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Nota di contenuto	Intro -- Organisation -- Preface -- Contents -- Complex Media: Micropolar Theory, Chemomechanics, Acoustic Metamaterials etc. -- Moment-Membrane Dynamic Theory of Elastic Thin Shells and Variational Principles -- 1 Introduction -- 2 Basic Equations and Relations of the Three-Dimensional Moment Dynamic Theory of Elasticity with Independent Fields of Displacements and Rotations -- 3 Basic Hypotheses Displacements and Rotation Deformations and Bending-Torsions, Stresses and Moment Stresses -- 4 General Variational Principle of Hu-Washizu Type Basic Equations and Boundary Conditions of the Moment-Membrane Dynamic Theory of Elastic Thin Shells -- 5 The Virtual Work Principle and the Basic Energy Equality of the Moment-Membrane Dynamic Theory of Elastic Thin Shells -- 6 A Case When the Causes of Deformation and Motion of the Shell Change Harmonically in Time -- 7 The Principle of Hamilton's Type

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Sommario/riassunto

This book focuses on original theories and approaches in the field of mechanics. It reports on both theoretical and applied researches, with a special emphasis on problems and solutions at the interfaces of mechanics and other research areas. The respective chapters highlight cutting-edge works fostering development in fields such as micro- and nanomechanics, material science, physics of solid states, molecular physics, astrophysics, and many others. Special attention has been given to outstanding research conducted by young scientists from all over the world. This book is based on the 49th edition of the international conference “Advanced Problems in Mechanics”, which was held on June 21-25, 2021, in St. Petersburg, Russia, and co-organized by The Peter the Great St. Petersburg Polytechnic University and the Institute for Problems in Mechanical Engineering of the Russian Academy of Sciences, under the patronage of the Russian Academy of Sciences. It provides researchers and graduate students with an extensive overview of the latest research and a source of inspiration for future developments and collaborations in mechanics and related fields.