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内容概要

近年，纳米技术及其基础科学以前所未有的速度增长与发展。
基于此，纳米科学与技术大全1：纳米材料（导读版）旨在为读者们呈现一本动态的、权威的和真正能获取有效信息的参考著作，力求反映此学科领域全面而广阔的发展状况。

此书共有5卷，由国际专家组写作而成，内容涉及材料科学、物理学，生命科学、化学等领域；每篇文章的写作都兼具学术性、批判性与可读性，内容深入浅出，前后呼应，是一本跨学科领域研究者们不可或缺的有价值的参考资料。

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作者简介

David L.Andrews、Zeev Valentine Vardeny、Duncan H.Gregory、Thomas Nann

<<纳米科学与技术大全1>>

书籍目录

Chromophores1.06.4.3 Molecular Engineering of Polymers1.06.4.3.1 Guest?host polymers1.06.4.3.2 Linear chain polymers1.06.4.3.3 Cross-linked polymers1.06.4.4 Molecular Engineering of Dendrimers1.06.4.5 Molecular Glasses and Their Supramolecular Self-Assembly1.06.4.6 Structured Third-Order Organic NLO Materials1.06.5 Organic Nanophotonics1.06.5.1 Nanofabrication Techniques1.06.5.2 Device Structures and their Properties1.06.5.2.1 Optical waveguides1.06.5.2.2 Organic silicon hybrid nanophotonics1.06.6 Conclusions and PerspectivesReferences1.07 量子点:理论1.07.1 Introduction1.07.2 Single-Particle Methods1.07.2.1 Density Functional Theory1.07.2.2 Empirical Pseudopotential Method1.07.2.3 Tight-Binding Methods1.07.2.4 k · p Method1.07.2.5 The Effect of Strain1.07.3 Many-Body Approaches1.07.3.1 Time-Dependent DFT1.07.3.2 Configuration Interaction Method1.07.3.3 GW and BSE Approach1.07.3.4 Quantum Monte Carlo Methods1.07.4 Application to Different Physical Effects:Some Examples1.07.4.1 Electron and Hole Wave Functions1.07.4.2 Intraband Optical Processes in Embedded Quantum Dots1.07.4.3 Size Dependence of the Band Gap in Colloidal Quantum Dots1.07.4.4 Excitons1.07.4.5 Auger Effects1.07.4.6 Electron-Phonon Interaction1.07.5 ConclusionsReferences1.08 量子点:合成与表征1.08.1 Introduction1.08.2 Synthesis of QDs in Batch-Type Reactors1.08.2.1 Water-Based Synthesis Approaches to QDs1.08.2.2 Organometallic Synthesis of QDs:The Hot-Injection Approach1.08.2.3 Versatility of the Hot-Injection Approach1.08.2.4 Greener Hot-Injection Syntheses1.08.2.5 Mechanisms of Nucleation and Growth of QDs by the Hot-Injection Approach1.08.2.6 Organometallic Syntheses of QDs Not Based on the Hot-Injection Approach1.08.2.7 The Liquid-Solid-Solution Approach for the Synthesis of QDs1.08.3 Synthesis of QDs in Continuous Reactor Systems1.08.3.1 Introductory Note1.08.3.2 Synthesis in Microchannels1.08.3.3 Synthesis in Spinning Disk Processors1.08.3.4 Thermospray Synthesis of QDs1.08.4 Optical and Electrical Characterization Methods of QDs1.08.4.1 Introductory Notes1.08.4.2 Absorption and Photoluminescence Experiments1.08.4.3 Time-Resolved Absorption and