

New titles in Physics

June - July 2018

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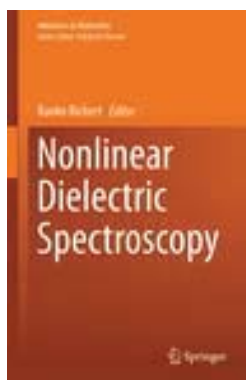
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ISBN : 978-3-319-77573-9

Richert, Ranko (Ed.), Arizona State University, Tempe, AZ, USA

Nonlinear Dielectric Spectroscopy

- Introduces the ideas and concepts of nonlinear dielectric spectroscopy
- Provides insight into the experimental technologies
- Discusses various approaches to nonlinear dielectric features in individual chapters by specialists in their respective fields

This book introduces the ideas and concepts of nonlinear dielectric spectroscopy, outlines its history, and provides insight into the present state of the art of the experimental technology and understanding of nonlinear dielectric effects. Emphasis is on what can be learned from nonlinear experiments that could not be derived from the linear counterparts. The book explains that nonlinear dielectric spectroscopy can be used as a tool to measure structural recovery or physical aging, as well as connections between dynamics and thermodynamic variables such as enthalpy and entropy. Supercooled liquids in their viscous regime are ideal ...

Contents

Introduction.- Experiment.- Theory/Modeling.

Fields of Interest

Spectroscopy/Spectrometry; Atoms and Molecules in Strong Fields, Laser Matter Interaction; Characterization and Evaluation of Materials; Electrochemistry; Soft and Granular Matter, Complex Fluids and Microfluidics

Content Level

Research

Product category

Monograph

Due July 22,2018

In production

Bibliography

1st ed. 2018,VIII, 372 p.(Advances in Dielectrics) Hardcover

Medium Type

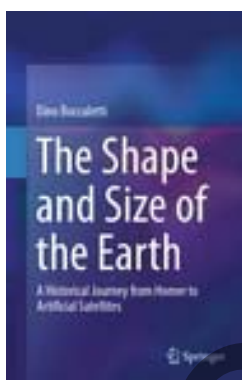
Book

Imprint

Springer

E12999 本体21,360円

Order Quantity



ISBN : 978-3-319-90592-1

Boccaletti, Dino, Universita degli Studi di Roma, Roma

The Shape and Size of the Earth

A Historical Journey from Homer to Artificial Satellites

- Provides a complete historical account of how the figure of the Earth has been measured, calculated and established ever more accurately
- Offers a thorough treatment of disputes on the shape of the Earth in the Middle Ages
- Explores the role of mathematics in the geodetic enterprises of the eighteenth century

This book describes in detail the various theories on the shape of the Earth from classical antiquity to the present day and examines how measurements of its form and dimensions have evolved throughout this period. The origins of the notion of the sphericity of the Earth are explained, dating back to Eratosthenes and beyond, and detailed attention is paid to the struggle to establish key discoveries as part of the cultural heritage of humanity. In this context, the roles played by the Catholic Church and the philosophers of the Middle Ages are scrutinized. Later contributions by such luminaries as Richer, Newton, Clairaut, Maupertuis, and ...

Contents

1 The Graeco-Roman World.- 2 The Roman world from the end of the republic to the end of the empire.- 3 The Middle Ages.- 4 From the age of the great transoceanic discoveries to the new measurements of the Earth .90.- 5 The Figure and the size of the Earth in the XVIII Century.- 6 From the French Revolution to the artificial Satellites.- Epilogue.- The concept of Geoid.- The mathematical Model.- The satellitar Geodesy.

Fields of Interest

Geophysics/Geodesy; History and Philosophical Foundations of Physics; History of Science; Mathematics of Planet Earth; History of Mathematical Sciences; Philosophy of Science

Content Level

Graduate

Product category

Monograph

Due July 17,2018

In production

Bibliography

1st ed. 2019,XV, 193 p. 17 illus., 1 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

E10999 本体18,070円

Order Quantity



ISBN : 978-3-319-77744-3

Hutter, Kolumban, Wang, Yongqi, ETH Zürich Lab Hydraulics, Hydrology, Glaciology, Zürich, Switzerland

Fluid and Thermodynamics

Volume 3: Structured and Multiphase Flows

- Provides an overview of the descriptions of continuous bodies
- Contains constructive modeling for different dimensions of body parts
- Presents a full Reynolds averaging procedure

This third volume describes continuous bodies treated as classical (Boltzmann) and spin (Cosserat) continua or fluid mixtures of such bodies. It discusses systems such as Boltzmann continua (with trivial angular momentum) and Cosserat continua (with nontrivial spin balance) and formulates the balance law and deformation measures for these including multiphase complexities. Thermodynamics is treated in the spirit of Müller–Liu: it is applied to Boltzmann-type fluids in three dimensions that interact with neighboring fluids on two-dimensional contact surfaces and/or one-dimensional contact lines. For all these situations it formulates the ...

Contents

TOC will be updated upon the receipt of the manuscript package

Fields of Interest

Geophysics/Geodesy; Thermodynamics; Soft and Granular Matter, Complex Fluids and Microfluidics; Crystallography and Scattering Methods

Content Level

Research

Product category

Monograph

Due July 22,2018

In production

Bibliography

1st ed. 2018,XXIV, 625 p.(Advances in Geophysical and Environmental Mechanics and Mathematics) Hardcover

Medium Type

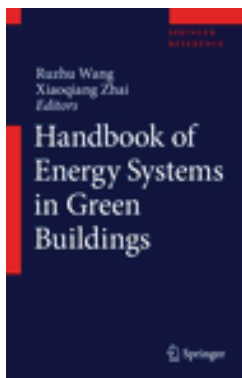
Book

Imprint

Springer

E14999 本体24,650円

Order Quantity



ISBN : 978-3-662-49119-5

Wang, Ruzhu, Zhai, Xiaoqiang (Eds.), Shanghai Jiao Tong University, Shanghai, China

Handbook of Energy Systems in Green Buildings

- Provides a comprehensive insight into green building from the point of energy systems
- Introduces the most updated reviews and references for the design of renewable and efficient energy systems
- Presents guideline and instructions for the integration of hybrid energy systems with buildings

This handbook provides a comprehensive summary on the energy systems used in green buildings, with a particular focus on solar energy - the most common renewable energy source applied in this field. With the growing concern about environmental protections, the concepts of green building have been widely promoted and implemented in nowadays building designs and constructions. Among all, sustainable energy systems, including energy harvesting, conversion, and storage, is one of most important design factors in green buildings. Unlike traditional energy systems which highly rely on fossil fuel, green buildings utilize renewable energy source or ...

Contents

Green building Concepts.- Solar energy systems.- Efficient heat pump energy systems.- Combined cooling, heating and power systems.- Efficient heating and cooling technologies.- Energy storage.- Passive building design.- Integrated energy systems in green buildings.- Cases of energy systems in green buildings.

Fields of Interest

Energy Efficiency; Physics of Energy Technology; Building Physics, HVAC; Energy Systems; Renewable and Green Energy

Content Level

Research

Product category

Handbook

Due July 24,2018

In production

Bibliography

1st ed. 2018,XXII, 1885 p. 1120 illus., 724 illus. in color. In 2 volumes, not available separately. Hardcover

Medium Type

Book

Imprint

Springer

E49999 本体82,170円

Order Quantity



ISBN : 978-3-319-74372-1

Walter, Ulrich, TU München Institute of Astronautics, Garching, Germany

Astronautics

The Physics of Space Flight

- The only textbook on the market dealing comprehensively with the physics of spaceflight
- Based on the author's extensive teaching and his work with students
- Provides problems and solutions covered in no other textbook (relativistic flight, new solution to Lambert problem)

This introductory text covers all the key concepts, relationships, and ideas behind spaceflight and is the perfect companion for students pursuing courses on or related to astronautics. As a crew member of the STS-55 Space Shuttle mission and a full professor of astronautics at the Technical University of Munich, Ulrich Walter is an acknowledged expert in the field. This book is based on his extensive teaching and work with students, and the text is backed up by numerous examples drawn from his own experience. With its end-of-chapter examples and problems, this work is suitable for graduate

level or even undergraduate courses in spaceflight, ...

Contents

Rocket Fundamentals.- Rocket Flight.- Rocket Staging.- Thermal Propulsion.- Electric Propulsion.- Atmospheric and Ascent Flight.- Orbits.- Orbital Maneuvering.- Interplanetary Flight.- Planetary Entry.- Three-Body Problem.- Orbit Perturbations.- Reference Frames.- Orbit Determination.- Spacecraft Attitude Dynamics.- Thermal Radiation Physics and Modeling.

Fields of Interest

Aerospace Technology and Astronautics; Space Sciences (including Extraterrestrial Physics, Space Exploration and Astronautics); Classical Mechanics; Classical and Quantum Gravitation, Relativity Theory

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Due July 22,2018

In production

Bibliography

3rd ed. 2018,XXXVI, 830 p. 294 illus., 72 illus. in color. Hardcover

Medium Type

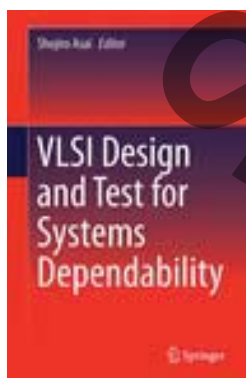
Book

Imprint

Springer

E9999 本体16,430円

Order Quantity



ISBN : 978-4-431-56592-5

Asai, Shojiro (Ed.), Rigaku Corporation, Tokyo

VLSI Design and Test for

Systems Dependability

- Is the first book to focus on the new roles VLSI is taking for the safe, secure, and dependable design and operation of electronic systems
- Contributes to a better understanding of threats against safe and secure systems and how to mitigate them by advanced design and testing of VLSI as core components
- Describes specific applications of design and testing for dependability in real-world applications such as controls for robots and vehicles, wireless communications, system of systems, and the Internet of Things (IoT)

This book discusses the new roles that the VLSI (very-large-scale integration of semiconductor circuits) is taking for the safe, secure, and dependable design and operation of electronic systems. The book consists of three parts. Part I, as a general introduction to this vital topic, describes how electronic systems are designed and tested with particular emphasis on dependability engineering, where the simultaneous assessment of the detrimental outcome of failures and cost of their containment is made. This section also describes the related research project "Dependable VLSI Systems," in which the editor and authors of the book were ...

Contents

Challenges and Opportunities in VLSI for Systems Dependability.- Design and Development of Electronic Systems for Quality and Dependability.- Radiation-Induced Soft Errors.- Electromagnetic Noises.- Variations in Device Characteristics.- Time-Dependent Degradation in Device Characteristics.- Connectivity in Wireless Telecommunications.- Connectivity in Electronic Packaging.- Responsiveness for Hard Real Time Control.- The Role of Security LSI and the Example of Malicious Attacks.- Verification and Test Coverage.- Unknown Threats and Provisions.- Design Automation for Reliability.- Formal Verification and Debugging of VLSI Logic Design for ...

Fields of Interest

Circuits and Systems; Electronic Circuits and Devices; Quality Control, Reliability, Safety and Risk; Engineering Design; Systems and Data Security

Content Level

Research

Product category

Monograph

Due July 26,2018

In production

Bibliography

1st ed. 2019,VIII, 769 p. 585 illus., 352 illus. in

color. Hardcover

Medium Type

Book

Imprint

Springer

E21999 本体3,6150円

Order Quantity



ISBN : 978-3-319-90384-2

Topaloglu, Rasit O., Wong, H.-S. Philip (Eds.), IBM, New York, NY, USA

Beyond-CMOS Technologies for Next Generation Computer Design

- Provides an overview of CMOS scaling challenges and motivation for considering "beyond-CMOS devices;"
- Discusses challenges posed by beyond-CMOS integration;
- Sheds light on how device architecture and systems should be designed differently leveraging beyond-CMOS device technologies.

