

Comparison of Numerical Results of Lambda Wing under Different Turbulence Models and Wall Y+

Authors : Hsien Hao Teng

Abstract : This study uses numerical simulation to analyze the aerodynamic characteristics of the 53-degree Lambda wing with a sweep angle and mainly discusses the numerical simulation results and physical characteristics of the wall y+. Use the commercial software Fluent to execute Mach number 0.15; when the angle of attack attitude is between 0 degrees and 27 degrees, the physical characteristics of the overall aerodynamic force are analyzed, especially when the fluid separation and vortex structure changes are discussed under the condition of high angle of attack, it will affect The instability of pitching moment. In the numerical calculation, the use of wall y+ and turbulence model will affect the prediction of vortex generation and the difference in structure. The analysis results are compared with experimental data to discuss the trend of the aerodynamic characteristics of the Lambda wing.

Keywords : lambda wing, wall function, turbulence model, computational fluid dynamics

Conference Title : ICAADT 2022 : International Conference on Aerodynamics, Aerodynamic Development and Testing

Conference Location : Miami, United States

Conference Dates : March 11-12, 2022