Record Nr. UNINA9910814427503321 Computational structural mechanics and fluid dynamics: advances and **Titolo** trends / / editors, Ahmed K. Noor, Douglas L. Dwoyer Pubbl/distr/stampa Oxford, England:,: Pergamon Press plc,, 1988 ©1988 **ISBN** 1-4832-8704-1 Descrizione fisica 1 online resource (467 p.) Disciplina 624.17 Soggetti Structural analysis (Engineering) - Data processing Fluid dynamics - Data processing Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Front Cover: Computational Structural Mechanics and Fluid Dynamics: Nota di contenuto Advances and Trends; Copyright Page; Table of Contents; ANNOUNCEMENT; USING THE SOFTSTRIP PROCESS FOR PUBLISHING SOFTWARE AND DATA IN PERGAMON JOURNALS: CONTRIBUTOR'S INSTRUCTIONS; PREFACE; Part I: Fluid Structure Interaction and Aeroelasticity; CHAPTER 1. INTERACTION OF FLUIDS AND STRUCTURES FOR AIRCRAFT APPLICATIONS: INTRODUCTION: HISTORICAL PERSPECTIVE; GOVERNING AERODYNAMICS EQUATIONS AND APPROXIMATIONS; AEROELASTIC EQUATIONS OF MOTION; AEROELASTIC RESULTS FROM THE TSP THEORY AEROELASTIC CALCULATIONS USING UNSTEADY EULER/NAVIER-STOKES EQUATIONSFUTURE DIRECTIONS AND CONCLUDING REMARKS; REFERENCES; CHAPTER 2. AEROELASTIC COMPUTATIONS OF FLEXIBLE CONFIGURATIONS: INTRODUCTION: FORMULATION: RESULTS: CONCLUSIONS; REFERENCES; CHAPTER 3. RECENT ADVANCES IN TRANSONIC COMPUTATIONAL AEROELASTICITY; NOTATION; INTRODUCTION; TRANSONIC SMALL DISTURBANCE EQUATION; APPROXIMATE FACTORIZATION ALGORITHM; AEROELASTIC SOLUTION; CAP-TSD CODE; RESULTS AND DISCUSSION; CONCLUDING REMARKS; REFERENCES: Part II: CFD Technology and Reacting Flows

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REQUIREMENTS AND DEVELOPMENT: APPLICATIONS: CONCLUSIONS:

Sommario/riassunto

Computational structural mechanics (CSM) and computational fluid dynamics (CFD) have emerged in the last two decades as new disciplines combining structural mechanics and fluid dynamics with approximation theory, numerical analysis and computer science. Their use has transformed much of theoretical mechanics and abstract science into practical and essential tools for a multitude of technological developments which affect many facets of our life. This collection of over 40 papers provides an authoritative documentation of major advances in both CSM and CFD, helping to identify future direction