# Chemistry & Material Science

January to April 2021

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## Chemistry



## Material Science



Lead TItle  Adoptable Textbook

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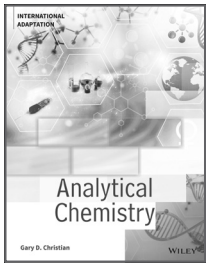



## Analytical Chemistry

7th Edition, International Adaptation

*Gary D. Christian, Purnendu K. Dasgupta & Kevin A. Schug*

With the 7th Edition of Analytical Chemistry, renowned chemists, Purnendu (Sandy) Dasgupta and Kevin Schug, join the author team. The new edition focuses on more in-depth coverage of the principles and techniques of quantitative analysis and instrumental analysis (aka Analytical Chemistry). The goal of the text is to provide a foundation of the analytical process, tools, and computational methods and resources, and to illustrate with problems that bring realism to the practice and importance of analytical chemistry. It is designed for undergraduate college students majoring in chemistry and in fields related to chemistry.

Textbook • Wiley • 9781119770794 • Sep 2020 • Paper • 960pp • US$267.95


## Automated Sample Preparation

Methods for GC-MS and LC-MS

*Hans-Joachim Hubschmann*

*Automated Sample Preparation* provides the tools and background for implementation of instrumental sample preparation workflow concepts for GC-MS and LC-MS analyses in the laboratory. The analytical advantages of its implementation and operational aspects during sample handling are discussed.

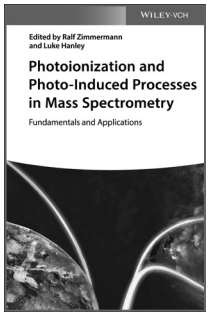
Reference • Wiley-VCH • 9783527345076 • Apr 2021 • Cloth • 275pp • US$165.00


## Digitalization in the Laboratory

*Klemen Zupancic & Tea Pavlek*

A practical laboratory guide in analytical chemistry with a special focus on quality assurance and lab management. Presents all the important methods as industrial projects and guides analytical chemists to work efficiently, safely and accurately in an industrial setting.

Reference • Wiley-VCH • 9783527347193 • Feb 2021 • Cloth • 300pp • US$165.00




## Photoionization and Photo-Induced Processes in Mass Spectrometry

Fundamentals and Applications

*Ralf Zimmermann & Luke Hanley*

Drawing on the expertise of the leading academic and industrial research groups involved in the development of photoionization methods for mass spectrometry, this reference for analytical scientists covers both the theory and current applications of photo-induced ionization processes. It places widely used techniques such as MALDI side by side with more specialist approaches such as REMPI and RIMS, and discusses leading edge developments in ultrashort laser pulse desorption, to give readers a complete picture of the state of the technology.

Reference • Wiley-VCH • 9783527335107 • Nov 2020 • Cloth • 440pp • US$205.00

Portable Spectroscopy and Spectrometry 1

## Portable Spectroscopy and Spectrometry 1

Technologies, Instrumentation and Applications

*Richard A. Crocombe, Pauline E. Leary & Brooke Kammrath*

*Portable Spectroscopy and Spectrometry* provides complete and up-to-date coverage of the foundational principles, enabling technologies, and specific instruments of portable spectrometry. Volume One is the first comprehensive work to describe the enabling technologies of portable spectrometry, explains how various handheld and portable instruments work, discusses their potential limitations, and provides clear guidance on optimizing their utility and accuracy in the field. In-depth chapters–written by a team of international authors from a wide range of disciplinary backgrounds–have been carefully reviewed both by the editors and by third-party experts to ensure their quality and completeness.

Reference • Wiley • 9781119636366 • Mar 2021 • Cloth • 456pp • US$130.00

Portable Spectroscopy and Spectrometry 2

## Portable Spectroscopy and Spectrometry 2

Applications

*Richard A. Crocombe, Pauline E. Leary & Brooke Kammrath*

Volume Two explores the use of portable instruments in wide range of fields, including pharmaceutical development, clinical research, food analysis, forensic science, geology, astrobiology, cultural heritage and archaeology. It features contributions by a multidisciplinary team of experts with hands-on experience using portable instruments in their respective areas of expertise. Organized both by instrumentation type and by scientific or technical discipline, 21 detailed chapters cover various applications of portable ion mobility spectrometry (IMS), infrared and near-infrared (NIR) spectroscopy, Raman and x-ray fluorescence (XRF) spectroscopy, smartphone spectroscopy, and many others.