This book describes the bottleneck faced soon by designers of traditional CMOS devices, due to device scaling, power and energy consumption, and variability limitations. This book aims at bridging the gap between device technology and architecture/system design. Readers will learn about challenges and opportunities presented by "beyond-CMOS devices" and gain insight into how these might be leveraged to build energy-efficient electronic systems.

Contents

Beyond-Silicon Devices: Considerations for Circuits and Architectures.- Functionality-enhanced devices: from transistors to circuit-level opportunities.- Heterogeneous integration of 2D materials and devices on a

Si platform.- Emerging NVM Circuit Techniques and Implementations for Energy-Efficient Systems.- The Processing-in-Memory Paradigm: Mechanisms to Enable Adoption.- Emerging Steep-Slope Devices and Circuits: Opportunities and Challenges.- Spin-based Majority Computation.- Index.

Fields of Interest

Circuits and Systems; Electronic Circuits and Devices; Processor Architectures; Logic Design

Content Level

Professional/practitioner

Product category

Professional book

Due July 24,2018

In production

Bibliography

1st ed. 2019,VIII, 242 p. 154 illus., 140 illus. in color. Hardcover

Medium Type

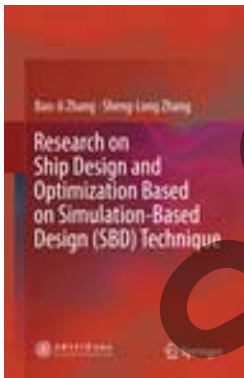
Book

Imprint

Springer

E11999 本体19,720円

Order Quantity



ISBN : 978-981-10-8422-5

Zhang, Bao-Ji, Zhang, Sheng-Long, Shanghai Maritime University, Shanghai, China

Research on Ship Design and Optimization Based on Simulation-Based Design (SBD) Technique

• Describes in detail the key technologies of ship form optimization and the optimization

process based on Michell's integral-, the Rankine source-, and the Reynolds-averaged Navier–Stokes (RANS) methods

- Discusses step by step hull-form optimization based on linear potential flow theory, nonlinear potential flow theory, and the viscous flow RANS method
- Presents the hull form wave resistance optimization and control optimization in the navigation process

Ship optimization design is critical to the preliminary design of a ship. With the rapid development of computer technology, the simulation-based design (SBD) technique has been introduced into the field of ship design. Typical SBD consists of three parts: geometric reconstruction; CFD numerical simulation; and optimization. In the context of ship design, these are used to alter the shape of the ship, evaluate the objective function and to assess the hull form space respectively. As such, the SBD technique opens up new opportunities and paves the way for a new method for optimal ship design. This book discusses the problem of optimizing ...

Contents

Introduction.- Key Technology of Ship Form Optimization.- Hydrodynamics Basic Theory.- Hull Geometry Reconstruction Technique.- Hull Geometry Reconstruction Technique.- Hull Form Optimization Based on the Rankine Source Method.- Hull Form Optimization Based on the Rankine Source Method.- Ship Navigation Control and Optimization.

Fields of Interest

Engineering Design; Classical Mechanics; Calculus of Variations and Optimal Control; Optimization; Engineering Fluid Dynamics

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2019,VIII, 234 p. 182 illus., 74 illus. in color. Hardcover

Medium Type

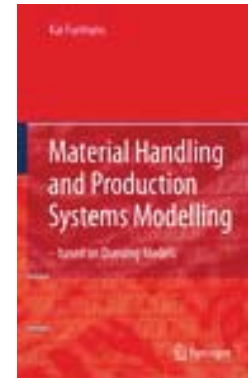
Book

Imprint

Springer

E13999 本体23,000円

Order Quantity



ISBN : 978-3-540-31774-6

Furmans, Kai, Universität Karlsruhe (TH) Stiftungslehrstuhl Logistik, Karlsruhe, Germany

Material Handling and Production Systems Modelling - based on Queuing Models

- Bridges the gap between stochastic modelling and engineering by combining a sound theoretical background with modelling examples in several application domains
- Based on this knowledge it is possible to identify areas of improvement in material handling and supply chain systems

Queueing models were successfully applied for material handling and production systems. The book helps practitioners to understand the major influences for inventory and lead times. Stochastic effects are frequently disregarded when designing material handling or production systems. Cause and effects for response times are derived. Based on this knowledge it is possible to identify areas of improvement in material handling systems. The book bridges the gap between stochastic modelling and practical engineering by combining the theoretical background with modelling examples in several application domains. It is also a useful supplement in ...

Contents

Elements of Supply Chains.- Queuing Networks.- Applications and Examples.

Fields of Interest

Engineering Economics, Organization, Logistics, Marketing; Complex Systems; Organization; Operations Management; Operations Research/Decision Theory; Statistical Physics and Dynamical Systems

Content Level

Professional/practitioner

Product category

Professional book

Planned

Bibliography

1st ed. 2019,150 p. 40 illus. Hardcover

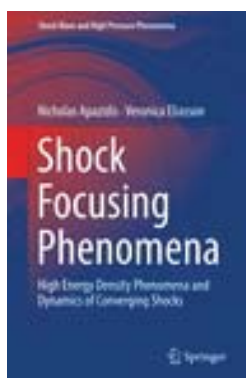
Medium Type

Book

Imprint

Springer

E5995 本体9,850円

Order Quantity

ISBN : 978-3-319-75864-0

Apazidis, Nicholas, Eliasson, Veronica, KTH-Royal Institute of Technology, Stockholm, Sweden

Shock Focusing Phenomena**High Energy Density Phenomena and Dynamics of Converging Shocks**

- Contains large amounts of experimental and numerical images illustrating the spectacular features of the shock focusing process
- Serves as a comprehensive summary of the accumulated knowledge in the field of shock focusing
- Describes and explains the theory of converging shock stabilization process

One of the main reasons for continuing interest in shock focusing is its ability to concentrate energy in a small volume and produce extreme temperatures and pressures in fluids in a controlled laboratory environment. The phenomenon of shock wave focusing leading to extreme conditions in fluids during micro- and nanosecond time intervals is a spectacular example of mechanics at small length and time scales revealing the major properties of shock dynamics including high-temperature gas phenomena. Production of high-energy concentrations in gases and fluids with star-like temperatures and extreme pressures by means of a stable imploding shock ...

Contents

Introduction.- Shock Focusing vs Explosions.-

On stability of converging shocks.- Shock Focusing in Nature (for example collapse of supernovae and pistol shrimp).- "Man-made" shock focusing.- Challenges.- Experimental approach overview.- Gases.- Liquids.- Solids.- Applications.- Summary and outlook.

Fields of Interest

Engineering Thermodynamics, Heat and Mass Transfer; Fluid- and Aerodynamics; Industrial Chemistry/Chemical Engineering; Engineering Fluid Dynamics

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2019,XII, 158 p. 153 illus.(Shock Wave and High Pressure Phenomena) Hardcover

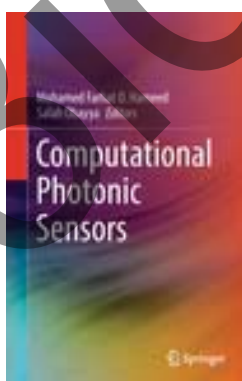
Medium Type

Book

Imprint

Springer

E13999 本体23,000円

Order Quantity

ISBN : 978-3-319-76555-6

Hameed, Mohamed Farhat O., Obayya, Salah (Eds.), Zewail City of Science and Technology, Giza

Computational Photonic Sensors

- Provides high quality material for researchers and engineers to harness their knowledge in the area of photonic sensors
- Covers the applications of photonic sensors in bio-molecular sensing, environmental issues, temperature variations, pressure sensing, DNA sequence sensors, and

multifunctional sensors

- Explains the fundamental role that new technologies, such as liquid crystal, photonic crystal, plasmonics, and SOI, play in optimizing photonic sensor performance

This book provides a comprehensive overview of the photonic sensing field by covering plasmonics, photonic crystal, and SOI techniques from theory to real sensing applications. A literature review of ultra-sensitive photonic sensors, including their design and application in industry, makes this a self-contained and comprehensive resource for different types of sensors, with high value to the biosensor sector in particular. The book is organized into four parts: Part I covers the basic theory of wave propagation, basic principles of sensing, surface plasmon resonance, and silicon photonics; Part II details the computational modeling ...

Contents

Part 1. Fundamentals.- Introduction to Optical Waveguides.- Fundamentals of Photonic Crystals.- Basic Principles of Surface Plasmon Resonance.- Introduction to Silicon Photonics.- Basic Principles of Biosensing.- Part 2. Computational Modeling Techniques.- Finite Element Method for Sensing Applications.- FDTD in Cartesian and Spherical Grids.- Part 3. Photonic Crystal Fiber Sensors.- Temperature Sensors Based on Plasmonic Photonic Crystal Fiber.- Microstructured Optical Fiber Based Plasmonic Sensors.- Multifunctional Plasmonic Photonic Crystal Fiber Biosensors.- Photonic Crystal Fiber Pressure Sensors.- Development of Photonic Crystal Fiber ...

Fields of Interest

Nanotechnology and Microengineering; Optics, Lasers, Photonics, Optical Devices; Nanotechnology; Crystallography and Scattering Methods; Industrial Chemistry/ Chemical Engineering

Content Level

Research

Product category

Monograph

Due July 17,2018

In production

Bibliography

1st ed. 2019,VI, 452 p. 273 illus., 219 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

E14999 本体24,650円

Order Quantity



ISBN : 978-981-13-0097-4

Yan, Jiawang (Ed.), Keio University, Yokohama, Japan

Micro and Nano Fabrication Technology

- Summarizes the latest micro-/nanofabrication technology and manufacturing research
- Provides comprehensive and multidisciplinary knowledge and methodologies
- Intended for not only specialists in this field but also a broad range of students and researchers from other related disciplines

This volume focuses on the state-of-the-art micro/nanofabrication technologies for creating miniature structures with high precision. These multidisciplinary technologies include mechanical, electrical, optical, physical, and chemical methods, as well as hybrid processes, covering subtractive and additive material manufacturing, as well as net-shape manufacturing. The materials the volume deals with include metals, alloys, semiconductors, polymers, crystals, glass, ceramics, composites, and nanomaterials. The volume is composed of 30 chapters, which are grouped into five parts. Engaging with the latest research in the field, these chapters ...

Contents

Part 1 Cutting technology.- Chapter 1 Micro chiseling of retroreflective arrays.- Chapter 2 Micro milling for functional surface.- Chapter 3 Micro cylindrical turning of calcium fluoride.- Chapter 4 Nanogrooving by using multi-tip diamond tools.- Chapter 5 Elliptical vibration cutting for difficult-to-cut materials.- Chapter 6 Micro machining of roller mould for roll-to-roll manufacturing.- Chapter 7 Tool servo-driven diamond turning for structured surface.- Part 2 Abrasive/tip-based machining technology.- Chapter 8 Micro/nano texturing by ultrasonic assisted grinding.- Chapter 9 Precision grinding for

functional micro-structured surface.- ...

