Analysis of Low-Speed Unsteady Airfoil Flows

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Résumé ou extrait : This book provides an introduction to unsteady aerodynamics with emphasis on the analysis and computation of inviscid and viscous two-dimensional flows over airfoils at low speeds. It begins with a discussion of the physics of unsteady flows and an explanation of lift and thrust generation, airfoil flutter, gust response and dynamic stall. This is followed by an exposition of the four major calculation methods in currents use, namely inviscid-panel, boundary-layer, viscous-inviscid interaction and Navier-Stokes methods. Undergraduate and graduate students, teachers, scientists and engineers concerned with aeronautical, hydronautical and mechanical engineering problems will gain understanding of the physics of unsteady low-speed flows and an ability to analyze these flows with modern computational methods.