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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1 On Some Classes of 3D Boundary-Value Problems of Statics and Dynamics of Plates and Shells,- 2 On the Theories of Plates and Shells at the Nanoscale -- 3 Chaotic Vibrations of Conical and Spherical Shells and Their Control -- 4 Nonclassical Shell Theories in Ocular Biomechanics -- 5 Linear Oscillations of Suspended Graphene -- 6 On Discrete-Kirchhoff Plate Finite Elements: Implementation and Discretization Error -- 7 Shell Theory-Based Estimation of Local Elastic Characteristics of Biological Cells -- 8 On the Direct Approach in the Theory of Second Gradient Plates -- 9 A Shell Theory for Carbon Nanotube of Arbitrary Chirality -- 10 Finite Axisymmetric Deformation of an Inflatable Anisotropic Toroidal Membrane -- 11 Simulation of Cardiac Cell-Seeded Membranes Using the Edge-Based Smoothed FEM -- 12 Determining the Modulus of Elasticity for Polymer Materials by Numerical Testing Thin-walled Double-layer Circular Shells -- 13 Three-Dimensional Exact Analysis of Functionally Graded Laminated

Composite Plates -- 14 Prediction of Eigenfrequencies of the Middle Ear Oscillating System after Tympanoplasty and Stapedotomy -- 15 A New Approach for Studying Nonlinear Dynamic Response of a Thin Fractionally Damped Plate with 2:1 and 2:1:1 Internal Resonances -- 16 On Stability of Inhomogeneous Elastic Cylinder of Micropolar Material -- 17 A New Approach for Studying Nonlinear Dynamic Response of a Thin Fractionally Damped Cylindrical Shell with Internal Resonances of the Order of e.

Sommario/riassunto

This book presents the latest results related to shells characterize and design shells, plates, membranes and other thin-walled structures, a multidisciplinary approach from macro- to nanoscale is required which involves the classical disciplines of mechanical/civil/materials engineering (design, analysis, and properties) and physics/biology/medicine among others. The book contains contributions of a meeting of specialists (mechanical engineers, mathematicians, physicists and others) in such areas as classical and non-classical shell theories. New trends with respect to applications in mechanical, civil and aero-space engineering, as well as in new branches like medicine and biology are presented which demand improvements of the theoretical foundations of these theories and a deeper understanding of the material behavior used in such structures.