Fields of Interest

Nanotechnology and Microengineering; Nanotechnology; Medicine/Public Health, general; Biomedical Engineering

Content Level

Research

Product category

Reference work

Due July 20,2018

In production

Bibliography

1st ed. 2018,XVI, 959 p. 815 illus., 547 illus. in color.(Micro/Nano Technologies) Hardcover

Medium Type

Book

Imprint

Springer

E49999 本体82,170円

Order Quantity



ISBN : 978-3-319-55410-5

da Silva, L.F.M., Öchsner, A., Adams, R.D. (Eds.), Faculty of Engineering, University of Porto, Porto, Portugal

Handbook of Adhesion Technology

- Provides quick access to authoritative knowledge in a user-friendly format
- Offers comprehensive coverage for people from diverse scientific disciplines and working in a wide range of technologies, including the oil and automotive industry
- Updated and revised edition serves even more as a handy reference for the day-to-day practise

This 2nd edition is a complete revision with an update of the methods that have been investigated recently and that are now fully accepted by the adhesion community. Themes that are now treated in more detail include for example hybrid adhesives used for automotive applications, ecofriendly surface treatments, damage mechanics, joint durability prediction and functionally graded joints. There is also a new chapter related to the application of adhesives in the oil industry. Besides these content changes, there has been a complete revision of all chapters in terms of text, figures, tables and references for a more didactic character of this ...

Contents

Introduction to adhesive bonding technology.- Theory of Adhesion.- Surface treatments.- Adhesive and sealant materials.- Testing of adhesive properties.- Joint design.- Durability.-Manufacture.-Quality control.- Applications.- Emerging areas.

Fields of Interest

Operating Procedures, Materials Treatment; Materials Science, general; Polymer Sciences; Engineering Design; Continuum Mechanics and Mechanics of Materials

Content Level

Professional/practitioner

Product category

Handbook

Available

Bibliography

2nd ed. 2018,XXIII, 1805 p. 919 illus., 428 illus. in color. In 2 volumes, not available separately. Hardcover

Medium Type

Book

Imprint

Springer

E69999 本体115,050円

Order Quantity



ISBN : 978-3-319-45443-6

Ovsianikov, A., Yoo, J., Mironov, V. (Eds.),
Technische Universität Wien (TU Wien), Vienna,
Austria

3D Printing and Biofabrication

- Provides an in-depth introduction to 3D printing and biofabrication
- Covers inkjet, extrusion and laser-based processing of cell-containing materials
- Includes mathematical models used in tissue engineering

This volume provides an in-depth introduction to 3D printing and biofabrication and covers the recent advances in additive manufacturing for tissue engineering. The book is divided into two parts, the first part on 3D printing discusses conventional approaches in additive manufacturing aimed at fabrication of structures, which are seeded with cells in a subsequent step. The second part on biofabrication presents processes which integrate living cells into the fabrication process.

Contents

Part I (3D Printing).- 3D Printing: Introduction.- Additive Manufacturing Technologies for Fabrication of Scaffolds.- Characterization of Additive Manufactured Scaffolds.- Computational Methods for the Predictive Design of Tissue Engineering Materials.- Materials, Methods and Current Progress of 3D Printing for TE Applications.- Mathematical Modelling of 3D Tissue Engineering Constructs.- Medical Imaging for 3D CAD Models.- Trends in Additive Manufacturing for TE Applications.- Use of Ceramics in Musculoskeletal Regenerative Medicine.- Vascularization of 3D Printed and Engineered Tissues. Part II (Biofabrication).- Biofabrication: ...

Fields of Interest

Regenerative Medicine/Tissue Engineering;
Biomaterials; Biomedical Engineering;
Biomedical Engineering/Biotechnology;
Physiological, Cellular and Medical Topics

Content Level

Research

Product category

Handbook

Available

Bibliography

1st ed. 2018, XVIII, 558 p. 164 illus., 107 illus. in color. (Tissue Engineering and Regeneration)
Hardcover

Medium Type

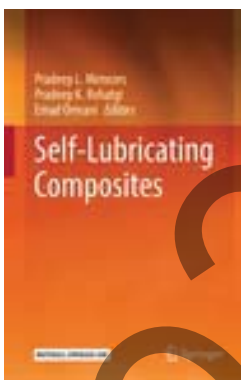
Book

Imprint

Springer

E21999 本体36,150円

Order Quantity



ISBN : 978-3-662-56527-8

Menezes, P.L., Rohatgi, P.K., Omrani, E. (Eds.),
University of Nevada, Reno, NV

Self-Lubricating Composites

- No comprehensive literature on self-lubricating materials
- Rapid demand for advanced materials
- An awareness for industries to employ self-lubricating materials

In most tribological applications, liquid or grease based lubricants are used to facilitate the relative motion of solid bodies to minimize friction and wear between interacting surfaces. The challenges for liquid lubricants arise in extreme environmental conditions, such as very high or low temperatures, vacuum, radiation, and extreme contact pressure. At these conditions, solid lubricants may be the alternative choice which can help to decrease friction and wear without incorporating liquid lubricants. Challenges with solid lubricants are to maintain a continuous supply of solid lubricants on the contact surfaces to act as lubricous layer ...

Contents

Fundamentals of Solid Lubricants.- Tribology of Self-Lubricating Metal Matrix Composites.- Self-Lubricating Polymer Composites.- Tribology of Self-Lubricating Polymer NanoComposites.- Recent Progress in Self-Lubricating Ceramic Composites.- Polymeric Solid Lubricant Transfer Films: Relating Quality to Wear Performance.- In Situ Generated Turbostratic 2D Graphite: A New Way to Obtain High Performance Self-Lubricating Iron Based Composites.- Surface Engineering Design of Alumina-Matrix Composites.- Molecular Dynamics Simulation of Friction in Self-Lubricating Materials: An Overview of Theories and Available Models.- Environmental Analysis of ...

Fields of Interest

Ceramics, Glass, Composites, Natural Materials; Industrial Chemistry/Chemical Engineering; Nanotechnology;
Nanochemistry

Content Level

Professional/practitioner

Product category

Handbook

Due July 24, 2018

In production

Bibliography

1st ed. 2018, IV, 335 p. 171 illus., 85 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

E15999 本体26,290円

Order Quantity



ISBN : 978-3-319-78764-0

Baker, Ian, Dartmouth College, Hanover, NH, USA

Fifty Materials that Make the World

- Provides a concise introduction to various materials with broad day-to-day applications
- Describes how the uses of certain materials were discovered and their importance in today's world
- Examines how advances in materials underlie and enable advances in technology

This book introduces materials and how advances in materials result in advances in technology and our daily lives. Each chapter covers a particular material, how the material was discovered or invented, when it was first used, how this material has impacted the world, what makes the material important, how it is used today, and future applications. The list of materials covered in this book includes stone, wood, natural fibers, metals, clay, lead, iron, steel, silicon, glass, rubber, composites, polyethylene, rare earth magnet, and alloys.

Contents

Chapter 1. ABS.- Chapter 2. AlNiCo.- Chapter 3. Aluminum.- Chapter 4. Asphalt.- Chapter 5. Bakelite.- Chapter 6. Bronze.- Chapter 7. Carbon Fiber.- Chapter 8. Celluloid.- Chapter 9. Clay.- Chapter 10. Cement and Concrete.- Chapter 11. Copper.- Chapter 12. Cotton.- Chapter 13. Diamond.- Chapter 14. Electroceramics.- Chapter 15. Gallium Arsenide.- Chapter 16. GFRP.- Chapter 17. Glass.- Chapter 18. Gold.- Chapter 19. Graphite.- Chapter 20. Gutta Percha.- Chapter 21. Iron.- Chapter 22. Kevlar and Aramid Fibers.- Chapter 23. Lead.- Chapter 24. Leather.- Chapter 25. Lithium.- Chapter 26. Magnesium.- Chapter 27. Ni-based Superalloys.- Chapter 28. Nylon.- Chapter ...

Fields of Interest

Characterization and Evaluation of Materials; Nanotechnology and Microengineering; Popular Science in Chemistry and Materials; Ceramics, Glass, Composites, Natural Materials

Content Level

Popular/general

Product category

Popular science

In production

Bibliography

1st ed. 2018, VII, 315 p. 180 illus., 135 illus. in color. Hardcover

Medium Type

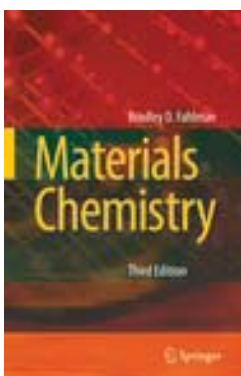
Book

Imprint

Springer

E3999 本体6,570円

Order Quantity



ISBN : 978-94-024-1253-6

Fahlman, Bradley D., Central Michigan University, Mount Pleasant, MI, USA

Materials Chemistry

- Completely revised, updated and expanded new edition of an award winning textbook
- Contains many illustrations and color graphics, end-of-chapter exercises, as well as up-to-date references and examples
- Provides lab modules dealing with various types of materials synthesis

The 3rd edition of this successful textbook continues to build on the strengths that were recognized by a 2008 Textbook Excellence Award from the Text and Academic Authors Association (TAA). Materials Chemistry addresses inorganic-, organic-, and nano-based materials from a structure vs. property treatment, providing a suitable breadth and depth coverage of the rapidly evolving materials field — in a concise format. The 3rd edition offers significant updates throughout, with expanded sections on sustainability, energy storage, metal-organic frameworks, solid electrolytes, solvothermal/microwave syntheses, integrated circuits, and ...

Contents

1. What is Materials Chemistry?. - 2. Solid-State Chemistry.- 3. Metals.- 4. Semiconductors.- 5. Polymeric Materials.- 6. Nanomaterials.- 7. Materials Characterization.- Appendices I, II, III

Fields of Interest

Characterization and Evaluation of Materials; Polymer Sciences; Condensed Matter Physics; Materials Engineering; Nanotechnology; Spectroscopy and Microscopy

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Due July 18, 2018

In production

Bibliography

3rd ed. 2018, X, 814 p. 611 illus., 245 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

E9999 本体16,430円

Order Quantity



ISBN : 978-94-024-1300-7

Shabalina, Igor L., The University of Salford, Greater Manchester

Ultra-High Temperature Materials II

Refractory Carbides I (Ta, Hf, Nb and Zr Carbides)

- Provides exhaustive coverage for numerous alloys, ceramics, carbides, nitrides, borides, oxides and dioxides
- Describes the chemical properties of carbides and general principles of carbide containing materials design
- Provides numerous tables of properties

This exhaustive work in three volumes and over 1300 pages provides a thorough treatment of ultra-high temperature materials with melting points over 2500 °C. The first volume focuses on Carbon and Refractory Metals, whilst the second and third are dedicated solely to Refractory compounds and the third to Refractory Alloys and Composites respectively. Topics included are physical (crystallographic,

thermodynamic, thermo physical, electrical, optical, physico-mechanical, nuclear) and chemical (solid-state diffusion, interaction with chemical elements and compounds, interaction with gases, vapours and aqueous solutions) properties of the ...

Contents

Dedication.- Preface.- About the Author.- Introduction.- Tantalum Carbides.- Hafnium Monocarbide.- Niobium Carbides.- Zirconium Monocarbide.- Addendum.- Index (Physical Properties).- Index (Chemical Systems).

