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Nota di contenuto	Analysis of the Boundary Layer on a Highly Flexible Wing based on Infrared Thermography Measurements -- Numerical Investigation of a Spoiler Effect on the Transonic Flutter Boundary -- Measuring the Oncoming Flow that Operational Freight-Trains Experience using the DLR FR8-LAB -- Experimental and Numerical Investigation of Passive Measures to Limit Aerodynamic Forces on Wind Turbine Rotor Blades -- A Miniature Flow Sensor Capable of Determining the Instantaneous High-Frequency Wall Shear Stress Fluctuations in Magnitude and

Direction -- Pressure Waves and Flow Induced by a Train in a Tunnel -- Construction of a Flow Test Rig with a Predefined Shape of the Boundary Layer to Investigate sand Absorption by Side Flaps on a High-Speed Train -- Analysis of the Unsteady Loads on Train Models in Wind Tunnels -- Low-order Modeling of Bistable Side Forces on a Sphere Measured for a Transient Inflow in a Wind Tunnel -- Effects of Jet-Orifice Shape on the Flow-Control Effectiveness of Air-Jet Vortex Generators -- Discovering Latent Physical Variables from Experimental Data in Supersonic Flow using Physics-Informed Neural Networks (PINNs) -- Surrogate Based Prediction of 2D Car Wake -- Validation for a Polyatomic Model in a Fokker-Planck Solver Based on the Extended Master Equation Ansatz -- Uncertainty Quantification of Expanding High-Enthalpy Air Flows -- Influences on Langmuir Probe Measurements by an ECR Thruster with Magnetic Nozzle.

Sommario/riassunto

This book offers timely insights into research on numerical and experimental fluid mechanics and aerodynamics, mainly for (but not limited to) aerospace applications. It reports on findings by members of the Deutsche Strömungsmechanische Arbeitsgemeinschaft, STAB (German Aerodynamics/Fluid Mechanics Association) and the Deutsche Gesellschaft für Luft- und Raumfahrt - Lilienthal Oberth e.V., DGLR (German Society for Aeronautics and Astronautics) and covers both nationally and EC-funded projects. Continuing on the tradition of the previous volumes, the book highlights innovative solutions, promoting translation from fundamental research to industrial applications. It addresses academics and professionals in the field of aeronautics, astronautics, ground transportation, and energy alike.