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Nota di contenuto	Front Cover; Contents; Preface; Acknowledgments; Editors; Contributors; Chapter 2: Room at the Bottom, Plenty of Tyranny at the Top; Chapter 4: Nanomagnet Logic; Chapter 5: Quantum Transport at Nanoscale; Chapter 6: Spontaneous Emission of Bloch Oscillation Radiation in the Terahertz Regime; Chapter 7: Molecular and Biomolecular Processing: Solutions, Directions, and Prospects; Chapter 11: Nanoparticle Manipulation by Electrostatic Forces; Chapter 12: Biological- and Chemical-Mediated Self-Assembly of Artificial Micro- and Nanostructures; Chapter 13: Introduction to Nanomanufacturing Chapter 15: Carbon NanotubesChapter 17: Design and Applications of Photonic Crystals; Chapter 18: Carbon Nanostructures and Nanocomposites; Chapter 19: Thermal Transport in Nanostructured Materials; Chapter 20: Electron Optics in Graphene; Chapter 21: Electromagnetic Metamaterials as Artificial Composite Structures; Chapter 22: Bulk Nanostructured Materials; Chapter 23: Nanostructured Materials for Energy Storage Devices; Chapter 24: High-Density Nanoenergetic Gas Generators; Chapter 25: Photovoltaic Fundamentals Chapter 26: Nanodiamond Particles: Properties and Perspectives for

	BioapplicationsChapter 27: Error-Tolerant Digital Microfluidic Lab-on-Chip; Chapter 28: Ion Pore Formation in Membranes due to Complex Interactions between Lipids and Antimicrobial Peptides or Biomolecules; Chapter 29: Multiscale, Multiparadigm Modeling for Nanosystems Characterization and Design; Chapter 30: Quasiparticle Tunneling in Neurotransmitter Release; Chapter 31: DNA-Directed Assembly of Multicomponent Single-Walled Carbon Nanotube Devices; Chapter 32: DNA Crystals, Constructs, and Devices; Back Cover
Sommario/riassunto	"In his 1959 address, "There is Plenty of Room at the Bottom," Richard P. Feynman speculated about manipulating materials atom by atom and challenged the technical community "to find ways of manipulating and controlling things on a small scale." This visionary challenge has now become a reality, with recent advances enabling atomistic-level tailoring and control of materials. Exemplifying Feynman's vision, Handbook of Nanoscience, Engineering, and Technology, Third Edition continues to explore innovative nanoscience, engineering, and technology areas. Along with updating all chapters, this third edition extends the coverage of emerging nano areas even further. Two entirely new sections on energy and biology cover nanomaterials for energy storage devices, photovoltaics, DNA devices and assembly, digital microfluidic lab-on-a-chip, and much more. This edition also includes new chapters on nanomagnet logic, quantum transport at the nanoscale, terahertz emission from Bloch oscillator systems, molecular logic, electronic optics in graphene, and electromagnetic metamaterials. With contributions from top scientists and researchers from around the globe, this color handbook presents a unified, up-to-date account of the most promising technologies and developments in the nano field. It sets the stage for the next revolution of nanoscale manufacturing--where scalable technologies are used to manufacture large numbers of devices with complex functionalities."--Provided by publisher.