Fields of Interest

Characterization and Evaluation of Materials; Inorganic Chemistry; Ceramics, Glass, Composites, Natural Materials

Content Level

Research

Product category

Monograph

Due July 02,2018

In production

Bibliography

1st ed. 2018,XIII, 847 p. Hardcover

Medium Type

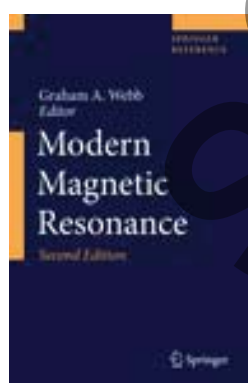
Book

Imprint

Springer

E19999 本体32,870円

Order Quantity



ISBN : 978-3-319-28387-6

Webb, Graham A. (Ed.), Royal Society of Chemistry, London, UK

Modern Magnetic Resonance

• Completely revised and updated second

edition contains recent studies post 2008 and key information of NMR, MRI, and ESR and their applications

- Editors and Contributors, internationally renowned scientists in their fields, come from industry and academia
- Unifies the diverse NMR applications for a complete yet detailed overview

This completely revised and updated second edition showcases the considerable progress that has taken place in this field since 2008. The three part reference work contains key developments, scores of contributions, key literature citations and overviews of the important progress achieved in the relevant topics since the publication of the previous edition. Two key differences in this new edition are the replacement of the previous Medical Sciences section with the Biological and Pharmaceutical Science sections and the inclusion of a new part featuring Archaeological applications. Divided into seven comprehensive parts, the work covers: ...

Contents

PART 1: Applications in Chemistry and Marine Sciences Foreword (by Gary Martin, Merck Research Laboratories).- Amyloids.- Kinetics of Amyloid Fibril Formation of Human Calcitonin.- Polymorphism of Alzheimer's A β Amyloid Fibrils.- Chemical Shifts and Spin-Couplings.- ¹³C, ¹⁵N, ¹H, ²H, and ¹⁷O NMR Chemical Shift NMR for Hydrogen Bonds.- NMR Chemical Shift Map.- NMR Chemical Shifts Based on Band Theory.- Modeling NMR Chemical Shifts.- Ab Initio Calculation of NMR Shielding Constants.- Crystal Structure Refinement Using Chemical Shifts.- The Theory of Nuclear Spin-Spin Couplings.- Fibrous Proteins.- Investigation of Collagen Dynamics by ...

Fields of Interest

Characterization and Evaluation of Materials; Pharmaceutical Sciences/Technology; Archaeology; Molecular Medicine; Food Science; Marine & Freshwater Sciences

Content Level

Research

Product category

Handbook

Due July 02,2018

In production

Bibliography

2nd ed. 2018,XLIV, 2293 p. 742 illus., 481 illus. in color. In 3 volumes, not available separately. Hardcover

Medium Type

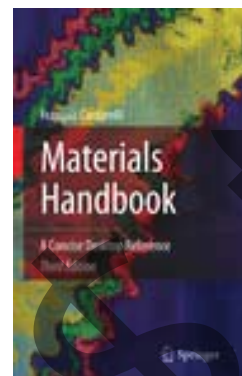
Book

Imprint

Springer

E949 本体155,980円

Order Quantity



ISBN : 978-3-319-38923-3

Cardarelli, François, Electrochem Technologies & Materials Inc., Montréal, QC, Canada

Materials Handbook

A Concise Desktop Reference

- Thorough presentation of physical and chemical data on a uniquely broad range of materials – 20 different classes
- Careful indexing and extensive use of tables make data quickly accessible
- Emphasises industrial relevance of both the data presented and the descriptive information for many individual materials

The unique and practical Materials Handbook (third edition) provides quick and easy access to the physical and chemical properties of very many classes of materials. Its coverage has been expanded to include whole new families of materials such as minor metals, ferroalloys, nuclear materials, food, natural oils, fats, resins, and waxes. Many of the existing families—notably the metals, gases, liquids, minerals, rocks, soils, polymers, and fuels—are broadened and refined with new material and up-to-date information. Several of the larger tables of data are expanded and new ones added. Particular emphasis is placed on the properties of common ...

Contents

Introduction.- Properties of Materials.- Ferrous Metals and Their Alloys.- Common Nonferrous Metals.- Less Common Nonferrous Metals.- Semiconductors.- Superconductors.- Magnetic Materials.- Insulators and Dielectrics.- Miscellaneous Electrical Materials.- Ceramics, Refractories and Glasses.- Polymers and Elastomers.- Minerals, Ores and Gemstones.- Rocks and

Meteorites.- Soils and Fertilizers.- Cements, Concrete, Building Stones and Construction Materials.- Timbers and Woods.- Fuels, Propellants and Explosives.- Composite Materials.- Gases.- Liquids.- Food Materials. - Natural Oils, Fats, Resins and Waxes. - Nuclear Materials.- Materials ...

Fields of Interest

Materials Science, general; Materials Engineering; Inorganic Chemistry; Industrial Chemistry/Chemical Engineering

Content Level

Professional/practitioner

Product category

Handbook

Due July 02,2018

In production

Bibliography

3rd ed. 2018,CXXXII, 2254 p. 175 illus., 2 illus. in color. In 2 volumes, not available separately. Hardcover

Medium Type

Book

Imprint

Springer

E279 本体45,850円

Order Quantity



ISBN : 978-3-319-69741-3

Warlimont, Hans, Martienssen, Werner (Eds.), Freigericht, Germany

Springer Handbook of Materials Data

- Provides the most concise, yet authoritative collection of materials data
- Allows quick retrieval of applicable, reliable, and comprehensive data through tables and

graphs

- Second edition carefully updated and extended with materials for novel applications

The second edition of this well-received handbook is the most concise yet comprehensive compilation of materials data. The chapters provide succinct descriptions and summarize essential and reliable data for various types of materials. The information is amply illustrated with 900 tables and 1050 figures selected primarily from well-established data collections, such as Landolt-Börnstein, which is now part of the SpringerMaterials database. The new edition of the Springer Handbook of Materials Data starts by presenting the latest CODATA recommended values of the fundamental physical constants and provides comprehensive tables of the ...

Contents

Part A Fundamentals.- Part B Metals.- Part C Nonmetallic Materials.- Part D Functional Materials.- Part E Special Structures.

Fields of Interest

Materials Science, general; Condensed Matter Physics; Materials Engineering; Physical Chemistry

Content Level

Professional/practitioner

Product category

Handbook

Due July 23,2018

In production

Bibliography

2nd ed. 2018,1300 p.(Springer Handbooks) Hardcover

Medium Type

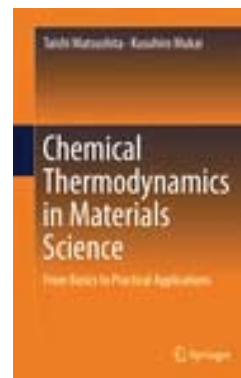
Book

Imprint

Springer

E27999 本体46,010円

Order Quantity



ISBN : 978-981-13-0404-0

Matsushita, Taishi, Mukai, Koshiro, Jönköping University, Jönköping, Sweden

Chemical Thermodynamics in Materials Science

From Basics to Practical Applications

- Provides rigorous explanations of the basic concepts, advanced concepts, and applications, with schematic illustrations and thorough derivation of equations
- Includes some 50 examples with solutions
- Contains important concepts and data for the iron and steel making processes

This textbook covers chemical thermodynamics in materials science from basic to advanced level, especially for iron and steel making processes. To improve a process by applying knowledge of thermodynamics or to assess the calculation results of thermodynamic software, an accurate and systematic understanding of thermodynamics is required. For that purpose, books from which one can learn thermodynamics from the basic to the advanced level are needed, but such books are rarely published. This book bridges the gap between the basics, which are treated in general thermodynamic books, and their application, which are only partially dealt with in ...

Contents

Introduction.- Symbols and glossary.- The first law of thermodynamics.- Enthalpy, H.- The second law of thermodynamics.- Entropy, S.- Equilibrium conditions.- Chemical potential and activity.- Partial molar quantities and excess quantities.- Gibbs energy change, ΔG , and standard Gibbs energy change, ΔG° .- Introduction to computational thermodynamics.- Books, databases, and software.- Thermodynamic data.

Fields of Interest

Metallic Materials; Physical Chemistry; Engineering Thermodynamics, Heat and Mass Transfer; Thermodynamics; Structural Materials

Content Level

Lower undergraduate

Product category

Undergraduate textbook

Due July 30,2018

In production

Bibliography

1st ed. 2018,XI, 263 p. 64 illus., 14 illus. in color. Hardcover

Medium Type

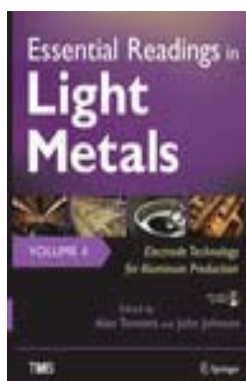
Book

Imprint

Springer

E6999 本体11,500円

Order Quantity



ISBN : 978-3-319-48577-5

Tomsett, Alan, Johnson, John (Eds.), vatican, Holy See (Vatican City State)

Essential Readings in Light Metals, Volume 4, Electrode Technology for Aluminum Production

This compilation is the most comprehensive historical collection of papers written on primary aluminum science and technology. It is a definitive reference in the field of aluminum production and related light metals technologies and contains a strong mix of materials science and practical, applied technology. Written for materials scientists and engineers, metallurgists, mechanical engineers, aerospace and automobile engineers, electrical and electronics engineers, this volume is a valuable resource for the global aluminum and light metals industries.

Fields of Interest

Metallic Materials; Characterization and Evaluation of Materials; Materials Engineering

Content Level

Professional/practitioner

Product category

Monograph

Available

Bibliography

1st ed. 2016,L, 1194 p. In 2 volumes, not available separately.(The Minerals, Metals & Materials Series) Hardcover

Medium Type

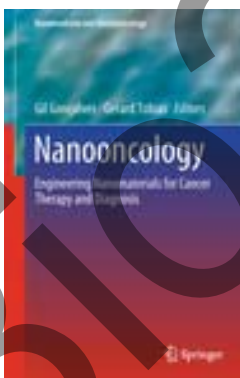
Book

Imprint

Springer

E289 本体47,500円

Order Quantity



ISBN : 978-3-319-89877-3

Gonçalves, Gil, Tobias, Gerard (Eds.), Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain

Nanooncology

Engineering nanomaterials for cancer therapy and diagnosis

- Lists the most remarkable therapeutic achievements for oncology
- Offers a timely and ample revision on the subject
- Highlights the main in vitro and in vivo therapeutic achievements on cancer using nanomaterials

This book presents a systematic overview of the most relevant nanomaterials and their respective intrinsic properties that have been highly explored by the scientific community and pharmaceutical companies in several

different modalities for cancer therapy and bioimaging. The chapters explore the synergistic effects provided by the different nanostructured materials and highlight the main in vitro and in vivo therapeutic achievements on cancer. This work also provides relevant discussion about the recent progresses and future challenges that nanotechnology faces on the conception of more efficient nanoformulations against primary tumors, ...

Contents

Liposomes.- Gold nanoparticles.- Quantum Dots.- Fullerenes.- Polymeric nanoparticles.- Silica nanoparticles.- Micelles.- Magnetic nanoparticles.- Dendrimers.- Protein-based nanoparticles.- Carbon Nanotubes.

