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Nota di contenuto	Preface -- 1 Damage Behavior in Additive Manufacturing based on Infill

Pattern and Density with Carbon Particle Filled PolyLactic Acid (CF-PLA) Polymer Filaments -- 2 Advanced Mathematical Modeling of Moisture Transport in Polymer Composite Materials: State-of-the-Art and Numerical Computation -- 3 Natural Vibration and Stability of Prestressed Cylindrical Shells Containing Fluid -- 4 Creep and Fretting Wear Modelling for Rod-Cylinder Periodical Contacts -- 5 Influence of UV Irradiation on the Tensile Properties of Titanium Dioxide Composites for the Selective Laser Sintering Process -- 6 Ellipticity and Hyperbolicity Within Nonlinear Strain Gradient Elasticity: 1D Case -- 7 Dispersive and Dissipative Effects During the Propagation of Plane Shear Waves in Plates which Interact with Linear Elastic and Nonlinear Elastic Foundations -- 8 Effective Properties of Micropolar Laminated Media Under the Influence of Constitutive Property Rotation -- 9 Torsion of Non-Circular Functionally Graded Material Shafts -- 10 Biaxial Specimens for the Analysis of Ductile Damage and Fracture in Sheet Metals -- 11 Drying Mathematical Modeling of Clay Materials: State-of-the-Art Review and Engineering Applications -- 12 Contact Problem for a Piecewise Homogeneous Plane with a Finite Crack Under the Static Friction -- 13 Prediction of Static Macroscopic Material Behaviour of Additively Manufactured Metals through Crystal Plasticity Modelling -- 14 Phase Field Approach for Damage in Quasi-Brittle Polycrystalline Microstructures -- 15 Optimization of Welding Parameters on Friction Stir Welding of AA5052 Thin Plate by Using Taguchi Method -- 16 Hierarchical Models for the Thermoelastic Deformation of Chiral Porous Prismatic Shells -- 17 Energy Equivalence Based Estimation of Composite Materials Mechanical Properties -- 18 Advanced Materials Modelling in Joining by Plastic Deformation -- 19 Modeling the Accumulation of Damage in the Alloy IN738LC -- 20 Rotationally Symmetric Limit Surface for Hard Isotropic Foams -- 21 Considerations About Classical and Weak Solutions in a Thermoelastic Cosserat Body with Voids -- 22 Localized Modes of Anti-Plane Shear Vibrations of an Elastic Ultrathin Layer with a Free Upper Face Having Imperfections -- 23 Modelling the Elasto-Plastic Material Behavior of Textured Hexagonal Close-Packed Metals -- 24 Analysis on Fatigue Life of Mixing Tee Weldments Subjected to Dynamic Loadings in Piping Systems -- 25 Attraction Basins and Longitudinal Resonances in the Generalized Kapitsa Problem for the Inflexible Longitudinally Deformable Rod -- 26 Generation of Bending Waves in a Mass-in-Mass Metamaterial -- 27 Thermoelasto-Plastic Modeling of Structural Steel: A Parameter Study on Residual Stress Concentrations in Ribbed Reinforcing Bars -- 28 Contact of the Stamp with an Elastic Half-Plane. Comparative Analysis of Models Accounting for Friction Between Them -- 29 Thermomechanical Properties of 3D-Printed Structures -- 30 A Direct and High-Efficiency Approach to Accurately Simulating Overall Bending Responses of Ultra-High Performance Fiber-Reinforced Concrete Beams up to Failure.

Sommario/riassunto

This volume illuminates exciting new developments and approaches of classical mechanical problems. The ongoing necessity for research in this field stems from the need for new engineering solutions that save our resources and supplies sustainability standards as well as further considerations such as recyclability and environmental compatibility. These demands stimulate the special design of materials, e.g. composites. The interaction between materials and structures is related to different length scales and the combination of micro-, meso- or macroscale approaches results in new application possibilities. In addition, materials and structures are increasingly being analyzed under the influence of various physical fields.