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   Soggetti   Mechanics, Applied
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   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

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   Note generali   Includes index.

   Nota di contenuto   Introduction -- Basic tensor analysis -- Kinematics -- Balance laws for the purely mechanical theory -- Purely mechanical constitutive equations -- Thermomechanical Theory -- Eigenvalues, Eigenvectors, and Principal Invariants of a Tensor -- Consequences of Continuity -- Lagrange Multipliers -- Stationary Values of Normal And Shear Stresses -- Isotropic Tensors -- An introduction to tensors with respect to curvilinear coordinates -- Summary of tensor operations in specific coordinate systems.

   Sommario/riassunto   This book focuses on the need for an Eulerian formulation of constitutive equations. After introducing tensor analysis using both index and direct notation, nonlinear kinematics of continua is presented. The balance laws of the purely mechanical theory are discussed along with restrictions on constitutive equations due to superposed rigid body motion. The balance laws of the thermomechanical theory are discussed and specific constitutive equations are presented for: hyperelastic materials; elastic–inelastic materials; thermoelastic–inelastic materials with application to shock

waves; thermoelastic–inelastic porous materials; and thermoelastic–inelastic growing biological tissues.