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   Altri autori (Persone)   TaylorRobert L <1934-> (Robert Leroy)

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   Nota di contenuto   Front Cover; The Finite Element Method for Solid and Structural
                        Mechanics; Copyright Page; Contents; Preface; Chapter 1. General
                        problems in solid mechanics and non-linearity; 1.1 Introduction; 1.2
                        Small deformation solid mechanics problems; 1.3 Variational forms for
                        non-linear elasticity; 1.4 Weak forms of governing equations; 1.5
                        Concluding remarks; References; Chapter 2. Galerkin method of
                        approximation -irreducible and mixed forms; 2.1 Introduction; 2.2
                        Finite element approximation - Galerkin method; 2.3 Numerical
                        integration - quadrature
                        2.4 Non-linear transient and steady-state problems2.5 Boundary
                        conditions: non-linear problems; 2.6 Mixed or irreducible forms; 2.7
                        Non-linear quasi-harmonic field problems; 2.8 Typical examples of
                        transient non-linear calculations; 2.9 Concluding remarks; References;
                        Chapter 3. Solution of non-linear algebraic equations; 3.1 Introduction;
                        3.2 Iterative techniques; 3.3 General remarks - incremental and rate
                        methods; References; Chapter 4. Inelastic and non-linear materials; 4.1
                        Introduction; 4.2 Viscoelasticity - history dependence of deformation
                        4.3 Classical time-independent plasticity theory4.4 Computation of
                        stress increments; 4.5 Isotropic plasticity models; 4.6 Generalized

plasticity; 4.7 Some examples of plastic computation; 4.8 Basic formulation of creep problems; 4.9 Viscoplasticity - a generalization; 4.10 Some special problems of brittle materials; 4.11 Non-uniqueness and localization in elasto-plastic deformations; 4.12 Non-linear quasi-harmonic field problems; 4.13 Concluding remarks; References; Chapter 5. Geometrically non-linear problems - finite deformation; 5.1 Introduction; 5.2 Governing equations

5.3 Variational description for finite deformation5.4 Two-dimensional forms; 5.5 A three-field, mixed finite deformation formulation; 5.6 A mixed-enhanced finite deformation formulation; 5.7 Forces dependent on deformation- pressure loads; 5.8 Concluding remarks; References; Chapter 6. Material constitution for finite deformation; 6.1 Introduction; 6.2 Isotropic elasticity; 6.3 Isotropic viscoelasticity; 6.4 Plasticity models; 6.5 Incremental formulations; 6.6 Rate constitutive models; 6.7 Numerical examples; 6.8 Concluding remarks; References

Chapter 7. Treatment of constraints - contact and tied interfaces7.1 Introduction; 7.2 Node-node contact: Hertzian contact; 7.3 Tied interfaces; 7.4 Node-surface contact; 7.5 Surface-surface contact; 7.6 Numerical examples; 7.7 Concluding remarks; References; Chapter 8. Pseudo-rigid and rigid-flexible bodies; 8.1 Introduction; 8.2 Pseudo-rigid motions; 8.3 Rigid motions; 8.4 Connecting a rigid body to a flexible body; 8.5 Multibody coupling by joints; 8.6 Numerical examples; References; Chapter 9. Discrete element methods; 9.1 Introduction; 9.2 Early DEM formulations; 9.3 Contact detection

9.4 Contact constraints and boundary conditions

Sommario/riassunto	This is the key text and reference for engineers, researchers and senior students dealing with the analysis and modelling of structures - from large civil engineering projects such as dams, to aircraft structures, through to small engineered components. Covering small and large deformation behaviour of solids and structures, it is an essential book for engineers and mathematicians. The new edition is a complete solids and structures text and reference in its own right and forms part of the world-renowned Finite Element Method series by Zienkiewicz and Taylor. New material in this editi