

1. Record Nr.	UNISA996418164403316
Titolo	Microstructure and Properties of Micro- and Nanoscale Materials, Films, and Coatings (NAP 2019) [[electronic resource] ] : Selected Articles from the International Conference on Nanomaterials: Applications and Properties, (NAP 2019) / / edited by Alexander D. Pogrebnjak, Oleksandr Bondar
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2020
ISBN	981-15-1742-8
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XXIII, 404 p.)
Collana	Springer Proceedings in Physics, , 0930-8989 ; ; 240
Disciplina	620.115
Soggetti	Nanoscale science Nanoscience Nanostructures Materials science Nanochemistry Nanotechnology Surfaces (Physics) Interfaces (Physical sciences) Thin films Nanoscale Science and Technology Characterization and Evaluation of Materials Nanotechnology and Microengineering Surface and Interface Science, Thin Films
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Electrical and Magnetic Behavior of GdOH Thin Films: a Search for Hydrogen Anion Superconductivity -- Electrical Properties of Heterojunction n-MoOx/p-Cd3In2Te6 -- Transport Properties of Cubic Cuprous Iodide Films Deposited by Successive Ionic Layer Adsorption and Reaction -- Optical Absorption and Refractive Index of X-ray Irradiated Cu6PSe5I-based Thin Film -- Study of the Correlations between the Dynamics of Thermal Destruction and the Morphological

Parameters of Biogenic Calcites by the Method of Thermoprogrammed Desorption Mass Spectrometry (TPD-MS) -- Floquet-bloch Waves in Semiconductor Magnetophotonic Crystals -- Investigation of the Process of Spatial Self-organization of Linear Defects in Nanocrystalline Materials -- Method for Analysis XPS Data of Nanolayered Samples -- Temperature Dependence of Conductivity in Composite Film of Single-walled Carbon Nanotubes with Graphene Oxide -- Structure and Properties of Nitride Coatings Based on Ti and Cr Synthesized by PIII&D Technique -- Features of the Microstructure of Multilayered (TiAlSiY) N/MoN Coatings Prepared by CA-PVD and their Influence on Mechanical Properties -- Changing Cohesive Energy Between Atoms in Metal-to-Metal Transition Layer for Fe-Sn and Fe-Cu-Sn Compounds in the Course of Spark Alloying Process -- New Process for Forming Multicomponent Wear-Resistant Nanostructures by Electrospark Alloying Method -- Effect of Structure on the Properties of Composite Cr<sub>3</sub>C<sub>2</sub> + NiCr Coatings -- Combined Magnetron-Ion-Source System for Reactive Synthesis of Complex Nanostructured Coatings -- AlCoNiFeCrTiV High-Entropy Coatings Prepared by Electron-Beam Cladding -- A Novel Method for the Formation of Silver-containing Nanocomposites -- Thermochemical Reduction of Ag<sup>+</sup> Ions in Polymer Films -- Application of Multicomponent Wear-resistant Nanostructures Formed by Electrospark Allowing for Protecting Surfaces of Compression Joints Parts -- Preparation, Properties and Application of Miscanthus Nanocellulose as Coating Layer -- Effect of Thermomechanical and Ultrasonic Treatment on the Properties of Amorphous Alloys -- Nanostructured Magnesium Oxide Layers Synthesized on Flexible Substrates for Filtering Elements -- Surface Phosphorylated Activated Carbons: Preparation and Acidity Studies -- Flexible Thermostable Metal Spin-valves Based on Co, Cu, Fe, Au, Ru Thin Films -- Formation of Composite Reinforced Coating by Chemical Deposition and Chemical-thermal Treatment of Boron and Carbon -- The Effect of the Transition from Layered to Granular Structures on the Magnetoresistive Properties in the Systems Based on Fe<sub>x</sub>Ni<sub>100-x</sub> and Cu -- Enhancement of the Wear Resistance of Tungsten Cobalt Carbide Plates Using Ion Implantation and Al-Si-N Coatings -- Contact Melting in Ag/Ge Layered Nanofilms: Critical Thickness and Onset Temperature -- Characteristics of Nanocomposites Formed on the Steel Surface Contacting with Precious Metal Solutions -- Increase of Mechanical Properties of Weld Metal of High-Strength Low-Alloy Steels -- Effect of Growth Conditions on Structural and Optical Properties of SnS<sub>2</sub> Thin Film -- Effect of Mn Doping on the Optical Properties of Chalcogenide Compounds ZnS and ZnTe -- Magneto-optical and Magnetic Properties of Three-layer Films Based on Permalloy and Copper -- Size-dependent Melting Behavior of Silver Nanoparticles: a Molecular Dynamics Study -- Fabrication and Pulsed Laser Modification of Antireflective Composite Materials for the Visible and Near-IR Ranges -- Photo- and Electroluminescence of Layered Structures Based on Silicon Oxide and Nitride Films -- Influence of Hydrogen Annealing on Ordering in FePd Films with Ag Underlayer -- Thermal Dispergation of Pb-In Alloys Films on the Molybdenum Substrate -- Structure and Low-temperature Properties of U-15 at.% T Alloys (T = Mo, Nb, Pt, Ru, Ti) -- Multilayer PECVD Si-C-N Films.

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#### Sommario/riassunto

This book presents the findings of experimental and theoretical (including first-principles molecular dynamics simulation) studies of nanostructured and nanocomposite metal-based materials, and nanoscale multilayer coatings fabricated by physical or chemical vapor deposition, magnetron sputtering, electrospark alloying, ionic layer absorption, contact melting, and high-current electron beam

irradiation. It also discusses novel methods of nanocomposite formation, as well as the structure of the deposited films, coatings and other nanoscale materials, their elemental and phase composition, and their physical–mechanical, tribological, magnetic and electrical properties. Lastly, it explores the influence of a various surface modification methods, such as thermal annealing, pulsed laser modification, and thermomechanical and ultrasonic treatment, as well as different properties of nanostructured films.

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