



Aeroelasticity: The Continuum Theory

By A. V. Balakrishnan

Springer-Verlag New York Inc., United States, 2014. Paperback. Book Condition: New. 2012 ed.. 235 x 155 mm. Language: English Brand New Book ***** Print on Demand *****. The author's approach is one of continuum models of the aerodynamic flow interacting with a flexible structure whose behavior is governed by partial differential equations. Both linear and nonlinear models are considered although much of the book is concerned with the former while keeping the latter clearly in view. A complete chapter is also devoted to nonlinear theory. The author has provided new insights into the classical inviscid aerodynamics and raises novel and interesting questions on fundamental issues that have too often been neglected or forgotten in the development of the early history of the subject. The author contrasts his approach with discrete models for the unsteady aerodynamic flow and the finite element model for the structure. Much of the aeroelasticity has been developed with applications formerly in mind because of its enormous consequences for the safety of aircraft. Aeroelastic instabilities such as divergence and flutter and aeroelastic responses to gusts can pose a significant hazard to the aircraft and impact its performance. Yet, it is now recognized that there are many other...



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