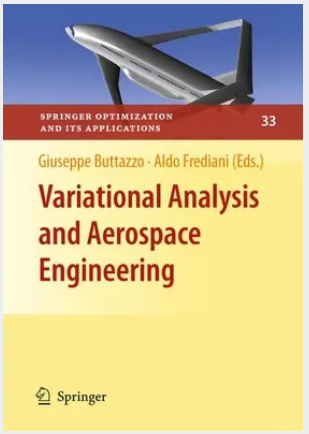
Buttazzo / Frediani

Variational Analysis and Aerospace Engineering

In recent years, new mathematical methods and tools have been developed and - plied extensively in the ?eld of aerospace engineering, for example, ?nite element method,computational ?uiddynamics, optimization,control,eigenvalues problems. The interaction between aerospace engineering and mathematics has been sign- cant in the past for both engineers and mathematicians and will be even stronger in the future. The School of Mathematics “Guido Stampacchia” of the “Ettore Majorana” FoundationandCentreofScienti?cCultureisthemostappropriatesiteforaerospace engineers and mathematicians to meet. The present volume collects the papers p- sented at the Erice Workshop held on September 8–16, 2007, which was organized in order to allow aerospace engineers and mathematicians from Universities, - search Centres, and Industry to debate advanced problems in aerospace engineering requiring extensive mathematical applications. Theeditorsarecon? denttocapturetheinterestofpeoplefrombothacademiaand industry, particularly, young researchers working on new frontiers of mathematical applications to engineering. The workshop was dedicated to Angelo Miele, Professor at Rice University in Houston, on the occasion of his 85th birthday. Angelo Miele is both an eminent mathematician and a famous engineer, among other activities, able to conceive new scenarios for space exploration. He has been the advisor of many PhD students at Houston, who became well-known professors in universities worldwide and are speakers at this workshop.

Algorithm Issues and Challenges Associated with the Development of Robust CFD Codes.- Flight Path Optimization at Constant Altitude.- A survey on the Newton problem of optimal profiles.- Innovative Rotor Blade Design Code.- Fields of Extremals and Sufficient Conditions for the Simplest Problem of the Calculus of Variations in -Variables.- A Framework for Aerodynamic Shape Optimization.- Optimal Motions of Multibody Systems in Resistive Media.- Instationary Heat-Constrained Trajectory Optimization of a Hypersonic Space Vehicle by ODE#x2013;PDE-Constrained Optimal Control.- Variational Approaches to Fracture.- On the Problem of Synchronization of Identical Dynamical Systems: The Huygens#x2019;s Clocks.- Best wing system: an exact solution of the Prandtl#x2019;s problem.- Numerical simulation of the dynamics of boats by a variational inequality approach.- Concepts of Active Noise Aircraft Cockpits Reduction Employed in High Noise Level.- Lekhnitskii#x2019;s Formalism for Stress Concentrations Around Irregularities in Anisotropic Plates: Solutions for Arbitrary Boundary Conditions.- Best Initial Conditions for the Rendezvous Maneuver.- Commercial Aircraft Design for Reduced Noise and Environmental Impact.- Variational Approach to the Problem of the Minimum Induced Drag of Wings.- Plastic Hinges in a Beam.- Problems of Minimal and Maximal Aerodynamic Resistance..- Shock Optimization for Airfoil Design Problems.- Differential Games Treated by a Gradient#x2013;Restoration Approach.- Interval Methods for Optimal Control.- Application of Optimisation Algorithms to Aircraft Aerodynamics.- Different levels of Optimization in Aircraft Design.- Numerical and Analytical Methods for Global Optimization.- The Aeroservoelasticity Qualification Process in Alenia.- Further Steps towards Quantitative Conceptual Aircraft Design.- Some Plebeian Variational Problems.



213,99 €
199,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780387958569
Medium: Buch
ISBN: 978-0-387-95856-9
Verlag: Springer
Erscheinungstermin: 05.08.2009
Sprache(n): Englisch
Auflage: 1. Auflage 2009
Serie: Springer Optimization and Its Applications
Produktform: Gebunden
Gewicht: 929 g
Seiten: 518
Format (B x H): 160 x 241 mm