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Disciplina	620.11
Soggetti	Structural materials Nanoscale science Nanoscience Nanostructures Electrochemistry Semiconductors Nanotechnology Ceramics Glass Composites (Materials) Composite materials Structural Materials Nanoscale Science and Technology Nanotechnology and Microengineering Ceramics, Glass, Composites, Natural Materials
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Nota di contenuto	From the contents: Effects of Modifying with Simple (MnO ₂ , CuO) and Combined (MnO ₂ +NiO, Bi ₂ O ₃ +Fe ₂ O ₃) Dopants of Multi-element Media Based on Alkali Niobates -- Fracture Prediction of the Self-adjusting File Using Force and Vibration Signature Analysis -- Application of Deep Convolutional Neural Networks in the Defects Identification

Problem -- Identification of Properties of a Piezopolymer Functionally Graded Disc in the Analysis of Radial Oscillations -- New Theory of Laser: Method of Density Matrix -- The Effect of High-Voltage Nanosecond Pulses on the Structural Defects and Technological Properties of Natural Dielectric Minerals -- Influence of Activity of Mineral Additives on Physico-Mechanical Properties of Concrete Compositions -- Rapid in-situ Remediation of Glass Fiber Wind Turbine Blades Using UV Curing Composites -- Web-application Development for Network Access to the FEM Modules of the ACELAN Package -- MEMS accelerometer with SAW -- Magnetic Particles Detections in Biological Objects -- Deep UV Surface Acoustic Wave ZnO Based Photodetectors -- Elastic Properties of CNT-reinforced Silver Nanocomposite Using FEM -- Mathematical Modeling of Indentation Process for Layered Sample Taking into Account Plastic Properties of Layers Material -- Stress-Strain State in Transverse Isotropic Plane-Layered Media at Pulse Impacts -- Growth of the Nanometer Column Zinc Oxide by Hydrothermal Method for Fabrication of the Hydrophone Acoustics Sensors.

Sommario/riassunto

This book includes selected, peer-reviewed contributions from the 2018 International Conference on “Physics and Mechanics of New Materials and Their Applications”, PHENMA 2018, held in Busan, South Korea, 9–11 August 2018. Focusing on manufacturing techniques, physics, mechanics, and applications of modern materials with special properties, it covers a broad spectrum of nanomaterials and structures, ferroelectrics and ferromagnetics, and other advanced materials and composites. The authors discuss approaches and methods in nanotechnology; newly developed, environmentally friendly piezoelectric techniques; and physical and mechanical studies of the microstructural and other properties of materials. Further, the book presents a range of original theoretical, experimental and computational methods and their application in the solution of various technological, mechanical and physical problems. Moreover, it highlights modern devices demonstrating high accuracy, longevity and the ability to operate over wide temperature and pressure ranges or in aggressive media. The developed devices show improved characteristics due to the use of advanced materials and composites, opening new horizons in the investigation of a variety of physical and mechanical processes and phenomena.
