

# **Integrative Numerical Simulation by Aerodynamics, Flight Dynamics and Flight Control Coupling**

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**Abstract:** To develop the integrative numerical simulation method by aerodynamics, flight dynamics and flight control coupling, is very important to research the characteristic and mechanism of the coupling between the motion parameters and the aerodynamic parameters, and evaluate and validate the flight control law of the modern high-performance vehicles during the maneuvering. In this paper, the integrative numerical simulation method and the grid deformation technique are firstly introduced. Then, the numerical simulation for a typical missile with the condition of open-loop control with control surface deflection and closed-loop control with the flight control law is performed, and contrasted with the results of the wind tunnel experiment. It is showed that the capability of integrative numerical simulation has been preliminarily possessed at present.