Fields of Interest

Nanotechnology; Biomedical Engineering; Cancer Research; Biomaterials; Pharmacology/Toxicology

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2018,VI, 455 p. 156 illus., 106 illus. in color.(Nanomedicine and Nanotoxicology) Hardcover

Medium Type

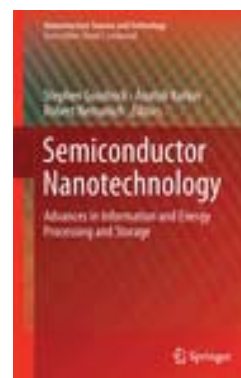
Book

Imprint

Springer

E15999 本体26,290円

Order Quantity



ISBN : 978-3-319-91895-2

Goodnick, S., Korkin, A., Nemanich, R. (Eds.), Arizona

State University, Tempe, AZ, USA

Semiconductor Nanotechnology

Advances in Information and Energy Processing and Storage

- Provides an authoritative overview of the current status and future trends of nanoelectronics and semiconductors
- Presents broad-ranging tutorials on both theoretical and experimental aspects of key topics in nanotechnology
- Written by recognized international experts in each area

This book presents research dedicated to solving scientific and technological problems in many areas of electronics, photonics and renewable energy. Energy and information are interconnected and are essential elements for the development of human society. Transmission, processing and storage of information requires energy consumption, while the efficient use and access to new energy sources requires new information (ideas and expertise) and the design of novel systems such as photovoltaic devices, fuel cells and batteries. Semiconductor physics creates the knowledge base for the development of information (computers, cell phones, etc.) and ...

Contents

Molecular Nanoelectronics by Molecular Layer Epitaxy.- The Nanoscale Application-Specific Integrated Circuit (ASIC) Development Process.- Fundamentals of Oxide Resistive Random Access Memories (RRAM).- Current Trends in Nanotechnology for Information and Energy Transformation and Storage.- Quantum Confinement Effects in Nanoelectronic Materials.- High-throughput Materials Discovery and Development: Breakthroughs and Challenges in the Mapping of the Materials Genome.- Digital Design and Computer Architecture in the Era of System on Chip (SoC) and Internet of Things (IoT).- Atomic Layer Processing: Basics, Materials, Processes and ...

Fields of Interest

Nanotechnology; Semiconductors; Nanotechnology and Microengineering; Renewable and Green Energy; Nanoscale Science and Technology

Content Level

Research

Product category

Monograph

Due July 29, 2018

In production

Bibliography

1st ed. 2018,X, 265 p. 139 illus., 124 illus. in

color.(Nanostructure Science and Technology) Hardcover

Medium Type

Book

Imprint

Springer

E12999 本体21,360円

Order Quantity



ISBN : 978-3-319-90361-3

Morris, James E. (Ed.), Portland State University
Dept. Electrical &, Portland, OR, USA

Nanopackaging Nanotechnologies and Electronics Packaging

- Discusses the importance of computer modeling in nanopackaging and offers suggestions for implementation
- Contains 12 new chapters from internationally recognized contributors, as well as updates in all existing chapters
- Brings together a comprehensive overview of nanoscale electronics and systems and covers structures, nanoelectronics packaging and interconnects, and offers a roadmap for future trends

This book presents a comprehensive overview of nanoscale electronics and systems packaging, and covers nanoscale structures, nanoelectronics packaging, applications of nanoparticles, graphene, carbon nanotubes and nanowires in packaging, and offers a roadmap for future trends. Composite materials are studied for high-k dielectrics, resistors and inductors, electrically conductive adhesives, conductive "inks," underfill fillers, and solder enhancement. Now in a widely extended second edition, Nanopackaging is an important reference for industrial and academic researchers, as well as practicing engineers seeking information about latest ...

Contents

Nanopackaging: Nanotechnologies and Electronics Packaging.- Modelling Technologies and Applications.- Advances in Delamination Modeling: Continuum Aspects.- Advances in Delamination Modeling: Atomistic Aspects.- Soft Mold Nano-imprint: Modeling and Simulation.- Nanoparticle Properties.- Nanoparticle Fabrication.- Nanoparticle-based High-k Dielectric Composites for Embedded Capacitors.- Nanostructured Materials for Embedded Resistors.- Nanogranular Magnetic Core Inductors: Design, Fabrication and Packaging.- Nanoparticles in Isotropic Conductive Adhesives.- Nano materials in Anisotropic Conductive Adhesives (ACAs).- Nanoparticles in ...

Fields of Interest

Nanotechnology; Electronics and Microelectronics, Instrumentation; Electrochemistry

Content Level

Research

Product category

Contributed volume

Due July 10, 2018

In production

Bibliography

2nd ed. 2018,X, 1134 p. 633 illus., 420 illus. in color. Hardcover

Medium Type

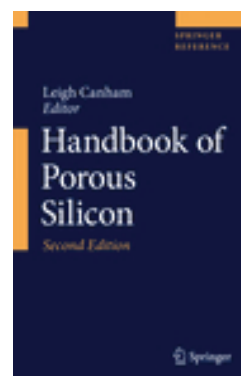
Book

Imprint

Springer

E24999 本体41,080円

Order Quantity



ISBN : 978-3-319-71379-3

Canham, Leigh (Ed.), University of Birmingham, Birmingham, UK

Handbook of Porous Silicon

- Includes scores of updated reviews and new topics on key silicon technologies such as lithium batteries, biodegradable nanoparticles and nanoneedles
- Research activity from researchers in 40 countries active in optoelectronics, solid state and biomaterials and energy industry sectors as well as academia
- Edited by Leigh Canham, a pioneer and luminary in the porous silicon field

This handbook updates the most fast-moving research areas of porous silicon research, introduces a range of brand new topics not reviewed before and is even more inclusive of worldwide centres of expertise. Rapid advances are being made in porous silicon anodes for lithium batteries, biodegradable nanoparticles and nanoneedles for medical therapy and imaging, energetics and bio-diagnostic techniques. A number of additional characterization and processing techniques are also reviewed for the first time. Experts from 10 additional countries are involved in the 2nd edition: China, Vietnam, Singapore, Malaysia, Saudi Arabia, Turkey, Netherlands, ...

Contents

Part I Fabrication.- Part II Properties.- Part III Characterization.- Part IV Processing.- Part V Applications.

Fields of Interest

Optical and Electronic Materials; Electrochemistry; Energy Storage; Solid State Physics; Biomaterials; Regenerative Medicine/ Tissue Engineering

Content Level

Research

Product category

Handbook

Available

Bibliography

2nd ed. 2018,XXVI, 1613 p. 438 illus., 247 illus. in color. In 2 volumes, not available separately. Hardcover

Medium Type

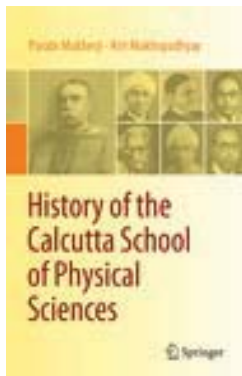
Book

Imprint

Springer

E69999 本体115,050円

Order Quantity



ISBN : 978-981-13-0294-7

Mukherji, Purabi, Mukhopadhyay, Atri, Gokhale Memorial Girls' College (Former Faculty), Kolkata, India

History of the Calcutta School of Physical Sciences

- Presents the history of the Calcutta school of physical sciences
- Focuses on the role of Asutosh Mukherjee as the founder of the Calcutta school of physics
- Highlights the biographies and contributions of seven great scientists associated with the Calcutta school

This book highlights the role of Sir Asutosh Mookerjee, founder of the Calcutta school of physics and the Calcutta Mathematical Society, and his talented scholars – Sir C.V. Raman, D.M. Bose, S.N. Bose, M.N. Saha, Sir K. S. Krishnan and S.K. Mitra – all of whom played a significant role in fulfilling their goal of creating an outstanding school of physical sciences in the city of Calcutta. The main objective of the book is to bring to the fore the combined contributions of the greatest physicists of India, who in the colonial period worked with practically no modern amenities and limited financial resources, but nonetheless with total ...

Contents

Chapter 1. Sir Asutosh Mookerjee,- Chapter 2. Sir Chandrasekhara Venkata Raman (Sir C.V. Raman) (1888-1970).- Chapter 3. Professor Debendra Mohan Bose (Professor D. M. Bose) (1885-1975).- Chapter 4. Professor Meghnad Saha (Professor M. N. Saha) (1893-1956).- Chapter 5. Professor Satyendra Nath Bose (Professor S. N. Bose) (1894-1974).- Chapter 6. Sir Karimanikkam Srinivasa Krishnan (Sir K. S. Krishnan) (1898-1961).- Chapter 7. Professor Sisir Kumar Mitra (Professor S. K. Mitra) (1890-1963).- Chapter 8. Bibliographies of the Scientists.

Fields of Interest

History of Mathematical Sciences; History and Philosophical Foundations of Physics; History of Science

Content Level

Research

Product category

Monograph

Due July 08,2018

In production

Bibliography

1st ed. 2018,XIX, 208 p. 32 illus. Hardcover

Medium Type

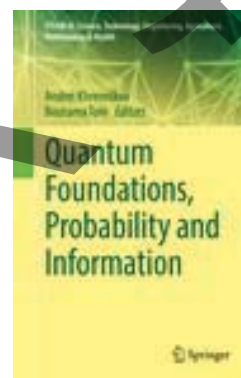
Book

Imprint

Springer

E9999 本体16,430円

Order Quantity



ISBN : 978-3-319-74970-9

Khrennikov, Andrei, Toni, Bourama (Eds.), Linnaeus University International Center for Mathematical Mo, Växjö

Quantum Foundations, Probability and Information

- Summarizes the latest research in quantum foundations and mathematical physics
- Rich with multi-disciplinary mathematical content
- Illustrates applications of partial differential equations, differential geometry, and oscillatory processes

Composed of contributions from leading experts in quantum foundations, this volume presents viewpoints on a number of complex problems through informational, probabilistic, and mathematical perspectives and features novel mathematical models of quantum and subquantum phenomena. Rich with multi-disciplinary mathematical content, this book includes applications of partial differential equations in quantum field theory, differential geometry, oscillatory processes and vibrations, and Feynman integrals for quickly growing potential

functions. Due to rapid growth in the field in recent years, this volume aims to promote interdisciplinary ...

Contents

The Dirac equation as one fourth-order equation for one function-a general manifestly covariant form (Andrey Akhmeteli).- At the crossroads of three seemingly divergent approaches to quantum mechanics (Carlos Baladrón, Andrei Khrennikov).- Implications of Einstein-Weyl Causality on Quantum Mechanics (D.J. BenDaniel).- The action reaction principle in Quantum Mechanics (Carlos Lopez).- Inflation, Higgs field and Dark Matter in the Weyl-geometrical Universe (Francesco De Martini).- Replacing Nothing with Something Special: Contextuality-byDefault and Dummy Measurements (Ehtibar N. Dzhafarov).- A computational proof of locality in entanglement ...

Fields of Interest

Mathematical Physics; Quantum Physics

Content Level

Research

Product category

Contributed volume

Due July 19,2018

In production

Bibliography

1st ed. 2018,XVI, 209 p. 30 illus., 20 illus. in color.(STEAM-H: Science, Technology, Engineering, Agriculture, Mathematics & Health) Hardcover

Medium Type

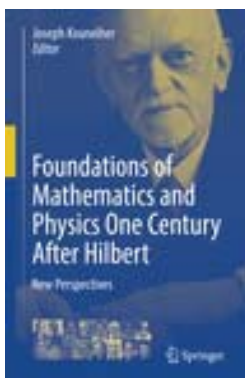
Book

Imprint

Springer

E9499 本体15,610円

Order Quantity



ISBN : 978-3-319-64812-5

Kouneiher, Joseph (Ed.), Nice and Sophia Antipolis University, Nice, France

Foundations of Mathematics and Physics One Century After Hilbert

New Perspectives

- With contributions from some of the most prominent scientists in mathematics and physics
- Accessible to a broad audience with a background in mathematics or physics
- Contains historical chapters such as the one on the relationship between Hilbert and Einstein

This book explores the rich and deep interplay between mathematics and physics one century after David Hilbert's works from 1891 to 1933, published by Springer in six volumes. The most prominent scientists in various domains of these disciplines contribute to this volume providing insight to their works, and analyzing the impact of the breakthrough and the perspectives of their own contributions. The result is a broad journey through the most recent developments in mathematical physics, such as string theory, quantum gravity, noncommutative geometry, twistor theory, Gauge and Quantum fields theories, just to mention a few. The reader, ...