Emission Spectroscopy1.08.4.4 Raman Spectroscopy1.08.4.5 Optical Imaging and Spectroscopy of QDs Beyond the Diffraction Limit1.08.4.6 Electrical Characterization1.08.5 Characterization of QDs by TEM Techniques1.08.5.1 Introductory Notes1.08.5.2 TEM Imaging Techniques1.08.5.3 TEM Spectroscopic Techniques1.08.5.4 Mixed TEM Imaging/Analytical Techniques for Chemical Mapping1.08.6 Structural/Compositional Studies of QDs by X-Ray-Related Techniques1.08.6.1 Introduction1.08.6.2 X-Ray Powder Diffraction1.08.6.3 X-Ray Imaging1.08.6.4 Surface-Sensitive X-Ray Scattering Techniques1.08.6.5 X-Ray Absorption Fine Structure1.08.6.6 X-Ray Photoelectron SpectroscopyReferences1.09 核/壳纳米晶体1.09.1 Introduction1.09.2 Short Summary of the Growth Technique and Mechanism of Core-Shell Nanocrystals1.09.2.1 Growth Dynamics1.09.2.2 Synthesis Technique for Semiconductor Materials1.09.3 Semiconductor Core-Shell Nanocrystals1.09.3.1 Type I Heterostructures1.09.3.2 Type II Heterostructures1.09.3.3 Quantum-Dot-Quantum-Well1.09.4 Limits and Shape ControlReferences1.10 无机纳米线1.10.1 Introduction1.10.2 Synthesis1.10.2.1 Metal and Elemental Nanowires1.10.2.2 Metal-Oxide Nanowires1.10.2.3 Metal-Chalcogenide Nanowires1.10.2.4 Metal Pnictide and Other Nanowires1.10.3 Self-Assembly,Functionalization,and Coaxial Nanowires1.10.3.1 Self-Assembly and Functionalization1.10.3.2 Coaxial Nanowires and Coatings on Nanowires1.10.4 Properties and Applications1.10.4.1 Metal and Elemental Nanowires1.10.4.2 Metal-Oxide Nanowires1.10.4.3 Metal-Chalcogenide Nanowires1.10.4.4 Metal Pnictide and other Nanowires1.10.4.5 Nanowire-Polymer Nanocomposites1.10.5 Conclusions and OutlookReferences1.11 超越圆柱状物质的无机纳米管1.11.1 Introduction1.11.2 Chronology and Challenges of the Field1.11.3 Stability of Inorganic NTs1.11.3.1 Scrolls1.11.3.2 Rare Morphologies:Microtubes, and Micro-and Nano-Ribbons1.11.3.3 Cylindrical Geometry vis- à -vis Stability of a Finite Strip1.11.4 Variety of Inorganic NTs1.11.5 Morphology of Single NTs and Hybrid Nanostructures1.11.5.1 MoS2 and WS2 NTs1.11.5.2 Polytypes1.11.5.3 Growth by Diffusion1.11.5.3.1 Fullerene-like particles grown by diffusion1.11.5.3.2 Nano-chimneys or open tubes1.11.5.3.3 Diffusion and etching1.11.5.4 NTs as Nanoreactors1.11.6 Alloyed NTs and Chirality1.11.7 NTs as Channels for Nanofluidics1.11.8 Mechanical Properties1.11.9 Nanosafety1.11.10 ConclusionsReferences1.12 氧化锌纳米棒及其异质结构在电学和光学纳米器件方面的应用1.12.1 Introduction1.12.2. Metal-Organic Vapor-Phase Epitaxy of ZnO Nanorods and Their Heterostructures1.12.2.1 Catalyst-Free MOVPE of Homogeneous ZnO

