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Nota di contenuto	Nanoscale Science and Technology; Contents; List of contributors; Preface; Chapter authors; 1 Generic methodologies for nanotechnology: classification and fabrication; 1.1 Introduction and classification; 1.1.1 What is nanotechnology?; 1.1.2 Classification of nanostructures; 1.1.3 Nanoscale architecture; 1.2 Summary of the electronic properties of atoms and solids; 1.2.1 The isolated atom; 1.2.2 Bonding between atoms; 1.2.3 Giant molecular solids; 1.2.4 The free electron model and energy bands; 1.2.5 Crystalline solids; 1.2.6 Periodicity of crystal lattices; 1.2.7 Electronic conduction 1.3 Effects of the nanometre length scale1.3.1 Changes to the system total energy; 1.3.2 Changes to the system structure; 1.3.3 How nanoscale dimensions affect properties; 1.4 Fabrication methods; 1.4.1

Top-down processes; 1.4.2 Bottom-up processes; 1.4.3 Methods for templating the growth of nanomaterials; 1.4.4 Ordering of nanosystems; 1.5 Preparation, safety and storage issues; Bibliography; 2 Generic methodologies for nanotechnology: characterization; 2.1 General classification of characterization methods; 2.1.1 Analytical and imaging techniques; 2.1.2 Some scattering physics
 2.2 Microscopy techniques
 2.2.1 General considerations for imaging; 2.2.2 Image magnification and resolution; 2.2.3 Other considerations for imaging; 2.2.4 Light microscopy; 2.3 Electron microscopy; 2.3.1 General aspects of electron optics; 2.3.2 Electron beam generation; 2.3.3 Electron-specimen interactions; 2.3.4 Scanning electron microscopy; 2.3.5 Transmission electron microscopy; 2.3.6 Scanning transmission electron microscopy; 2.4 Field ion microscopy; 2.5 Scanning probe techniques; 2.5.1 Scanning tunnelling microscopy; 2.5.2 Atomic force microscopy; 2.5.3 Other scanning probe techniques
 2.6 Diffraction techniques
 2.6.1 Bulk diffraction techniques; 2.6.2 Surface diffraction techniques; 2.7 Spectroscopy techniques; 2.7.1 Photon spectroscopy; 2.7.2 Radio frequency spectroscopy; 2.7.3 Electron spectroscopy; 2.8 Surface analysis and depth profiling; 2.8.1 Electron spectroscopy of surfaces; 2.8.2 Mass spectrometry of surfaces; 2.8.3 Ion beam analysis; 2.8.4 Reflectometry; 2.9 Summary of techniques for property measurement; 2.9.1 Mechanical properties; 2.9.2 Electron transport properties; 2.9.3 Magnetic properties; 2.9.4 Thermal properties; Bibliography
 3 Inorganic semiconductor nanostructures
 3.1 Introduction; 3.2 Overview of relevant semiconductor physics; 3.2.1 What is a semiconductor?; 3.2.2 Doping; 3.2.3 The concept of effective mass; 3.2.4 Carrier transport, mobility and electrical conductivity; 3.2.5 Optical properties of semiconductors; 3.2.6 Excitons; 3.2.7 The pn junction; 3.2.8 Phonons; 3.2.9 Types of semiconductor; 3.3 Quantum confinement in semiconductor nanostructures; 3.3.1 Quantum confinement in one dimension: quantum wells; 3.3.2 Quantum confinement in two dimensions: quantum wires
 3.3.3 Quantum confinement in three dimensions: quantum dots

Sommario/riassunto

Nanotechnology is a vital new area of research and development addressing the control, modification and fabrication of materials, structures and devices with nanometre precision and the synthesis of such structures into systems of micro- and macroscopic dimensions. Future applications of nanoscale science and technology include motors smaller than the diameter of a human hair and single-celled organisms programmed to fabricate materials with nanometer precision. Miniaturisation has revolutionised the semiconductor industry by making possible inexpensive integrated electronic circuits co

2. Record Nr.	UNINA9910958841303321
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ISBN	9786613320247 9781136146787 1136146784 9781283320245 128332024X 9780240821207 0240821203
Edizione	[1st edition]
Descrizione fisica	1 online resource (561 p.)
Disciplina	006.696
Soggetti	Computer animation Architecture - Computer-aided design Architectural rendering - Computer simulation Three-dimensional display systems Computer graphics
Lingua di pubblicazione	Inglese
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Note generali	Includes index.
Nota di contenuto	pt. 1. Working with architectural drawings -- pt. 2. Creating building elements -- pt. 3. Creating site elements -- pt. 4. Mental ray -- pt. 5. Advanced visualization techniques -- pt. 6. Efficient 3D workflow.
Sommario/riassunto	Learn time-saving techniques and tested production-ready tips for maximum speed and efficiency in creating professional-level architectural visualizations in 3ds Max. Move from intermediate to an advanced level with specific and comprehensive instruction with this collaboration from nine different authors from around the world. Get their experience and skills in this full-color book, which not only teaches more advanced features, but also demonstrates the practical applications of those features to get readers ready for a real production environment. Fully updated for the most recent version o