Contents

Preface : Where we stand today, Joseph Kouneiher.- Mie's Electromagnetic Theory of Matter and the Background to Hilbert's Unified Foundations of Physics, Leo Corry.- Hilbert and Einstein, Joseph Kouneiher, John Stachel.- Grothendieck on foundations for the rebirth of geometry, Colin MacLarty.- Understanding the 6-Dimensional Sphere, Michael Aityah.- A dozen problems, questions and conjectures about positive scalar curvature, Misha Gromov.- Geometry and the Quantum, Alain Connes.- What Every Physicist Should Know About String Theory, Edward Witten.- Quanta of Space-Time and Axiomatization of Physics, Ali Chamsddine.- Twistor Theory as an ...

Fields of Interest

Mathematical Physics; Theoretical, Mathematical and Computational Physics; History and Philosophical Foundations of Physics; History of Mathematical Sciences

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2018,XXI, 441 p. Hardcover

Medium Type

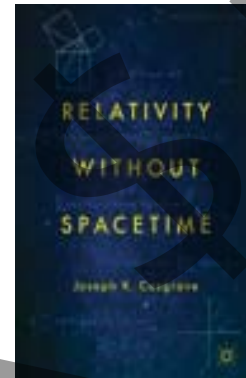
Book

Imprint

Springer

E12999 本体21,360円

Order Quantity



ISBN : 978-3-319-72630-4

Cosgrove, Joseph K., Providence College, Providence, RI, , USA

Relativity without Spacetime

- One of the first critical studies on the theory of geometrically merged space and time in Einstein's theory of relativity
- Analyzes mathematical representation in physics historically
- Applies Jacob Klein's seminal scholarship on the modern symbolic concept of number to a theory of physics

In 1908, three years after Einstein first published his special theory of relativity, the mathematician Hermann Minkowski introduced his four-dimensional "spacetime" interpretation of the theory. Einstein initially dismissed Minkowski's theory, remarking that "since the mathematicians have invaded the theory of relativity I do not understand it myself anymore." Yet Minkowski's theory soon found wide acceptance among physicists, including eventually Einstein himself, whose conversion to Minkowski's way of thinking was engendered by the realization that he could profitably employ it for the formulation of his new theory of gravity. The ...

Contents

Chapter 1: A Critique of Minkowski Spacetime.- Chapter 2: Minkowski's "Space and Time".- Chapter 3: Special Relativity and Spacetime.- Chapter 4: The Historical Sense-Structure of Symbolic Algebra.- Chapter 5:

The Historical Sense-Structure of Modern Algebraic Physics.- Chapter 6: Desedimentation of Minkowski Spacetime.- Chapter 7: The Irrelevance of Minkowski Spacetime in General Relativity.- Chapter 8: The Theory of Relativity in Philosophical Perspective.

Fields of Interest

Philosophy of Science; History and Philosophical Foundations of Physics; Astronomy, Astrophysics and Cosmology

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2018,XIII, 193 p. 8 illus. Hardcover

Medium Type

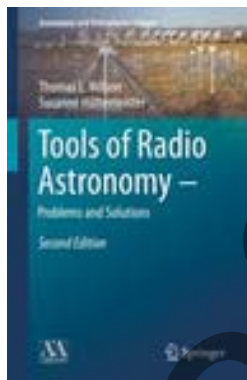
Book

Imprint

Palgrave Macmillan

E8999 本体14,790円

Order Quantity



ISBN : 978-3-319-90819-9

Wilson, Thomas L., Hüttemeister, Susanne, Max-Planck-Institut für Radioastronomie, Bonn, Germany

Tools of Radio Astronomy - Problems and Solutions

- Long awaited Problems and Solutions book for Tools of Radio Astronomy, 6th ed., a real classic among astronomical textbooks
- Valuable resource for course work
- Meets the needs of students as well as teachers in radio astronomy

Covering topics of radio astronomy, this book contains graduate-level problems with carefully presented solutions. The problems are arranged following the content of the textbook Tools of Radio Astronomy, 6th ed. by T.L.Wilson, K. Rohlfs, S. Hüttemeister (also available in the this Springer series) on a chapter-by-chapter basis. Some of these problems have been formulated to provide an extension to the material presented in Tools of Radio Astronomy.

Contents

1. Radio Astronomical Fundamentals.- 2. Electromagnetic Wave Propagation Fundamentals.- 3. Wave Polarization.- 4. Signal Processing and Receivers: Theory.- 5. Practical Receiver Systems.- 6. Fundamentals of Antenna Theory.- 7. Practical Aspects of Filled Aperture Antennas.- 8. Single Dish Observational Methods.- 9. Interferometers and Aperture Synthesis.- 10. Emission Mechanisms of Continuous Radiation.- 11. Some Examples of Thermal and Nonthermal Radio Sources.- 12. Spectral Line Fundamentals.- 13 Line Radiation of Neutral Hydrogen.- 14 Recombination Lines.- 15. Overview of Molecular Basics.- 16. Molecules in Interstellar Space.- 17. ...

Fields of Interest

Astronomy, Observations and Techniques; Microwaves, RF and Optical Engineering; Astrophysics and Astroparticles; Signal, Image and Speech Processing; Measurement Science and Instrumentation

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Due July 27,2018

In production

Bibliography

2nd ed. 2018,XVII, 180 p. 28 illus., 1 illus. in color.(Astronomy and Astrophysics Library) Softcover

Medium Type

Book

Imprint

Springer

E4999 本体8,210円

Order Quantity



ISBN : 978-3-319-90040-7

Parks, George, University of California, Berkeley Space Sciences Laboratory, BERKELEY, CA, USA

Characterizing Space Plasmas

A Data Driven Approach

- Maximizes reader insight into real-world observations and data through detailed discussions
- Presents critiques of space plasma models using both theory and cutting-edge observational data
- Provides step-by-step derivations of the equations presented, along with enlightening mathematical and historical asides

This didactic book uses a data-driven approach to connect measurements made by plasma instruments to the real world. This approach makes full use of the instruments' capability and examines the data at the most detailed level an experiment can provide. Students using this approach will learn what instruments can measure, and working with real-world data will pave their way to models consistent with these observations. While conceived as a teaching tool, the book contains a considerable amount of new information. It emphasizes recent results, such as particle measurements made from the Cluster ion experiment, explores the consequences of new ...

Contents

Preface.- 1 Basic Equations and Concepts.- 2 Charged Particle Acceleration.- 3 Escaping Stellar Particles.- 4 Collisionless Shocks.- 5 Boundaries and Current Sheets.- 6 Electric Field and Current.- 7 Topics for Further Studies.- Index.

Fields of Interest

Astrophysics and Astroparticles; Plasma Physics; Solar and Heliospheric Physics ; Theoretical Astrophysics; Fluid- and Aerodynamics

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Due July 27,2018

In production

Bibliography

1st ed. 2018,XX, 332 p. 95 illus., 47 illus. in color.(Astronomy and Astrophysics Library) Hardcover

Medium Type

Book

Imprint

Springer

E7999 本体13,140円

Order Quantity



ISBN : 978-3-319-73146-9

Popot, Jean-Luc, Institut de Biologie Physico-Chimique, Paris, France

Membrane Proteins in Aqueous Solutions

From Detergents to Amphipols

- First book dedicated to the art of handling membrane proteins in aqueous solutions
- Includes a Foreword by Donald M. Engelman and over 30 cartoons created by Francis Haraux
- Includes over 300 richly illustrated figures and topical tables as well as twelve detailed, experimental protocols

This book is the first to be entirely devoted to the challenging art of handling membrane proteins out of their natural environment, a key process in biological and pharmaceutical research, but one plagued with difficulties and pitfalls. Written by one of the foremost experts in the field, Membrane Proteins in Aqueous Solutions is accessible to any member of a membrane biology laboratory. After presenting the structure, functions, dynamics, synthesis, natural environment and lipid interactions of membrane proteins, the author discusses the principles of extracting

them with detergents, the mechanisms of detergent-induced destabilization, ...

Contents

From the Contents: Membrane proteins: functions, structures, environments.- Taking membrane proteins out of their natural environment.- Alternatives to detergents for handling membrane proteins in aqueous solutions.- Chemical structure and physical-chemical properties of amphipols.

Fields of Interest

Biological and Medical Physics, Biophysics; Medicinal Chemistry; Protein Science; Pharmaceutical Sciences/Technology; Polymer Sciences; Physical Chemistry

Content Level

Research

Product category

Monograph

Due July 21,2018

In production

Bibliography

1st ed. 2018,XXVII, 708 p. 437 illus., 266 illus. in color.(Biological and Medical Physics, Biomedical Engineering) Hardcover

Medium Type

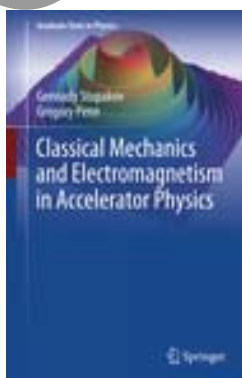
Book

Imprint

Springer

E17999 本体29,580円

Order Quantity



ISBN : 978-3-319-90187-9

Stupakov, Gennady, Penn, Gregory, Stanford University, Menlo Park, CA, USA

Classical Mechanics and Electromagnetism in

Accelerator Physics

- Provides a well-organized broad introduction based on the author's extensive research and teaching experience
- Develops in-depth understanding of fundamental concepts of electromagnetic radiation
- Introduces the method of kinetic equations for relativistic beams

This self-contained textbook with exercises discusses a broad range of selected topics from classical mechanics and electromagnetic theory that inform key issues related to modern accelerators. Part I presents fundamentals of the Lagrangian and Hamiltonian formalism for mechanical systems, canonical transformations, action-angle variables, and then linear and nonlinear oscillators. The Hamiltonian for a circular accelerator is used to evaluate the equations of motion, the action, and betatron oscillations in an accelerator. From this base, we explore the impact of field errors and nonlinear resonances. This part ends with the concept of the ...

Contents

Preface.- Part I Classical Mechanics.- The Basic Formulation of Mechanics: Lagrangian and Hamiltonian Equations of Motion.- Canonical Transformations.- Action-angle Variables and Liouville's Theorem.- Linear and Non-Linear Oscillations.- Coordinate System and Hamiltonian for a Circular Accelerator.- Equations of Motion in Accelerators.- Action-Angle Variables for Betatron Oscillations.- Magnetic Field and Energy Errors.- Non-Linear Resonance and Resonance Overlapping.- The Kinetic Equation.- Part II Electricity and Magnetism.- Self Field of a Relativistic Beam.- Effect of Environment on Electromagnetic Field of a Beam.- Plane Electromagnetic ...

Fields of Interest

Classical Mechanics; Microwaves, RF and Optical Engineering; Classical Electrodynamics; Particle Acceleration and Detection, Beam Physics

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2018,X, 280 p. 77 illus., 74 illus. in color. (Graduate Texts in Physics) Hardcover

Medium Type

Book

Imprint

Springer

E6999 本体11,500円

[Order Quantity](#)

ISBN : 978-3-319-75725-4

Aguirre, A., Foster, B., Merali, Z. (Eds.), UC Santa Cruz, Santa Cruz, CA, USA

Wandering Towards a Goal

How Can Mindless Mathematical Laws Give Rise to Aims and Intention?

