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Autore	Shunin Yuri
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Collana	Lecture Notes in Nanoscale Science and Technology, , 2195-2159 ; ; 26
Disciplina	620.5
Soggetti	Nanoscale science Nanoscience Nanostructures Nanotechnology Nanochemistry Quality control Reliability Industrial safety Nanoscale Science and Technology Nanotechnology and Microengineering Quality Control, Reliability, Safety and Risk
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- General approach to description of fundamental properties of disordered nanosized media -- Potentials and electronic structure calculations of nonregular nanosystems -- Surface nanophysics: macro- , meso-, micro- and nanoapproaches -- Classification and operating principles of nanodevices -- CNT and graphene growth: growing, quality control, thermal expansion, chiral dispersion -- Graphene, fullerenes, carbon nanotubes: electronic subsystem -- Scattering processes in nanocarbon based nanointerconnects -- Spintronics and nanomemory systems -- Nanosensor systems simulations -- Nanotechnology application challenges: nanomanagement, nanorisks and consumer behavior.

Sommario/riassunto

This book presents a systemic view of nanophenomena in terms of disordered condensed media with characteristics arising at various hierarchical levels from nanoagents/nanoparticles through multiple technological interfaces to the creation of micro- or mesostructures with essential nanodimensional effects. These properties can be seen in various schemes for the functionalization of nanocarbon systems, namely, CNTs, GNRs, GNFs, carbon-based nanoaerogels, nanofoams, and so on, where nonregularities characterize surface nanointeractions and various nanointerconnects, resulting in both predictable and unpredictable effects. Beginning with nanosensing and finishing with other forms of functionalized nanomaterials, these effects will define the prospective qualities of future consumer nanoproducts and nanodevices. This book covers all aspects of nonregular nanosystems arising from the fundamental properties of disordered nanosized media, from electronic structure, surface nanophysics, and allotropic forms of carbon such as graphene and fullerenes including defect characterization, to spintronics and 3D device principles. Nonregular Nanosystems will be of interest to students and specialists in various fields of nanotechnology and nanoscience, experts on surface nanophysics and nanochemistry, as well as managers dealing with marketing of nanoproducts and consumer behavior research.
