

1. Record Nr.	UNINA9910969255003321
Titolo	Computational mechanics research trends // Hans P. Berger, editor
Pubbl/distr/stampa	Hauppauge, N.Y., : Nova Science Publishers, c2010
ISBN	1-61122-889-1
Edizione	[1st ed.]
Descrizione fisica	1 online resource (608 p.)
Collana	Computer science, technology and applications
Altri autori (Persone)	BergerHans P
Disciplina	621.01/51
Soggetti	Materials - Mathematical models Materials - Computer simulation Mechanical engineering - Mathematics Mechanics, Analytic
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 and index.
Nota di contenuto	""COMPUTATIONAL MECHANICS""; ""COMPUTATIONAL MECHANICS""; ""CONTENTS ""; ""PREFACE ""; ""A NATURAL NEIGHBOUR METHOD BASEDON FRAEIJS DE VEUBEKE VARIATIONAL PRINCIPLE""; ""Abstract""; ""Introduction""; ""Virtual Work Principle""; ""Approximation of the Displacement Field""; ""Discretized Virtual Work Principle""; ""Linear Elastic Theory""; ""The Fraeijs de Veubeke Functional""; ""The Fraeijs de Veubeke Variational Principle""; ""Domain Decomposition and Discretization""; ""Equations Deduced from the Fraeijs de Veubeke Variational Principle""; ""Matrix Notation""; ""Numerical Integration"" ""Patch Tests""""Application to Pure Bending""; ""Application to a Square Membrane with a Circular Hole""; ""Extention to non Linear Materials""; ""Variational Equation""; ""Domain Decomposition and Discretization""; ""Matrix Notation""; ""Solution of the Matrix Equations""; ""Elasto-plastic Material with von Mises Linear Hardening""; ""Patch Tests""; ""Pure Bending of a Beam""; ""Square Membrane with a Circular Hole""; ""Extention to Linear Fracture Mechanics""; ""Introduction""; ""Domain Decomposition and Discretization""; ""Solution of the Equation System""; ""Patch Tests"" ""Translation Tests""""Mode 1 Tests""; ""Mode 2 Tests""; ""Bar with a Single Edge Crack""; ""Conclusions""; ""Annex 1: Construction of the Voronoi Cells""; ""Case of a Convex Domain""; ""Case of a non Convex

Domain"; "Annex.2: Laplace Interpolant"; "Case of a Point X Inside the Domain"; "Case of a Point X on the Domain Contour"; "Annex 3. Particular Case of a Regular Grid of Nodes"; "Laplace Interpolant"; "Case 1: X between A and B"; "Case 2: X between B and C"; "Case 3: X between C and D"; "Annex 4. Introduction of the Hypotheses in the FdV Principle"; "Annex 5. Analytical Calculation of ΔV and $\Delta \epsilon$ "; "References"; "NUMERICAL AND THEORETICAL INVESTIGATIONS OF THE TENSILE FAILURE OF SHRUNK CEMENT-BASED COMPOSITES"; "Abstract"; "1. Introduction"; "1.1. Characteristics of Shrunken Concrete"; "1.2. Algorithm to Produce a Shrunken Specimen"; "1.3. Lattice-Type Modeling of Concrete"; "1.4. Paper Structure"; "2. GB Lattice Model"; "3. Method to Simulate Mismatch Deformation Due to Matrix Uniform Shrinkage"; "4. Global Numerical Procedure"; "4.1. Mohr-Coulomb Criterion"; "4.2. Event-By-Event Algorithm"; "5. Theoretical Analyses of Influences of Pre-stressed Field"; "6. Numerical Examples and Discussions"; "6.1. Production of Shrunken Specimens"; "6.2. Tensile Examples on Specimens without the Shrinkage-Induced Stress: Case 1 and Case 2"; "6.3. Analysis of a Typical Case for Shrunken Specimens: Case 3"; "6.4. Influence of the Shrinkage Rate: Case 3-5"; "7. Conclusions"; "Acknowledgments"; "References"; "RECENT ADVANCES IN THE STATIC ANALYSIS OF STIFFENED PLATES APPLICATION TO CONCRETE OR TO COMPOSITE STEEL-CONCRETE STRUCTURES"; "Abstract"; "Introduction"; "Statement of the Problem"

Sommario/riassunto

Computational mechanics is the discipline concerned with the use of computational methods to study phenomena governed by the principles of mechanics. This book gathers the latest research from around the globe in this dynamic field.