Nanorods1.12.2.2 Growth Mechanism of ZnO Nanorods1.12.2.3 Fabrications of ZnO/MgxZn1-xO Coaxial Nanorod Heterostructures1.12.2.4 Fabrications of ZnO/MgxZn1-xO Nanorod Quantum Well Structures1.12.3 Electrical Nanodevice Applications1.12.3.1 Vertical-Type Nanorod Devices1.12.3.2 Horizontal-Type Nanorod Devices1.12.3.2.1 Fabrication methods of individual nanorod devices1.12.3.2.2 Determination of carrier concentration using thermoelectric power measurements1.12.3.2.3 ZnO nanorod Schottky diodes1.12.3.2.4 ZnO nanorod FETs1.12.3.2.5 ZnO nanorod logic gates1.12.3.3 High-Performance FETs Based on ZnO/MgxZn1-xO Coaxial Nanorod Heterostructures1.12.4 Nanophotonic Device Application1.12.4.1 Near-Field Measurement of Spectral Anisotropy and Optical Absorption of Isolated ZnO Nanorod Single QWs1.12.4.2 A Nanophotonic AND Gate Device Using ZnO Nanorod Double QWs1.12.4.3 Nanophotonic Energy Up-Conversion Using ZnO Nanorod Double QWsReferences1.13 贵金属纳米颗粒:合成和光学性质1.13.1 Introduction1.13.2 Optical Properties1.13.2.1 Mie's Application1.13.2.2 Optical Response of a Free Electron Gas1.13.2.3 Quasistatic Approximation1.13.2.4 Extensions of the Quasistatic Approximation1.13.2.4.1 Interband transitions1.13.2.4.2 Nonspherical nanoparticles1.13.2.4.3 Nanoparticles on substrates1.13.2.5 Size Effects1.13.2.6 Nanoparticle Ensembles1.13.2.7 Theoretical Models1.13.2.8 Field Enhancement1.13.2.9 The Damping of the Localized Surface Plasmon Polariton Resonance1.13.2.9.1 Pure dephasing1.13.2.9.2 Size-dependent dephasing mechanisms1.13.2.9.3 Damping parameter and size-dependent dielectric function1.13.3 Nanoparticle Preparation1.13.3.1 Top-Down Techniques1.13.3.1.1 Photolithography1.13.3.1.2 Electron beam lithography1.13.3.1.3 Nanosphere lithography1.13.3.1.4 Extensions of NSL1.13.3.1.5 Focused ion beam technique1.13.3.2 Bottom-Up Techniques1.13.3.2.1 Gas-phase synthesis1.13.3.2.2 Vapor deposition technique1.13.3.2.3 Extensions to the vapor deposition techniques1.13.3.3 Wet Chemical Preparation Techniques1.13.3.3.1 Standard chemical reduction methods1.13.3.3.2 Stabilizing1.13.3.3.3 Extensions to the standard chemical reduction methods1.13.3.3.4 Photochemical synthesis1.13.3.3.5 Extensions of photosynthesis1.13.3.3.6 Sol-gel technique1.13.3.4 Pulsed Laser Ablation1.13.3.5 Flame Spraying1.13.4 Applications of Metal Nanoparticles1.13.4.1 Waveguiding1.13.4.2 Surface Structuring1.13.4.2.1 Nanoparticles in cancer therapyReferences1.14 磁性纳米颗粒1.14.1 Introduction1.14.2 Single-Domain Particles1.14.3 Superparamagnetic Relaxation1.14.3.1 Theories of Superparamagnetic Relaxation1.14.3.2 Synthesis of Nanoparticles1.14.3.3 DC Magnetization Measurements1.14.3.4 AC Susceptibility Measurements1.14.3.5 Magnetization Measurements on Antiferromagnetic Nanoparticles1.14.3.6 M?ssbauer Spectroscopy1.14.3.7 M?ssbauer Studies of Magnetic Nanoparticles1.14.3.8 Experimental Studies of Individual Nanoparticles1.14.3.9 Macroscopic Quantum Tunneling1.14.4 Magnetic Fluctuations below the Blocking Temperature1.14.4.1 Classical Model for Magnetic Excitations in Nanoparticles1.14.4.2 Spin Wave Model for Ferro-and Ferrimagnetic Nanoparticles1.14.4.3 Spin Wave Model for Antiferromagnetic Nanoparticles1.14.4.4 Experimental Studies of Excitations of the Uniform Mode1.14.5 Magnetic Anisotropy in Nanoparticles1.14.6 Magnetic Interactions between Nanoparticles1.14.6.1 Magnetic Dipole Interactions1.14.6.2 Exchange Interactions1.14.7 Magnetic Structure of Nanoparticles1.14.7.1 Surface Magnetism1.14.7.2 Spin Canting and Transverse Relaxation1.14.7.3 Magnetic Phase Transitions1.14.8 Core-Shell Particles and Exchange Anisotropy1.14.9 GMR in Granular Materials1.14.10 Applications1.14.10.1 Magnetic Data Storage1.14.10.2 Ferrofluids1.14.10.3 Bioseparation1.14.10.4 Medical Applications1.14.11 Magnetic Nanoparticles in Nature1.14.11.1 Rocks,Soils,and Meteorites1.14.11.2 Living Organisms1.14.12 Summary and OutlookReferences1.15 胶体化学合成和自组织生长的具有光增益的量子点1.15.1 Introduction1.15.1.1 Overview of Lasing and Gain Dynamics1.15.1.2 Advantages of Quantum Confinement1.15.1.3 Wells,Wires,and Dots1.15.2 Different Types of QDs:Colloidal versus Self-Assembled1.15.3 Colloidal QDs1.15.3.1 Synthesis1.15.3.2 Electronic Structure1.15.3.3 Carrier Dynamics1.15.3.3.1 Relaxation dynamics1.15.3.3.2 Recombination dynamics1.15.3.4 Gain Phenomenology1.15.3.4.1 Overview1.15.3.4.2 State-resolved optical pumping of QDs1.15.3.5 Underlying Physics1.15.3.5.1 Determining the average number of excitations per particle1.15.3.5.2 Gain tailoring in semiconductor QDs1.15.4 Self-Assembled QDs1.15.4.1 Fabrication of QD Heterostructures1.15.4.2 Electronic Structure1.15.4.3 Carrier Dynamics and Gain Phenomenology1.15.4.4 Special Techniques of p-Doping and Tunnel Injection1.15.4.4.1 p-Doping1.15.4.4.2 Tunnel injection1.15.5 Working

