Advances in Polymer Science


Volume 211

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Chromatography for Sustainable Polymeric Materials

Renewable, Degradable and Recyclable

Contents


Fields of interest

Polymer Sciences; Analytical Chemistry; Characterization and Evaluation Materials

Target groups

Academic and industrial researchers, libraries in polymer science, materials science and solid state physics

Type of publication

Monograph

Due May 2008


SEMICONDUCTOR NANOSTRUCTURES

Semiconductor Nanostructures

Reducing the size of a coherently grown semiconductor cluster in all three directions of space to a value below the de Broglie wavelength of a charge carrier leads to complete quantization of the energy levels, density of states, etc. Such "quantum dots" are more similar to giant atoms in a dielectric cage than to classical solids or semiconductors showing a dispersion of energy as a function of wavevector. Their electronic and optical properties depend strongly on their size and shape, i.e. on their geometry. By designing the geometry by controlling the growth of QDs, absolutely novel possibilities for material design leading to novel devices are opened.

Features

- A field highly relevant to novel technologies
- Written by recognized leaders from research
- Hot topic in device laboratories around the world

From the contents


Fields of interest

Nanotechnology; Optical and Electronic Materials; Surfaces and Interfaces, Thin Films

Target groups

Scientists and advanced students

Type of publication

Monograph

Due June 2008


Chromatography for Sustainable Polymeric Materials

Renewable, Degradable and Recyclable

Features

- Highest Impact Factor of all publications ranked by ISI within Polymer Science
- Short and concise reports on physics and chemistry of polymers, each written by world renowned experts
- Still valid and useful after 5 or 10 years
- The electronic version is available free of charge for standing order customers at: springer.com/series/12

Due August 2008


Machining

Fundamentals and Recent Advances

Machining is one of the most important manufacturing processes. Parts manufactured by other processes often require further operations before the product is ready for application. Machining processes can be applied to work metallic and non-metallic materials such as polyamides, wood, ceramics and composites.

Machining: Fundamentals and Recent Advances is divided into two parts. Part I explains the fundamentals of machining, with special emphasis on three important aspects: mechanics of machining, tools, and work-piece integrity. Part II is dedicated to recent advances in machining, including: machining of hard materials, machining of metal matrix composites, drilling polymeric matrix composites, ecological machining (minimal quantity of lubrication), high-speed machining (sculptured surfaces), grinding technology and new grinding wheels, micro- and nano-machining, non-traditional machining processes, and intelligent machining (computational methods and optimization).

Features

- Describes the fundamentals and recent advances in machining

Contents


Fields of interest

Operating Procedures, Materials Treatment; Manufacturing, Machines, Tools; Machinery and Machine Elements

Target groups

Researchers, postgraduates and advanced undergraduates in mechanical, manufacturing, and industrial engineering, and materials science

Type of publication

Monograph

Due August 2008

Spin Physics in Semiconductors

This book describes beautiful optical and transport phenomena related to the electron and nuclear spins in semiconductors with emphasis on a clear presentation of the physics involved. Recent results on two- and one-dimensional semiconductor structures are reviewed. The book is intended for students and researchers in the fields of semiconductor physics and nanoelectronics.

Features
► Covers the latest developments in the physics of electron and nuclear spin ► Integrates the physics of transport phenomena and elementary magnetism in semiconductors ► Both a reference work for researchers and a text for graduate students

Contents
2. Spin dynamics of free carriers in quantum wells.
3. Exciton spin dynamics in semiconductor quantum wells.
4. Exciton spin dynamics in semiconductor quantum dots.
5. Time resolved spin dynamics and spin noise spectroscopy.
7. Spin properties of confined electrons in Si.
8. Spin Hall effect.
10. Spin injection.
11. Dynamic nuclear polarization and nuclear fields.
12. Nuclear and electron spin interactions in the quantum Hall regime.
13. Diluted magnetic semiconductors: Basic physics and optical properties.

Fields of interest
Magnetism, Magnetic Materials; Nanotechnology; Physics and Applied Physics in Engineering

Target groups
Libraries, scientists, graduate students

Type of publication
Monograph

Materials Issues for Generation IV Systems


This book collects lectures and seminars presented at the homonymous NATO ASI held in autumn 2007 at the Institut d’Études Scientifiques in Cargèse, France. The adopted approach aims at improving and coordinating basic knowledge in materials science and engineering with specific areas of condensed matter physics, the physics of particle/matter interaction and of radiation damage. It is our belief that this methodology is crucially conditioning the development and the industrial production of new structural materials capable of coping with the requirements of these future reactors.

