects on stores and store separation. Papers are solicited that cover CFD, experiment, and flight test investigations into the fluid dynamics of cavity flow and their effect on stores in carriage and during separation. Also, innovative analysis techniques and development of analysis tools are solicited.

**Is this an invited session?** NO

**POC:** Christopher Coley ([christopher.coley@afacademy.af.edu](mailto:christopher.coley@afacademy.af.edu)); Bruce Jolly ([bruce.jolly@afacademy.af.edu](mailto:bruce.jolly@afacademy.af.edu))

**Session title:** NATO/STO AVT-351 on Enhanced Computational Performance and Stability & Control Prediction for NATO Military Vehicles”

**Description:** This invited special session will focus on outcomes of the NATO/STO AVT-351 Research Task Group. The reliable and efficient prediction of performance characteristics is essential for the design and performance assessment of modern military vehicles in the air and maritime domains. Besides experimental and numerical full order approaches for data generation and validation, several reduced order modeling techniques are investigated within this NATO/STO activity. The goal is to evaluate and assess those methods regarding their predictive capabilities and applicability in subsequent scenarios.

**Is this an invited session?** YES

**POC:** Mario Stradtner ([mario.stradtner@dlr.de](mailto:mario.stradtner@dlr.de))

**Session Title:** The North Atlantic Treaty Organization Science and Technology Organization

**Description:** This special session is organized to provide a collaborative platform between AIAA and NATO STO communities. All NATO STO members are welcomed to contribute by submitting a technical paper or put together an oral presentation.

**Is this an invited session?** YES

**POC:** Mehdi Ghoreyshi (Mehdi.Ghoreyshi.Crt@afacademy.af.edu )

**Session Title:** AVT-390: Further studies of the aerodynamic characteristics of a generic missile airframe

**Description:** To provide an update on the material presented to SciTech in 2022, reviewing the progress (both with respect to CFD and wind tunnel testing) made in studying the AVT-316 LK6E2 test case.

**Is this an invited session?** YES

**POC:** Nigel J. Taylor ([nigel.j.taylor@mbda-systems.com](mailto:nigel.j.taylor@mbda-systems.com))