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
- Aerodynamic Testing: Ground, Wind-Tunnel, and Flight Testing
- Aerodynamics of Inlets and Nozzles (joint session APA/ INPSI)
- Aero-Propulsive Interactions and Aerodynamics of Integrated Propeller Systems
- Airfoil/Wing/Configuration Aerodynamics
- Applied Aeroelasticity and Aerodynamic-Structural Dynamics Interaction
- Applied Computational Fluid Dynamics
- Aerodynamic Flow Control: Analytical, Computational, and Experimental
- Boundary-Layer Transition for Aerodynamic Applications
- Hypersonic Aerodynamics
- Low Speed, Low Reynolds Number Aerodynamics
- Missile/Projectile/Munition Aerodynamics, Carriage & Store Separation
- Propeller/Rotorcraft/Wind Turbine Aerodynamics
- Reduced Order Aerodynamics Modeling & System Identification
- Thermal protection system design (joint session APA/TP)
- Transonic & Supersonic Aerodynamics
- Unmanned, Bio-Inspired, Solar Powered Aerial Vehicle Design
- Unsteady Aerodynamics
- Other Topics in Applied Aerodynamics

Call for Paper Special Sessions:

- Special Session: Aerodynamic Design Applications Using the NASA CDISC Design Method (Invited)
- Special Session: Drag Prediction Workshop VII-Expanding the Envelope (invited)
- Special Session: High-Lift CFD Predictions and Flow Measurements (invited)
- Special Session: North Atlantic Treaty Organization Science and Technology Organization (invited)

Special Session Details:

Invited Special Session:
Aerodynamic Design Applications Using the NASA CDISC Design Method (Invited)
This session includes work highlighting a variety of applications of the NASA Constrained Direct Iterative Surface Curvature (CDISC) design method. CDISC is a knowledge-based design tool that is used to produce rapid and robust aerodynamic designs. Applications include wing designs (turbulent, natural laminar flow, and slotted airfoils), off-body interference surfaces, and propulsion-airframe integration studies.

POC: Michelle Lynde <michelle.n.lynde@nasa.gov>

Invited Special Session
Drag Prediction Workshop VII-Expanding the Envelope
POC Brent W. Pomeroy <brent.w.pomeroy@nasa.gov>

Invited Special Session
High-Lift CFD Predictions and Flow Measurements
Description: Papers are solicited that cover both CFD predictions and flow measurements of high-lift aerodynamic configurations. Of particular interest is the high-lift common research model (CRM-HL), an open configuration representative of those found on modern commercial airliners. As stated in AIAA-2020-2771, "an effort is underway to create an ecosystem around this geometry set that will enable multiple users to collaborate on key common configurations that produce flow physics scenarios of shared interest." Innovative measurements (including off-body) and computations (including scale-resolving) near maximum lift conditions are also solicited.
POC Christopher L. Rumsey <c.l.rumsey@nasa.gov>

Invited Special Session
North Atlantic Treaty Organization Science and Technology Organization
POC: Mehdi Ghoreyshi <Mehdi.Ghoreyshi.Ctr@afacademy.af.edu>

Invited Special Session
X-59 Wind Tunnel Model CFD Predictions and Wind Tunnel Measurements
POC Alaa Elmiligui <alaa.a.elmiligui@nasa.gov>