



SPCEET RESEARCH SEMINAR SERIES

Dr. Roy Hartfield

Roy J. Hartfield, Jr. is the Walt and Virginia Woltosz Professor of Aerospace Engineering at the Samuel Ginn College of Engineering and a Consultant for Altair Engineering. He holds a Ph.D. in Mechanical and Aerospace Engineering from the University of Virginia (1991). Dr. Hartfield's technical interests include the optimization of aerospace systems, propulsion, and experimental and analytic aerodynamics. He has taught short courses in propulsion for NASA, DoD, and the University of Kansas and he is the 2018 recipient of the Herman Oberth Award for his work in Propulsion. Dr. Hartfield co-founded Research in Flight, now a subsidiary of Altair, which develops and markets FlightStream® worldwide. For his work in aerodynamics, Dr. Hartfield was selected to receive the American Institute of Aeronautics and Astronautics (AIAA) Award for Applied Aerodynamics in June 2023. Dr. Hartfield is active as a Fellow of the American Society of Mechanical Engineers and as an Associate Fellow in the AIAA, having served as a member of the High-Speed Airbreathing Propulsion Technical Committee, a member of the Applied Aerodynamics Technical Committee, and as Technical Chair of the 25th AIAA Applied Aerodynamics Conference.

Potential and Related Methods for Efficient Aerodynamic Analysis

This talk will offer a practical window into the use of methods that leverage analytic formulations of aerodynamic problems with reduced order meshes to produce mid-fidelity assessments of the aerodynamic performance of air vehicles. Tools built on these methods can offer much better assessments than simple or empirical methods for a diversity of vehicle geometries, thereby providing well-informed technical guidance during early design. A review of methods used for grid fin aerodynamic analysis and classic panel methodologies will be reviewed. Illustratively, results from an all-vorticity formulated panel method will be shown for geometries of high current interest. Realistic effects such as propeller wash, boundary layer modeling, separation, unsteady effects, control surfaces, and ducted rotor designs will be incorporated into the presentation.

Date:

Wednesday, January 22nd

Time:

11:15AM - 12:15 PM

Location:

Q-315