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| Nota di contenuto | Contents; Foreword; Preface; Chapter 1: Elements of the Linear Theory of Elasticity; 1.01 Notation; 1.02 Principle of Conservation of Energy; 1.03 Hooke's Law; 1.04 Constants of Elasticity; 1.05 Uniqueness of Solutions; 1.06 Variational Equation of Motion 1.07 Displacement-Equations of Motion Chapter 2: Solutions of the Three-Dimensional Equations; 2.01 Introductory; 2.02 Simple Thickness-Modes in an Infinite Plate; 2.03 Simple Thickness-Modes in an Infinite, Isotropic Plate; 2.04 Simple Thickness-Modes in an Infinite, Monoclinic Plate; 2.05 Simple Thickness-Modes in an Infinite, Triclinic Plate 2.06 Plane Strain in an Isotropic Body 2.07 Equivoluminal Modes; 2.08 Wave-Nature of Equivoluminal Modes; 2.09 Infinite, Isotropic Plate Held between Smooth, Rigid Surfaces (Plane Strain); 2.10 Infinite, Isotropic Plate Held between Smooth, Elastic Surfaces (Plane Strain); 2.11 Coupled Dilatational and Equivoluminal Modes in an Infinite, Isotropic Plate with Free Faces (Plane Strain) 2.12 Three-Dimensional Coupled Dilatational and Equivoluminal Modes in an Infinite Isotropic Plate with Free Faces 2.13 Solutions in |

Cylindrical Coordinates; 2.14 Additional Boundaries; Chapter 3: Infinite Power Series of Two-Dimensional Equations; 3.01 Introductory 3.02 Stress-Equations of Motion 3.03 Strain; 3.04 Stress-Strain Relations; 3.05 Strain-Energy and Kinetic Energy; 3.06 Uniqueness of Solutions; 3.07 Plane Tensors; Chapter 4: Zero-Order Approximation; 4.01 Separation of Zero-Order Terms from Series 4.02 Uniqueness of Solutions

Sommario/riassunto

This book by the late R D Mindlin is destined to become a classic introduction to the mathematical aspects of two-dimensional theories of elastic plates. It systematically derives the two-dimensional theories of anisotropic elastic plates from the variational formulation of the three-dimensional theory of elasticity by power series expansions. The uniqueness of two-dimensional problems is also examined from the variational viewpoint. The accuracy of the two-dimensional equations is judged by comparing the dispersion relations of the waves that the two-dimensional theories can describe with pr
