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 Optimisation Techniques
- Aerodynamic Prediction Methods, Aircraft Flight Dynamics, Handling Qualities, and Performance
- Aerodynamic Testing: Ground, Wind-Tunnel, and Flight Testing
- Aerodynamic-Structural Dynamics Interaction
- Aero-Propulsive Interaction (Intake/Exhaust Aerodynamics)
- Airfoil/Wing/Configuration Aerodynamics
- Applied CFD Modeling & Numerical Corrections with Experimental Data
- Drag Reducing Materials
- High Angle of Attack and High-Lift Aerodynamics
- Hypersonic Aerodynamics
- Low Speed, Low Reynolds Number Aerodynamics
- Propeller/Rotorcraft/Wind Turbine Aerodynamics
- Reduced Order Aerodynamic Modeling & System Identification
- Transonic & Supersonic Aerodynamics
- Unmanned, Bio-Inspired, Solar Powered Aerial Vehicle Design
- Unsteady Aerodynamics
- Vortical/Vortex Flow Aerodynamics
- VSTOL/STOL Applications
- Other Topics in Applied Aerodynamics

CFP Special Sessions:

- Special Session: Aeroscience M&S through Experimental and Computational Integration
- Special Session: Automotive/Ground Vehicle Aerodynamics
- Special Session: CFD Transition Modeling and Prediction
- Special Session: TRUflow: Thrust Reverser Unit Flow Visualization
- Special Session: Aerodynamics and Performance of Integrated Propellers

Special Session Details:

Special Session:

CFD Transition Modeling and Prediction

Description:
This Special Session is a follow-on from the 1st AIAA CFD Transition Modeling and Prediction Workshop held in January 2021. In this session, authors/presenters will focus on the numerical aspects of CFD transition prediction using test cases defined APATC CFD Transition Modeling Discussion Group

Contact:
Jim Coder (jcoder@utk.edu) for details.

Special Session:
Aerodynamics and Performance of Integrated Propellers

Description:
This Special Session focuses on the prediction of wing-integrated propeller effects on the aerodynamics and performance of the overall system. Numerical simulations of powered wind tunnel tests with a wingtip-mounted propeller configuration are conducted and correlated to the obtained test data. Numerical models may be of any fidelity level. Although the primarily researched, generic configuration is a wingtip-mounted propeller on a high-aspect-ratio wing representative of the X-57 Maxwell, papers/presentations on similar configurations are also welcome. Presentations with and without paper are both welcome.

Contact:
Juergen Rauleder (juergen.rauleder@gatech.edu)

Special Session:

Aeroscience M&S through Experimental and Computational Integration

Description:
This Special Session focuses on the prediction of wing-integrated propeller effects on the aerodynamics and performance of the overall system. Numerical simulations of powered wind tunnel tests with a wingtip-mounted propeller configuration are conducted and correlated to the obtained test data. Numerical models may be of any fidelity level. Although the primarily researched, generic configuration is a wingtip-mounted propeller on a high-aspect-ratio wing representative of the X-57 Maxwell (from the WIPP workshop), papers/presentations on similar configurations with prop-wing interactions are welcome. Presentations with and without paper are both welcome.
Joint Effort: Applied Aerodynamics & Ground Testing

Contact:

Keith Bergeron (keith.bergeron2.civ@mail.mil); Steve Dunn (steven.c.dunn@nasa.gov)

Special Session:
TRUflow: Thrust Reverser Unit Flow Visualization. Overview of numerical and experimental

Description:
Presentation of the experimental and numerical results from the Clean Sky project TRUflow covering numerical and experimental data from the project. The main achievement in the project is the miniaturized optical system that allow internal PIV measurement from the blocker door point of view.

Contact:

Dr Adam Preece (apreece@ara.co.uk)

Special Session:
Automotive/Ground Vehicle Aerodynamics

Contact:

Dr. Eric Jaccuzi(ejacuzzi@nascar.com)
