



CFD Vision 2030 Integration Committee AIAA SciTech 2025 Call for Papers Abstract due date: May 23, 2024

The CFD2030 Vision report laid out a bold vision for future computational capabilities and their potential impact on aerospace engineering and design, and recommended the establishment of Grand Challenges (GCs) to drive CFD technology development. Since 2021, four GCs have been developed and published in key technical areas: high-lift aerodynamics (AIAA Paper 2021-0955), full engine simulation (2021-0956), CFD-in-the-loop for space vehicle design (2021-0957), and hypersonics (2024-0683). Under the CFD2030 topic, we are soliciting papers that address current efforts to advance CFD technology, to both highlight the current state-of-the-art and to help identify where technology advancements are needed to make significant progress towards achieving the GCs.

- **CFD on Large-Scale Meshes for Applied Aerodynamics (Joint APA/CFD2030/MVCE)**
- **CFD technology to predict aerodynamic characteristics at the edges of the flight envelope**
- **Development of AI/ML for CFD applications**
- **Development of high-resolution aerodynamic databases including Uncertainty Quantification (UQ)**
- **Development of propulsion-related simulations toward Full Engine Simulation**
- **Development of testing techniques or datasets to validate hypersonic multi-disciplinary analysis**
- **Development of testing techniques to validate coupled aero/structural computational analysis**
- **Visualization and Knowledge Extraction of Large Data Sets (Joint APA/CFD2030/MVCE)**