Features
► First document explicitly mixing scientific, engineering, economic and environmental motivations in nuclear energy production ► Strong statement made on the crucial need for basic science for the construction of high-performance nuclear reactors

Fields of interest
Materials Science; Nuclear Engineering; Physics and Applied Physics in Engineering

Target groups
Graduate students in nuclear engineering and materials science, engineers and researchers in nuclear energy centres and institutes, technical staff members in companies involved in the construction of nuclear reactors and the production of fuel or the management of nuclear waste, policy makers & consultants

Type of publication
Proceedings

Due June 2008

► * € (D) 192,55 | € (A) 197,95 | sFr 313,50 ISBN 978-1-4020-8421-8

Also available as Softcover
► * € (D) 85,55 | € (A) 87,95 | sFr 139,50 ISBN 978-1-4020-8423-2

Due June 2008

► approx. * € (D) 149,75 | € (A) 153,95 | sFr 244,00 ISBN 978-3-540-78819-5

Werkstoffe

Aufbau und Eigenschaften von Keramik-, Metall-, Polymer- und Verbundwerkstoffen


Für die 9. Auflage hat ein erweitertes Autorenteam das gesamte Text- und Bildmaterial aktualisiert und gründlich überarbeitet. Zu jedem Kapitel wurden Lernziele definiert und Fragen zur Erfolgskontrolle angefügt. Das Buch bietet für Studierende an Universitäten und Fachhochschulen eine kompakte und systematische Darstellung der Werkstoffkunde auf neuestem Stand.

Pluspunkte
► Knappe, systematische Darstellung auf neuestem Stand ► Praxistauglichkeit der vier Werkstoffgruppen: keramische, metallische, Polymer- und Verbundwerkstoffe ► Berücksichtigung neuer Entwicklungen auf dem Gebiet der Werkstoffkunde ► Erörterungen der Stoffkreisläufe einschließlich der Nachhaltigkeit

Fachgebiete
Beschreibung und Auswertung von Werkstoffen; Polymerwissenschaften; Kondensierte Materie und Materialwissenschaften

Zielgruppen
Studenten der Ingenieurwissenschaften, Naturwissenschaften

Kategorie
Lehrbuch

Erscheint Juni 2008

Angereicht in Highlights 01/2008

► ca. € (D) 49,95 | € (A) 51,35 | *sFr 81,50 ISBN 978-3-540-71857-4
Multiscale Dissipative Mechanisms and Hierarchical Surfaces

Friction, Superhydrophobicity, and Biomimetics

Multiscale Dissipative Mechanisms and Hierarchical Surfaces covers the rapidly developing topics of hierarchical surfaces, roughness-induced superhydrophobicity and biomimetic surfaces. The research in these topics has been progressing rapidly in the recent years due to the advances in the nanosciences and surfaces science and due to potential applications in nanotechnology. The first in its field, this monograph provides a comprehensive review of these subjects and presents the background introduction as well as recent and new results in the area.

Contents

Fields of interest
Nanotechnology; Surfaces and Interfaces, Thin Films; Biomaterials

Type of publication
Monograph

Due June 2008
Jointly Published with the IUCr
* € (D) 294,25 | € (A) 302,50 | sFr 479,00
ISBN 978-1-4020-8205-4

Due June 2008
Jointly Published with the IUCr
** * € (D) 327,25 | € (A) 330,00 | sFr 503,50
ISBN 978-1-4020-8206-1

Multifunctional Pharmaceutical Nanocarriers

The use of nanoparticulate pharmaceutical carriers to enhance the in vivo efficiency of many drugs well established itself over the past decade both in pharmaceutical research and clinical setting. Looking into the future of the field of drug delivery, we have to think about the development of the next generation of pharmaceutical nanocarriers combining the whole variety of properties and allowing for the simultaneous performance of multiple functions. Surface modification of pharmaceutical carriers is often used to control their properties in a desirable fashion and make them to simultaneously perform several different functions. This book is all about these “futuristic” multifunctional medicines.

Features
- All chapters written by international leaders in the field
- Detailed illustrations
- Latest volume in the Fundamental Biomedical Technologies series
- Offers the most recent innovations and discoveries related to nanopharmaceuticals

From the contents

Fields of interest
Nanotechnology; Medical Microbiology; Pharmacy

Target groups
Nano-scientists and clinicians working in biology and medicine, pharmaceutical researchers, researchers interested in drug delivery and drug research, bioengineers, chemists, physicists, and engineers

Type of publication
Contributed volume

Due April 2008

* € (D) 144,40 | € (A) 148,45 | sFr 225,00
**International Tables for Crystallography, Volume A1**
Symmetry relations between space groups

**Features**
► The second edition of Volume A1 includes a new chapter describing how to create trees of group-subgroup relations and a new chapter on the Bilbao Crystallographic Server describing the freely available programs that it provides. ► Two new sections in the guide to the subgroup tables and graphs extend the treatment of the supergroups of space groups, and a new section on supergroups is included.

**Fields of interest**
Crystallography; Materials Science; Condensed Matter and Materials Sciences

**Target groups**
Researchers, scientists

**Type of publication**
Handbook

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**Due June 2008**

Jointly Published with the IUCr

► * € (D) 294,25 | € (A) 302,50 | sFr 479,00
ISBN 978-1-4020-8207-8

Jointly Published with the IUCr

► ** € (D) 327,25 | € (A) 330,00 | sFr 503,50

Jointly Published with the IUCr

► * € (D) 368,08 | € (A) 378,40 | sFr 599,00