- Published in cooperation with the renowned physics "think-tank" Foundational Questions Institute, FQXi
- Specially reworked versions of the prize-winning essays from among more than 150 submissions
- Contributors include top scientists, philosophers and thought leaders

This collection of prize-winning essays addresses the controversial question of how meaning and goals can emerge in a physical world governed by mathematical laws. What are the prerequisites for a system to have goals? What makes a physical process into a signal? Does eliminating the homunculus solve the problem? The three first-prize winners, Larissa Albantakis, Carlo Rovelli and Jochen Szangolies tackle exactly these challenges, while many other aspects (agency, the role of the observer, causality versus teleology, ghosts in the machine etc.) feature in the other award winning contributions. All contributions are accessible to ...

Contents

Introduction.- A Tale of Two Animats: What does it take to have goals? (Larissa Albantakis).- Meaning and Intentionality = Information + Evolution (Carlo Rovelli).- Von Neumann Minds: A Toy Model of Meaning in a Natural World (Jochen Szangolies).- Origin Gaps and the Eternal Sunshine of the Second-Order Pendulum (Simon DeDeo).- Agent Above, Atom Below: How agents causally emerge from their underlying microphysics

(Erik P Hoel).- Bio from Bit (Sara Imari Walker).- I Think, Therefore I Think You Think I Am (Sophia Magnusdottir).- World without World: Observer-Dependent Physics (Dean Rickles).- The role of the observer in goal-directed ...

Fields of Interest

History and Philosophical Foundations of Physics; Artificial Intelligence (incl. Robotics); Mathematical Logic and Foundations; Complex Systems; Philosophy of Science

Content Level

Lower undergraduate

Product category

Monograph

Available

Bibliography

1st ed. 2018, VIII, 254 p. 46 illus. (The Frontiers Collection) Hardcover

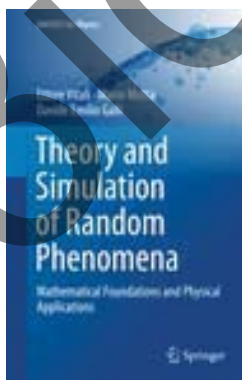
Medium Type

Book

Imprint

Springer

E6999 本体11,500円

[Order Quantity](#)

ISBN : 978-3-319-90514-3

Vitali, E., Motta, M., Galli, D.E., Williamsburg, VA, USA

Theory and Simulation of Random Phenomena

Mathematical Foundations and Physical Applications

- Guides the reader step by step from basic probability theory to advanced topics like stochastic differential equations
- Teaches the reader how to implement his/her own algorithms for the study of physical

systems

- Provides connections with several fields of pure and applied physics, from quantum mechanics to econophysics

The purpose of this book is twofold: first, it sets out to equip the reader with a sound understanding of the foundations of probability theory and stochastic processes, offering step-by-step guidance from basic probability theory to advanced topics, such as stochastic differential equations, which typically are presented in textbooks that require a very strong mathematical background. Second, while leading the reader on this journey, it aims to impart the knowledge needed in order to develop algorithms that simulate realistic physical systems. Connections with several fields of pure and applied physics, from quantum mechanics to ...

Contents

1 Review of Probability Theory.- 2 Applications to Mathematical Statistics.- 3 Conditional Probability and Conditional Expectation.- 4 Markov Chains.- 5 Sampling of Random Variables and Simulation.- 6 Brownian Motion.- 7 Introduction to Stochastic Calculus and Ito Integral.- 8 Introduction to Stochastic Differential Equations and Applications.- Bibliography.- Solutions.

Fields of Interest

Mathematical Methods in Physics; Probability Theory and Stochastic Processes; Statistical Theory and Methods; Mathematical Applications in the Physical Sciences; Numerical and Computational Physics, Simulation

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Due June 30, 2018

In production

Bibliography

1st ed. 2018, XIII, 235 p. 5 illus. (UNITEXT for Physics) Hardcover

Medium Type

Book

Imprint

Springer

E6999 本体11,500円

[Order Quantity](#)



ISBN : 978-3-319-67719-4

Lee, Dong Soo (Ed.), Seoul National University, Seoul, Korea (Republic of)

Radionanomedicine

Combined Nuclear and Nanomedicine

- Features radionanomedicine as a novel opportunity for nuclear medicine
- Covers not just radionanomaterials and radionanodrugs but also radionanomedicine enabling clinical translation
- Discusses tracing endogenous and exogenous nanomaterials with tracer kinetics for in vivo and human applications

This book describes radionanomedicine as an integrated medicine using exogenous and endogenous This book describes radionanomedicine as an integrated approach that uses exogenous and endogenous nanomaterials for in vivo and human applications. It comprehensively explains radionanomedicine comprising nuclear and nanomedicine, demonstrating that it is more than radionanodrugs and that radionanomedicine also takes advantage of nuclear medicine using trace technology, in which miniscule amounts of materials and tracer kinetic elucidate in vivo biodistribution. It also discusses exogenous nanomaterials such as inorganic silica, iron oxide, ...

Contents

Introduction of Radionanomedicine.- Exogenous Radionanomedicine.- Endogenous Radionanomedicine.- Surface Modification and Radiolabeling.- Targeted Delivery with Click Chemistry.- In-vivo Biodistribution Using PET and SPECT.- Factors and Results Affecting Biodistribution.- Immune Responses to Nanomaterials.- Molecular Imaging.- Theranostic Utility.

Fields of Interest

Medical and Radiation Physics; Radiotherapy; Biomaterials; Nuclear Chemistry; Nanoscale Science and Technology

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2018,XXIV, 446 p. 118 illus., 104 illus. in color.(Biological and Medical Physics, Biomedical Engineering) Hardcover

Medium Type

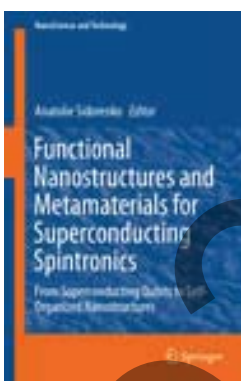
Book

Imprint

Springer

E12999 本体21,360円

Order Quantity



ISBN : 978-3-319-90480-1

Sidorenko, Anatolie (Ed.), Academy of Sciences of Moldova, Chisinau, Moldova

Functional Nanostructures and Metamaterials for Superconducting Spintronics

From Superconducting Qubits to Self-Organized Nanostructures

- Describes novel phenomena in nanomaterials
- Includes detailed descriptions of several new technologies, such as functional superconducting nanostructures fabrication
- Appeals to both researchers and engineers dealing with the elaboration of novel devices and sensors

This book demonstrates how the new phenomena in the nanometer scale serve as the basis for the invention and development of novel nanoelectronic devices and how they are used for engineering nanostructures and metamaterials with unusual properties. It discusses topics such as superconducting spin-valve effect and thermal spin transport, which are important for developing spintronics; fabrication of nanostructures

from antagonistic materials like ferromagnets and superconductors, which lead to a novel non-conventional FFLO-superconducting state; calculations of functional nanostructures with an exotic triplet superconductivity, which are the ...

Contents

Basic Superconducting Spin Valves.- Superconducting Triplet Proximity and Josephson Spin Valves.- Compact Josephson ϕ -Junctions.- Magnetic Proximity Effect and Superconducting Triplet Correlations at the Heterostructure of Cuprate Superconductor and Oxide Spin Valve.- Nanodevices with Normal Metal – Insulator – Superconductor Tunnel Junctions.

Fields of Interest

Nanoscale Science and Technology; Nanotechnology and Microengineering; Nanotechnology; Strongly Correlated Systems, Superconductivity; Microwaves, RF and Optical Engineering

Content Level

Research

Product category

Monograph

Due July 24,2018

In production

Bibliography

1st ed. 2018,XVII, 270 p. 148 illus., 111 illus. in color.(NanoScience and Technology) Hardcover

Medium Type

Book

Imprint

Springer

E1099 本体18,060円

Order Quantity



ISBN : 978-3-319-78618-6

Širca, Simon, Horvat, Martin, University of Ljubljana, Ljubljana, Slovenia

Computational Methods in Physics

Compendium for Students

- Explains core numerical methods a physicist should know or be aware of
- Shows how to control errors, stability, and convergence
- Supports learning with comprehensive physics- and engineering-motivated examples and end-of-chapter problems

This book is intended to help advanced undergraduate, graduate, and postdoctoral students in their daily work by offering them a compendium of numerical methods. The choice of methods pays significant attention to error estimates, stability and convergence issues, as well as optimization of program execution speeds. Numerous examples are given throughout the chapters, followed by comprehensive end-of-chapter problems with a more pronounced physics background, while less stress is given to the explanation of individual algorithms. The readers are encouraged to develop a certain amount of skepticism and scrutiny instead of blindly following ...

Contents

Basics of numerical analysis.- Solution of nonlinear equations.- Matrix methods.- Transformations of functions and signals.- Statistical description and modeling of data.- Modeling and analysis of time series.- Initial-value problems for ordinary differential equations.- Boundary-value problems for ordinary differential equations.- Difference methods for one-dimensional partial differential equations.- Difference methods for partial differential equations in more than one dim.- Spectral methods for partial differential equations.- Inverse methods.

Fields of Interest

Numerical and Computational Physics, Simulation; Theoretical and Computational Chemistry; Mathematical and Computational Engineering; Computational Science and Engineering

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Due July 17,2018

In production

Bibliography

2nd ed. 2018,XXIV, 886 p. 268 illus., 20 illus. in color.(Graduate Texts in Physics) Hardcover

Medium Type

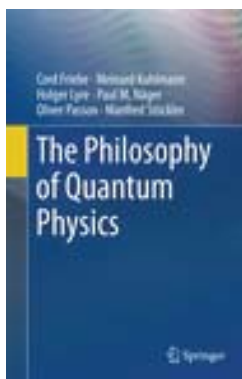
Book

Imprint

Springer

E10999 本体18,070円

Order Quantity



ISBN : 978-3-319-78354-3

Friebe, C., Kuhlmann, M., Lyre, H., Näger, P.M., Passon, O., Stöckler, M., Universität Bonn, Bonn, Germany

The Philosophy of Quantum Physics

- The first textbook devoted to philosophy of quantum physics
- Provides a clear and comprehensive overview of the interpretations of quantum theory and the associated philosophical questions
- Includes problem sets with solutions to convey a deeper understanding

This book provides a thorough and up-to-date introduction to the philosophy of quantum physics. Although quantum theory is renowned for its spectacular empirical successes, controversial discussion about how it should be understood continue to rage today. In this volume, the authors provide an overview of its numerous philosophical challenges: Do quantum objects violate the principle of causality? Are particles of the same type indistinguishable and therefore not individual entities? Do quantum objects retain their identity over time? How does a compound quantum system relate to its parts? These questions are answered here within different ...

Contents

Physical and mathematical foundations (Cord Friebe).- The Measurement problem. Minimal and collapse interpretations (Cord Friebe).- Quantum identity and indistinguishability

(Holger Lyre).- Entanglement and non-locality: EPR, Bell and their consequences (Paul Näger and Manfred Stöckler).- Non-collapse interpretations (Oliver Passon).- Quantum field theory (Meinard Kuhlmann and Manfred Stöckler).- Chronology and outlook (Cord Friebe, Meinard Kuhlmann and Holger Lyre).- Example solutions for the exercises.

