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| Autore                  | Fesenko Olena  |
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| Nota di contenuto       | Part 1: Nanooptics and Photonics -- 1. The Kinetic Theory of the Width of Surface Plasmon Resonance Line in Metal Nanoparticles -- 2. Optical and electrical phenomena caused by the lattice defects in PbMoO <sub>4</sub> crystal -- 3. Effects of Eu <sup>3+</sup> and F- doping on structure and optical properties of zirconium oxides -- 4. Electric and spectral properties of solid water-nanocellulose systems in a wide range of temperatures -- 5. The medium influence on the luminescence intensity of SnO <sub>2</sub> nanoparticles ensembles in a porous silicate glass matrix -- 6. Spectrum of localized quasiparticle interacting with three-mode phonons -- 7. Energy Spectra Dispersion of Vibrational and Electronic States in Layered Hexagonal -BN Crystals and Single-Layer Nitroborane (BN)L <sub>1</sub> -- Part 2. Nanochemistry and Nanobiotechnology -- 8. The influence of -cyclodextrin on biomembrane. The molecular dynamics simulation study -- 9. Hybrid Hydrogels With Biologically Active Dyes and Their Antibacterial Efcacy -- 10. Conjugate formation in films of polyethylene glycol and polypropylene glycol -- 11. Nanocomposites with multiwall carbon nanotubes -- 12. Synthesis, |

structure, optical and Bio-medical applications of Nanosized composites based on  $\text{TiO}_2$ ,  $\text{Fe}_3\text{O}_4$  -- 13. Studying of iron oxyhydroxide dehydration -- 14. Surface reactivity of carbon nanoporous materials studied with chemical bromination -- 15. Nano-, micro- and macrotransformations of marine sediments under the influence of biocolloidal processes and aspects of nanotechnologies of their enrichment and application -- 16. Influence of Magnesium and Chrome on the Microstructure and Properties of the Al–Mg–Sc System as - Cast Alloys -- 17. Prospects for the catalytic application of Red Mud in CO oxidation -- 18. The mechanochemical synthesis of nanodispersed  $\text{Bi}_2\text{Mo}_3\text{O}_{12}$  composition -- 19. Obtaining nanostructured materials by heat treatment of amorphous zirconium-based alloy -- 20. Some Reasons of the Degradation of a Fine-Grained YSZ–NiO Anode Material during Intense Reduction and Reoxidation -- 21. Effect of nanobiopolymers on morphofunctional state of cryopreserved fragments of seminiferous tubules of testis -- 22. Ways to create promising metaloxide catalytic nanosystems for selective reduction of nitrogen oxides -- 23. Photochemical Properties Of Side Chain Aurone Polymers.

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#### Sommario/riassunto

This book highlights some of the latest advances in nanotechnology and nanomaterials from leading researchers in Ukraine, Europe and beyond. It features contributions presented at the 10th International Science and Practice Conference Nanotechnology and Nanomaterials (NANO2022), which was held in hybrid format on August 25-27, 2022 at Lviv House of Scientists, and was jointly organized by the Institute of Physics of the National Academy of Sciences of Ukraine, University of Tartu (Estonia), University of Turin (Italy), and Pierre and Marie Curie University (France). Internationally recognized experts from a wide range of universities and research institutions share their knowledge and key findings on material properties, behavior, synthesis and their applications. The book will be interesting for leading scientists, advanced undergraduate and graduate students in material and nanoscience. This book's companion volume also addresses topics such as nano-optics, nanoelectronics, energy storage, nanochemistry and biomedical applications.

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