Devices1.15.5.1 Epitaxial QD Lasers1.15.5.1.1 Pseudomorphic QD lasers on GaAs and InP1.15.5.1.2 Metamorphic QD lasers on GaAs and Si1.15.5.2 CQD Lasers1.15.6 Conclusions and OutlookReferences1.16 纳米结构硅的光学性质1.16.1 Introduction1.16.2 Fabrication Methods1.16.2.1 Electrochemical Etching and Ultrasonication1.16.2.2 Other Methods1.16.3 PL Spectroscopy1.16.3.1 Size Effect on the Peak Position of PL1.16.3.2 Temperature-Dependent PL1.16.3.3 Origin of the Orange and Blue PL Emission1.16.4 Photobleaching and Recovery1.16.4.1 Bleaching and Recovery of PL1.16.4.2 Dispersed Kinetics of Luminescence Bleaching and Recovery1.16.5 X-Ray Absorption Spectroscopy and XEOL1.16.5.1 XAS of Silicon Nanostructures1.16.5.2 XEOL of Si Nanocrystals1.16.6 Applications1.16.6.1 Energetic Material1.16.6.2 Floating Gate in Memory Devices1.16.6.3 A Novel Thermoelectric Material1.16.6.4 Applications in Life Sciences1.16.7 SummaryReferences1.17 太阳能电池和光催化剂1.17.1 Introduction1.17.2 Historical Aspects of Photoelectrochemistry and Photocatalysis1.17.2.1 Photoeffects on Electrodes1.17.2.2 Discovery of a Durable Semiconductor Electrode1.17.2.3 History of Photosensitizers1.17.2.4 Effects of Light on Catalysts1.17.3 Nanostructure Effects on the Energy Levels and Reactions1.17.3.1 Quantum Size Effect1.17.3.2 Reactions at Semiconductor Nanostructure1.17.3.2.1 Potential energy structure1.17.3.2.2 Surface reaction rates1.17.3.2.3 Light scattering effect1.17.4 Role of Nanostructure in Solar-energy Conversion1.17.4.1 Solar Cells1.17.4.1.1 Dye-sensitized solar cells1.17.4.1.2 Semiconductor-sensitized solar cells1.17.4.1.3 Plasmon-sensitized solar cells1.17.4.1.4 Quantum-well and QD solar cells1.17.4.2 Composite Photoelectrodes for Water Splitting1.17.4.3 Photocatalysts for Water Splitting1.17.4.3.1 Mechanism of water splitting1.17.4.3.2 UV-responsive photocatalysts for water splitting1.17.4.3.3 Visible light-responsive photocatalysts for water splitting1.17.4.3.4 Photocatalytic Z-scheme for water splitting1.17.5 Prospect of Nanostructures for Solar-Energy ConversionReferences1.18 稀土掺杂的上转换纳米磷光材料1.18.1 Introduction1.18.2 Fundamental of RE UC1.18.2.1 Optical Processes in UC1.18.2.1.1 Absorption processes1.18.2.1.2 Nonradiative energy losses1.18.2.2 Upconverting RE Ions1.18.2.2.1 Energy level of RE ions1.18.2.2.2 Consideration of dopants1.18.2.3 The Role of Host Lattice1.18.3 Nanophosphor Synthesis1.18.3.1 Synthetic Approaches1.18.3.1.1 Coprecipitation1.18.3.1.2 Microemulsion1.18.3.1.3 Sol-gel processing1.18.3.1.4 Hydrothermal/solvothermal synthesis1.18.3.1.5 Thermal decomposition1.18.3.1.6 Two-phase synthesis1.18.3.1.7 Combustion synthesis1.18.3.1.8 Flame synthesis1.18.3.1.9 Electrospinning1.18.3.2 Shape and Size Control1.18.4 Emission Color Modulation1.18.4.1 Controlling Host/Dopant Combination1.18.4.2 Controlling Particle Size1.18.4.3 Controlling Dopant Concentration1.18.4.4 Controlling Particle Assembly1.18.5 Surface Modification1.18.5.1 Surface Passivation1.18.5.2 Surface Functionalization1.18.5.2.1 Ligand exchange1.18.5.2.2 Ligand oxidation1.18.5.2.3 Ligand attraction1.18.5.2.4 Layer-by-layer assembly1.18.5.2.5 Surface silanization1.18.6 Technological Applications1.18.6.1 Biological Labeling and Sensing1.18.6.1.1 Detection and assay1.18.6.1.2 Staining and imaging1.18.6.1.3 FRET-based sensing1.18.6.2 Volumetric 3D Display1.18.7 ConclusionsReferences

