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Nota di contenuto	1. Chemical Synthesis of Nanostructured Metals, Metals Alloys and Semiconductors -- 2. Nanocomposites Prepared by Sol-Gel Methods: Synthesis and Characterization -- 3. Low Temperature Compaction of Nanosize Powders -- 4. Semiconductor Nanoparticles -- 5. Colloidal Quantum Dots of III-V Semiconductors -- 6. Strained-layer Heteroepitaxy to Fabricate Self-assembled Semiconductor Islands -- 7. Hybrid Magnetic-Semiconductor Nanostructures -- 8. Carbon Nanotubes -- 9. Encapsulation and Crystallization Behavior of Materials Inside Carbon Nanotubes -- 10. Silicon-based Nanostructures -- 11. Electronic Transport Properties of Quantum Dots -- 12. Photorefractive Semiconductor Nanostructures -- 13. Linear and Nonlinear Optical Spectroscopy of Semiconductor Nanocrystals -- 14. Molecular and Supramolecular Nanomachines -- 15. Functional Nanostructures Incorporating Responsive Modules Chemical synthesis of nanostructured metals, metal alloys, and semiconductors / K.E. Gonsalves, S.P. Rangarajan, J. Wang -- Nanocomposites prepared by sol-gel methods: synthesis and characterization / Krzysztof C. Kwiatkowski, Charles M. Lukehart -- Low-temperature compaction of nanosize powders / E.J. Gonzalez, G.J.

Piermarini -- Semiconductor nanoparticles / Prashant V. Kamat, Kei Murakoshi, Yuji Wada, Shizo Yanagida -- Colloidal quantum dots of III-V semiconductors / Olga I. Mii, Arthur J. Nozik -- Strained-layer heteroepitaxy to fabricate self-assembled semiconductor islands / W.H. Weinberg, C.M. Reaves, B.Z. Nosho, R.I. Pelzel, S.P. DenBaars -- Hybrid magnetic-semiconductor nanostructures / François M. Peeters, Jo De Boeck -- Carbon nanotubes / P.M. Ajayan -- Encapsulation and crystallization behavior of materials inside carbon nanotubes / J. Sloan, M.L.H. Green -- Silicon-based nanostructures / Tamim P. Sidiki, Clivia M. Sotomayor Torres -- Electronic transport properties of quantum dots / M.A. Reed, J.W. Sleight, M.R. Deshpande -- Photorefractive semiconductor nanostructures / D.D. Nolte, M.R. Melloch, Y. Ding, M. Dinu, K.M. Kwolek, I. Lahiri -- Linear and nonlinear optical spectroscopy of semiconductor nanocrystals / Victor I. Klimov -- Molecular and supramolecular nanomachines / Marcos Gómez-López, J. Fraser Stoddart -- Functional nanostructures incorporating responsive modules / Andrew C. Benniston, Philip R. Mackie -- Structure, behavior and manipulation of nanoscale biological assemblies / Timothy Bayburt, Joseph Carlson, Bruce Godfrey, Mary Shank-Retzlaff, Stephen G. Sligar.

Sommario/riassunto

This concise edition of Hari Singh Nalwa's Handbook of Nanostructured Materials and Nanotechnology fills the needs of scientists and students working in chemistry, physics, materials science, electrical engineering, polymer science, surface science, spectroscopy, and biotechnology. This version of the Handbook contains 16 chapters particularly focused on synthesis and fabrication as well as the electrical and optical properties of nanoscale materials. The 5-volume reference Handbook of Nanostructured Materials and Nanotechnology, published in October 1999, created widespread interest in researchers in the field of nanotechnology and many of our colleagues expressed interest in a shorter version of our major reference work. The Handbook will serve the objectives of providing state-of-the-art information on many aspects of nanostructured materials and emerging nanotechnology. Presenting the eagerly anticipated concise edition of the classic work of reference in nanostructured materials and nanotechnology Provides comprehensive coverage of the dominant technology of the 21st century Written by a truly international list of contributors