

1. Record Nr.	UNINA9910523732703321
Titolo	Technological applications of nanomaterials // Annelise Kopp Alves, editor
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	3-030-86901-6
Descrizione fisica	1 online resource (239 pages)
Collana	Engineering Materials, , 1868-1212
Disciplina	620.115
Soggetti	Nanostructured materials Nanostructures
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Contents -- Jet Slurry Erosion of CERMET Nano-Coatings Obtained by HVOF -- 1 Introduction -- 2 Martensitic Stainless Steel and Industrial Applications -- 3 Tungsten Carbide (86WC-10Co-4Cr) Cermet Nano-Coatings -- 3.1 Cemented Carbides (CERMET) -- 3.2 Nanostructured Powder -- 3.3 Thermal Spray Coatings -- 3.4 HVOF Thermal Spray -- 4 Erosion in CERMET Coatings -- 4.1 Wear Definition in Materials -- 4.2 Erosion Definition in Materials -- 4.3 Slurry Erosion in Materials -- 4.4 Main Factors Responsible for the Slurry Erosion Process in Materials -- 4.5 Erosion Mechanisms -- References -- Nanostructured Thermoelectric Materials -- 1 Introduction -- 2 Figure of Merit -- 3 Nanostructured Approaches -- 4 Hierarchical Approach -- 5 Closing Remarks -- References -- Nanomaterials for Viral Detection -- 1 Introduction -- 2 Strategies and Techniques for Viral Detection -- 2.1 Electrochemical Biosensor -- 2.2 Optical Biosensor -- 2.3 Other Biosensors -- 3 Nanomaterials in Viral Detection -- 3.1 Carbon Nanomaterials in Viral Detection -- 3.2 Noble Metal Nanomaterials in Viral Detection -- 3.3 Metallic Oxides Nanomaterials in Viral Detection -- 3.4 Other Nanomaterials in Viral Detection -- 4 Conclusion -- References -- Carbon Quantum Dots -- 1 Introduction -- 2 Carbon -- 3 Carbon Nanoparticles -- 4 Quantum Dots and Carbon Quantum Dots -- 4.1 Quantum Dots -- 4.2 Carbon Quantum Dots -- 5 CQD's Synthesis Methods -- 5.1 CQD's Synthesis from Biomass

Residues -- 5.2 Pyrolysis -- 5.3 Solvothermal Method -- 5.4
Microwaves -- 5.5 Ultrasonic -- 5.6 Other Methods from Top-Down
to CQD's Synthesis -- 6 Main Characteristics Affecting the CQD's
Properties -- 6.1 Quantum Confinement Effects -- 6.2 Surface Defects
-- 6.3 Surface Passivation -- References -- Silica Nanoparticles:
Morphology and Applications -- 1 Introduction -- 2 Silica
Nanoparticles.
3 Morphologies -- 3.1 Mobil Composition of Matter N. 41 (MCM-41) --
3.2 Santa Barbara Amorphous Silica Type 15 (SBA-15) -- 3.3
Nanocapsules -- 3.4 Dendritic Fibrous Nanoparticles (DFNS) -- 4
Applications -- 4.1 Food -- 4.2 Building Materials -- 4.3 Energy -- 4.4
Catalysts -- 4.5 Biomedical/ Pharmaceutical -- 5 Obstacles and Future
Perspectives -- References -- Ballistic Performance of Nanostructured
Armors -- 1 Introduction -- 2 Nanostructured Ceramic Armors -- 3
Aluminum Oxide (Alumina) -- 3.1 Crystalline Structures of Alumina --
3.2 Effect on Grain Size on Properties -- 4 Zirconia-Toughened
Alumina (ZTA) -- 4.1 Zirconia Crystalline Structures and Toughening
Mechanisms -- 5 Mechanical Requirements for Ceramic Armor
Applications -- 5.1 Hardness, Flexural Strength and Fracture
Toughness -- 5.2 Elastic Modulus and Fracture Mode -- 5.3 Density --
6 Ballistic Performance Evaluation -- 6.1 Evaluation of the Ballistic
Energy Dissipation -- 7 Conclusion and Future Prospects -- References
-- Size Effect on Ferroelectricity in Nanoscaled BaTiO₃ -- 1
Introduction -- 2 Barium Titanate -- 3 Ferroelectricity -- 4 Size Effect
-- 5 Challenges and Perspectives -- References -- Electrochromic
Nanomaterials -- 1 Introduction -- 2 Electrochromism -- 3 Inorganic
Materials -- 3.1 Inorganic Oxide Materials -- 3.2 Inorganic Non-Oxide
Materials -- 4 Organic Materials -- 4.1 Viologens -- 4.2
Metallophthalocyanines -- 4.3 Metallopolymers -- 5 Synthesis Methods
-- 6 Characterization -- 7 Applications -- 7.1 Electrochromic Devices
-- 8 Conclusion and Future Perspective -- References -- Synthesis
and Characterization of Nb₂O₅ Nanostructures -- 1 Introduction -- 2
Niobium Pentoxide (Nb₂O₅) -- 3 Synthesis Methods -- 3.1 Anodizing
Process -- 3.2 Sol-gel Process -- 3.3 Hydrothermal Process -- 3.4
Microwave-Assisted Hydrothermal Process -- 4 Characterization
Methods.
4.1 Characterization by DRX -- 4.2 Characterization by Image -- 5
Conclusions -- References -- Nanomaterials for Magnetic
Hyperthermia -- 1 Introduction -- 2 Hipertermia Magnética -- 3
Appropriate Magnetism for the Application of Hyperthermia -- 4 Heat
Generation Mechanisms of Magnetic Nanoparticles -- 5 Nanopartículas
Magnéticas Para Aplicação Em Hipertermia Magnética -- 6 Production
of Magnetic Nanoparticles -- 7 Conclusions -- References --
Nanomaterials for Inorganic Pigments -- 1 Introduction -- 1.1
Nanopigments for Inkjet Printing -- 2 Conclusion -- References --
Graphene Application -- 1 Introduction -- 2 Ways of Obtaining
Graphene -- 2.1 Chemical Vapor Phase Deposition (CVD) -- 2.2
Epitaxial Growth on SiC -- 2.3 Liquid-Phase Chemical Exfoliation -- 3
Characterization Methods -- 3.1 X-Ray Diffraction (XRD) -- 3.2
Scanning Electron Microscopy (SEM) -- 3.3 Transmission Electron
Microscopy (TEM) -- 3.4 Raman Spectroscopy -- 4 Applications -- 4.1
Applications of Graphene in Improving Conductivity -- 4.2
Applications of Graphene for Particulate Removal in Aqueous Solutions
-- 4.3 Application of Graphene as a Photodetector -- 5 Future
Perspectives -- References -- Tuning Nanostructured Materials
Properties Through Microwave-Assisted Synthesis -- 1 Introduction --
2 Microwave-Assisted Synthesis -- 3 Effect of Microwave-Assisted
Synthesis on Properties -- 3.1 Mechanical Properties -- 3.2 Optical

Properties -- 3.3 Magnetic Properties -- 3.4 Electrical Properties -- 4
Conclusions -- References -- The Role of Glycerol in the Synthesis
of Nanomaterials -- 1 Introduction -- 2 Metal Glycerolate as Precursors
of Inorganic Nanoparticles -- 3 Direct Uses of Glycerolate Nanoparticles
-- 4 Final Considerations -- References -- Nanomaterials and Their
Influence in Society Through Times -- 1 Introduction -- 2 Ancient
Nanotechnology.
3 Nanotechnology in Modern Society -- References.