章节摘录

版权页： 插图： The molecular design approaches described above can be a powerful guiding principle for the development of molecular E-O glasses using supramolecular self-assembly of chromophores as long as the r33 value continues to increase linearly with increasing net concentration of chromophores,and the materials do not electrochemically break down during the electric field poling process.This very general material design strategy will be extended to other supramolecular glasses based on other noncovalent interactions other than the Ar-ArFinteractions between dendrons and fluorinated dendrons in the future.It is expected that such materials may show significant cooperative improvement in poling efficiencies since the host matrices and guest can both respond to the poling field.The cooperative improvement in poling efficiencies of materials with field-responsive host matrices can be described as matrix-assisted poling [60]. Molecular glasses based on dendrimers of multiple chromophores can also be used as a host matrix for structurally compatible guest chromophores.It should be noted that the dendrimer or hyperbranched oligomers of multiple chromophores could be used as guests or hosts with conventional polymer to improve material properties for device applications.Examples of molecular glass composites based on binary chromophores,composites of chromophore with amorphous dendrimer of multiplechromophores,composites of crosslinkable dendrimer of multiple chromophores,and guest-host polymers based on dendrimer of multiple chromophores in inert host polymers have been reported recently [61 a-g]. 1.06.4.6 Structured Third-Order Organic NLO Materials The structure-property relationship of third-order organic NLO molecules is harder to find than that of second-order molecules in terms of molecular design rules or generally accepted guiding principles for molecular engineering.Since the magnitude of susceptibilities (microscopic and macroscopic) of third-order NLO process (four-wave mixing) is significantly smaller statistically than that of secondorder process (three-wave mixing),the availability of molecules with strong-enough third-order NLO properties for device application has been very limited traditionally.Studies on the structure-property correlation of solid-state assembly of molecules with third-order properties are even harder to explore.Ironically,this may be due to the fact that thirdorder materials do not have specific symmetry requirements to satisfy to be active.

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