Fields of Interest

Quantum Physics; Philosophy of Science; History and Philosophical Foundations of Physics

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Due July 02,2018

In production

Bibliography

1st ed. 2018,XVII, 291 p. 32 illus. Hardcover

Medium Type

Book

Imprint

Springer

E4999 本体8,210円

Order Quantity



ISBN : 978-3-319-89775-2

von Müller, Albrecht, Zafiris, Elias, Center for the Study of Thinking, Pullach, Germany

Concept and Formalization of Constellatory Self-Unfolding

A Novel Perspective on the Relation between Quantum and Relativistic Physics

- This volume offers a fundamentally different way of conceptualizing time and reality. The actual taking place of reality is conceived as a "constellatory self-unfolding", characterized by strong self-referentiality, and occurring in the primordial form of time, the not yet sequentially structured "time-space of the present"

- The novelty of this view is that it allows quantum reduction and singularities to be thought of as inverse transitions into and out of the factual portrait of reality

- The uniqueness of this book lies in the development of a mathematical framework in which this radically different and categorically richer view of time and reality can be addressed properly, based on the

This volume offers a fundamentally different way of conceptualizing time and reality. Today, we see time predominantly as the linear-sequential order of events, and reality accordingly as consisting of facts that can be ordered along sequential time. But what if this conceptualization has us mistaking the "exhausts" for the "real thing", i.e. if we miss the best, the actual taking place of reality as it occurs in a very differently structured, primordial form of time, the time-space of the present? In this new conceptual framework, both the sequential aspect of time and the factual aspect of reality are emergent phenomena that come into ...

Contents

Chapter 1: THE AUTOGENETIC UNIVERSE THEORY. Quantum Reduction and Singularities as Inverse Transitions: Into and out of the Chrono-Ontological Format of Facticity.- Chapter 2: MODEL OF AN AUTOGENETIC UNIVERSE. Constellatory Self-Unfolding: A Novel Syntaxis of Time in the Time-Space of the Present.- Chapter 3: BORROMEAN LINK IN ALGEBRAIC FORM. Group-Theoretic Encoding: The Borromean Rings as Prime Connectivity Units of All Topological Links.- Chapter 4: BORROMEAN LINK IN LOGIC. A Metaperspective on Algorithmic Information: Logical Conjugation Strategy and the Role of the Borromean Topology.- Chapter 5: BORROMEAN LINK IN RELATIVITY THEORY.

Fields of Interest

Quantum Physics; History and Philosophical Foundations of Physics; Mathematical Physics

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2018,XXI, 217 p.(On Thinking) Hardcover

Medium Type

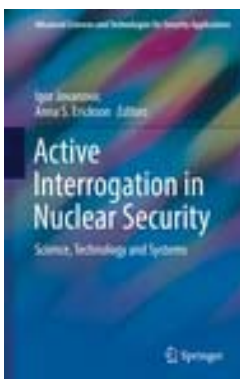
Book

Imprint

Springer

E11999 本体19,720円

Order Quantity



ISBN : 978-3-319-74466-7

Jovanovic, Igor, Erickson, Anna S. (Eds.), University of Michigan, Ann Arbor, MI, USA

Active Interrogation in Nuclear Security

Science, Technology and Systems

- The first book devoted entirely to active interrogation
- Presents a focused review of the relevant physics
- Surveys available technology

This volume constitutes the state-of-the-art in active interrogation, widely recognized as indispensable methods for addressing current and future nuclear security needs. Written by a leading group of science and technology experts, this comprehensive reference presents technologies and systems in the context of the fundamental physics challenges and practical requirements. It compares the features, limitations, technologies, and impact of passive and active measurement techniques; describes radiation sources for active interrogation including electron and ion accelerators, intense lasers, and radioisotope-based sources; and it describes ...

Contents

Preface.- chapter 1 Introduction.- chapter 2 Measurement needs and challenges in nuclear security.- chapter 3 Features and limitations of passive measurements.- chapter 4 Foundations of active measurements.- chapter 5 Radiation sources for active interrogation.- chapter 6 Detectors

and measurement techniques.- chapter 7 Data acquisition and processing systems.- chapter 8 Modeling and simulation.- chapter 9 Data interpretation and algorithms.- chapter 10 Examples of active measurement systems.- chapter 11 Radiation dose in various systems.- chapter 12 Science and technology trends.- Conclusion.

Fields of Interest

Security Science and Technology; Nuclear Engineering; Particle and Nuclear Physics; Nuclear Energy; Characterization and Evaluation of Materials; Measurement Science and Instrumentation

Content Level

Graduate

Product category

Monograph

In production

Bibliography

1st ed. 2018,XI, 361 p. 171 illus., 138 illus. in color. With online files/update.(Advanced Sciences and Technologies for Security Applications) Hardcover

Medium Type

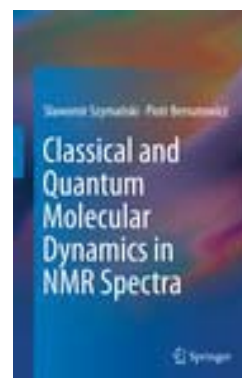
Book w. online files/update

Imprint

Springer

E12999 本体21,360円

Order Quantity



ISBN : 978-3-319-90780-2

Szymański, Sławomir, Bernatowicz, Piotr, Polish Academy of Sciences, Warsaw, Poland

Classical and Quantum Molecular Dynamics in NMR Spectra

- Offers a complete description of the study of

condensed-phase molecular dynamics using NMR spectroscopy, covering theoretical principles and practical application

- Describes the theories of nuclear spin relaxation and NMR lineshapes in detail
- Includes a section on the quantum theory of NMR lineshapes of hindered molecular rotors

The book provides a detailed account of how condensed-phase molecular dynamics are reflected in the line shapes of NMR spectra. The theories establishing connections between random, time-dependent molecular processes and lineshape effects are exposed in depth. Special emphasis is placed on the theoretical aspects, involving in particular intermolecular processes in solution, and molecular symmetry issues. The Liouville super-operator formalism is briefly introduced and used wherever it is beneficial for the transparency of presentation. The proposed formal descriptions of the discussed problems are sufficiently detailed to be implemented on ...

Contents

1 Introduction.- 2 Principles of NMR spectroscopy.- 3 NMR Spectroscopy and Molecular Dynamics - an Outlook.- 4 Nuclear spin relaxation effects in NMR spectra.- 5 Discrete Molecular Dynamics and NMR Line Shape Effects. Intramolecular Exchange.- 6 Discrete Molecular Dynamics and NMR Line Shape Effects. General Exchange.- 7 Rotational tunneling in stick NMR spectra of solids.- 8 Quantum molecular dynamics in liquid-phase NMR spectra.- 9 Quantum mechanical rate processes in NMR spectra.- A Selected properties of matrices.- B Derivation of a general DNMR lineshape equation.- C Nuclear permutation symmetry in NMR spectra.

Fields of Interest

Spectroscopy and Microscopy; Numerical and Computational Physics, Simulation; Spectroscopy/Spectrometry; Solid State Physics; Statistical Physics and Dynamical Systems

Content Level

Research

Product category

Monograph

Available

Bibliography

1st ed. 2018,XI, 402 p. 80 illus., 19 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

E11999 本体19,720円

Order Quantity



ISBN : 978-3-319-73021-9

Kirby, Geoffrey, Weymouth, UK

Wacky and Wonderful Misconceptions About Our Universe

- Provides a unique compendium of odd astronomical and cosmological theories, covering lesser known but equally entertaining stories
- Offers a lighthearted, easy-to-understand look into the history of astronomical and scientific thought throughout the ages, requiring no prior background in astronomy
- Includes over 100 photographs and diagrams to illustrate key concepts and misconceptions covered by the text

From unicorns on the Moon to UFOs piloted by Martian bees, this book chronicles some of the strangest ideas that have been put forward – and have actually been believed in – about our Solar System. Drawn from tales dating from the Middle Ages to the present, this collection of stories takes readers on an imaginative and wild ride through the ages and minds of some of the wackiest, tackiest, most outlandish concepts in astronomy, cosmology and physics. Follow along as Geoff Kirby recounts each quirky idea in detail and explains how these theories fare against modern astronomical research and technologies.

Contents

Chapter 1: Introduction.- Chapter 2: The Sun and Its Solar System -- A Sexy Musical Pool Game? Chapter 3: Our Three Wacky Inner Planets -- Imaginary, Delusionary and Inhabited.- Chapter 4: Earth -- Flat, Hollow or Inside Out?.- Chapter 5: Our Moon - Inhabited, Small and Icy.- Chapter 6: Mars: Inhabited and a Threat?.- Chapter 7: Solar System Rubble: The Home of Princess Moon Owl?.- Chapter 8: The Outer Planets -- Forests

of Hemp, Armadas of Seamen and the Holy Foreskin of Jesus.- Chapter 9: Wackiness Beyond the Solar System.- Chapter 10: Is It Wacky to Believe in Astrology and UFOs?.- Index.

Fields of Interest

Popular Science in Astronomy; Astronomy, Observations and Techniques; History of Science; Cosmology

Content Level

Popular/general

Product category

Popular science

Available

Bibliography

1st ed. 2018,XVI, 258 p. 128 illus., 50 illus. in color.(Astronomers' Universe) Softcover

Medium Type

Book

Imprint

Springer

E3499 本体5,750円

Order Quantity



ISBN : 978-3-319-76683-6

von Ehrenfried, Manfred "Dutch", Leander, TX, USA

Apollo Mission Control

The Making of a National Historic Landmark

- Publication coincides with the 50th Anniversary of the Apollo 11 lunar landing in July 2019
- Includes anecdotes by flight controllers about their duties and time on-console during historic Apollo missions
- Contains appendices with details of the history, photos, quotes, names and the work of the people involved in designing,

operating and later restoring the Apollo Control Center

This book describes the history of this now iconic room which represents America's space program during the Gemini, Apollo, Skylab, Apollo-Soyuz and early Space Shuttle eras. It is now a National Historic Landmark and is being restored to a level which represents the day the flight control teams walked out after the last lunar landing missions. The book is dedicated to the estimated 3,000 men and women who supported the flights and tells the story from their perspective. It describes the rooms of people supporting this control center; those rooms of engineers, analysts and scientists most people never knew about. Some called it a "shrine" ...

Contents

Frontispiece.- Dedication.- Acknowledgements.- Preface.- Chapter 1: Introduction.- Chapter 2: Mission Control Concepts.- Chapter 3: The Original Mission Control Center.- Chapter 4: A Control Center for the Future.- Chapter 5: From Concepts to Reality.- Chapter 6: The Missions.- Chapter 7: The People.- Chapter 8: Abandoned in Place.- Chapter 9: Restoration.- Chapter 10: The 50th Anniversary of the Lunar Landing.- Appendix 1 Key Correspondence.- Appendix 2 Mission Manning Lists.- Appendix 3 Women Flight Controllers.- Appendix 4 Chronology of Events.- Appendix 5 Photos and Graphics.- Appendix 6 Quotes.- Appendix 7 Original MCC Contractors.- ...

Fields of Interest

Popular Science in Technology; Space Sciences (including Extraterrestrial Physics, Space Exploration and Astronautics); Modern History; History of Science

Content Level

Popular/general

Product category

Popular science

In production

Bibliography

1st ed. 2018,XV, 284 p. 164 illus., 81 illus. in color.(Space Exploration) Softcover

Medium Type

Book

Imprint

Springer

E3999 本体6,570円

Order Quantity

FAX 注文書

有限会社 **ブックマン** 行

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関西・中部・東海統括事務所
Fax 052-782-4771
E-Mail :chubu@e-bookman.co.jp

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