Record Nr. UNINA9910820110903321 Handbook of nanophysics . 7 Nanomedicine and nanorobotics // **Titolo** edited by Klaus D. Sattler Pubbl/distr/stampa Boca Raton, Fla., : CRC Press, 2010 **ISBN** 0-429-19317-3 1-4200-7549-7 Edizione [1st ed.] Descrizione fisica 1 online resource (888 p.) Collana Handbook of Nanophysics;; v.v. 7 Altri autori (Persone) SattlerKlaus D 610.28/4 Disciplina 620.5 Soggetti Nanotechnology **Nanostructures** Nanomedicine Robots Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Front cover; Contents; Preface; Acknowledgments; Editor; Contributors; Part I: Nano-Bio Interfacing; Chapter 1. Quantum Dots: Basics to Biological Applications; Chapter 2. Viral Biology and Nanotechnology; Chapter 3. Nano-Bio Interfacing with Living Cell Biochips; Chapter 4. Micro- and Nanomechanical Biosensors; Chapter 5. Enzymatic Nanolithography: Chapter 6. Biomimetic Synthesis of Nanostructures Inspired by Biomineralization; Chapter 7. Nanotubes for Biotechnology; Chapter 8. Nanoscale Forces in Protein Recognition and Adhesion; Chapter 9. Force Spectroscopy on Cells Chapter 10. Nanoscale Magnetic BiotransportChapter 11. Nanomechanical Sensors for Biochemistry and Medicine: Chapter 12. Analyzing Individual Biomolecules Using Nanopores; Part II: Nanotoxicology: Chapter 13. Chances and Risks of Nanotechnology: Chapter 14. Human and Natural Environment Effects of Nanomaterials; Chapter 15. Toxicology, Diagnostics, and Therapy Functions of Nanomaterials; Chapter 16. Cell Oxidative Stress: Risk of Metal

Nanoparticles; Chapter 17. Fullerene C60 Toxicology; Part III: Clinical Significance of Nanosystems; Chapter 18. Pharmacological Significance

## of Nanoparticles

Chapter 19. Organs from NanomaterialsChapter 20. Nanotechnology for Implants; Chapter 21. Nanotechnology for the Urologist; Part IV: Medical Imaging: Chapter 22. Quantum Dots for Nanomedicine: Chapter 23. Relaxivity of Nanoparticles for Magnetic Resonance Imaging; Chapter 24. Nanoparticle Contrast Agents for Medical Imaging: Chapter 25. Optical Nanosensors for Medicine and Health Effect Studies; Part V: Drug Delivery; Chapter 26. Multifunctional Pharmaceutical Nanocarriers; Chapter 27. Nanotechnology and Drug Delivery; Chapter 28. Targeting Magnetic Particles for Drug Delivery Chapter 29. Biodegradable Nanoparticles for Drug DeliveryPart VI: Response to Nanomaterials; Chapter 30. Uptake of Carbon-Based Nanoparticles by Mammalian Cells and Plants; Chapter 31. Penetration of Metallic Nanomaterials in Skin: Chapter 32. Nanoparticulate Systems and the Dermal Barrier; Chapter 33. Cellular Response to Continuous Nanostructures: Part VII: Cancer Therapy: Chapter 34. Nanotechnology for Targeting Cancer; Chapter 35. Cancer Nanotechnology: Targeting Tumors with Nanoparticles; Chapter 36. Gold Nanoparticles for Plasmonic Photothermal Cancer Therapy Chapter 37. Fullerenes in Photodynamic Therapy of CancerPart VIII:

Quantum Engines and Nanomotors; Chapter 38. Energy Transport and Heat Production in Quantum Engines; Chapter 39. Artificial Chemically Powered Nanomotors; Chapter 40. Nanobatteries; Chapter 41. Nanoheaters; Part IX: Nanorobotics; Chapter 42. Atomic-Force-Microscopy-Based Nanomanipulation Systems; Chapter 43. Nanomanipulation and Nanorobotics with the Atomic Force Microscope; Chapter 44. Nanorobotic Manipulation; Chapter 45. MRI-Guided Nanorobotic Systems for Drug Delivery; Chapter 46. Medical Micro- and Nanorobots

Chapter 47. Nanohandling Robot Cells

## Sommario/riassunto

This comprehensive reference covers both the fundamental and applied aspects of nanophysics. Although the book is a reference, the information is presented in a tutorial style, providing state-of-the-art scientific contents enriched with fundamental equations and illustrations. This presentation facilitates wider access to the material, giving it a broad readership that includes students and professionals in materials science, solid-state physics, electrical engineering, mechanical engineering, computer science, chemistry, pharmaceutical science, biotechnology, molecular biology, biomedicine,