Reference • Wiley • 9781119636403 • Apr 2021 • Cloth • 456pp • US$130.00

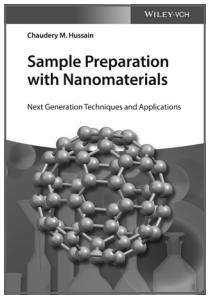
Quantum Mechanical Foundations of Molecular Spectroscopy

## Quantum Mechanical Foundations of Molecular Spectroscopy

*Max Diem*

The book covers the quantum mechanical fundamentals of molecular spectroscopy from the view of a practicing spectroscopist, rather than a theoretician. Therefore, the book provides the background and derivation of the subjects necessary to understand spectroscopy: stationary energy states, transitions between these states, selection rules and symmetry. Several forms of spectroscopy, used in many fields of science, are discussed, such as fluorescence, surface spectroscopies, linear and non-linear Raman spectroscopy and spin spectroscopy.

Reference • Wiley-VCH • 9783527347926 • Feb 2021 • Paper • 240pp • US$85.00



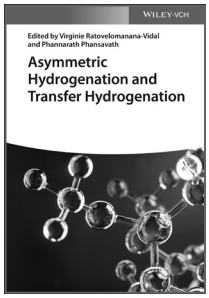

## Sample Preparation with Nanomaterials

Next Generation Techniques for Sample Preparation

*Chaudhery Mustansar Hussain*

The use of nanomaterials opened new perspectives also in analytical chemistry. Despite significant advances in instrumentation, sample preparation remained a bottleneck. The special features of nanomaterials such as ultra-small size and huge surface-to-volume ratio could recently be successfully implemented in sample preparation procedures. This monograph gives a comprehensive overview of these developments–from special properties of nanomaterials over physico-chemical background up to most recent and representative applications such as membranes, lab-on-a-chip echnology, and SERS.

Reference • Wiley-VCH • 9783527338177 • Mar 2021 • Cloth • 304pp • US$176.08




## Asymmetric Hydrogenation and Transfer Hydrogenation

*Virginie Ratovelomanana-Vidal & Phannarath Phansavath*

First book about one of the most efficient and frequently used methods in academia and industry to synthesize natural products, pharmaceuticals, agrochemicals, or flavors. *Asymmetric Hydrogenation and Transfer Hydrogenation* describes homogeneous asymmetric hydrogenation and transfer hydrogenation reactions of prochiral substrates by using organometallic catalysts and organic catalysts. It covers hydrogenation of simple and modified ketones, alkenes, imines, and heteroaromatic compounds, and presents mechanisms as well as the application of asymmetric hydrogenation reactions to the synthesis of biologically relevant compounds.

Reference • Wiley-VCH • 9783527346103 • Mar 2021 • Cloth • 384pp • US$190.00

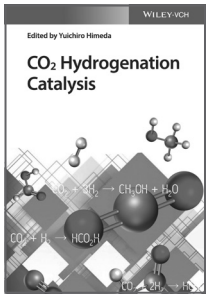

## Biocatalysis for Practitioners

Techniques, Reactions and Applications

*Gonzalo de Gonzalo & Ivn Lavandera*

Bridging the gap between basic research on biocatalysis and their applications in industry. *Biocatalysis for Practitioners* presents every important aspects from fermentation to downstream processing, from computational chemistry to biotechnological processees and much more. Both novel enzyme systems and the synthetic routes in which they can be applied are discussed. In addition, the complementary innovative process technology under unconventional conditions is highlighted by latest examples from biotech industry.

Reference • Wiley-VCH • 9783527346837 • Apr 2021 • Paper • 480pp • US$146.89



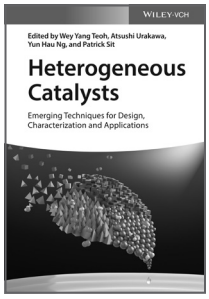

## $CO_2$ Hydrogenation Catalysis

*Yuichiro Himeda*

Written by an impressive team of authors, this book covers homogeneous and heterogeneous catalytic systems for the transformation of carbon dioxide to fuels and value-added chemicals such as formic acid, methanol, and higher hydrocarbons. By providing advances and challenges in future $CO_2$ hydrogenation research, this is a useful guide for researchers in academia and industry working in the field of catalysis, organometallic chemistry, green and sustainable chemistry, as well as energy conversion and storage.

**Yuichiro Himeda** is a chief senior researcher at the National Institute of Advanced Industrial Science and Technology (AIST) in Japan. He received his Ph.D. in Organic Chemistry from Osaka University (1994). After a postdoctoral stay with Prof. Andrew D. Hamilton at the University of Pittsburgh (1995), he worked on the development of homogeneous catalysis for H2 storage and CO2 reduction at AIST.

Reference • Wiley-VCH • 9783527346639 • Mar 2021 • Cloth • 320pp • US$190.00




## Heterogeneous Catalysts

Advanced Design, Characterization and Applications

*Wey Yang Teoh, Atsushi Urakawa, Yun Hau Ng & Patrick Sit*

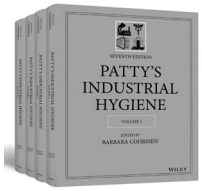
*Heterogeneous Catalysts* focuses on emerging techniques in heterogeneous catalysis, from new methodology for catalysts design and synthesis, surface studies and operando spectroscopies, ab initio techniques, to critical catalytic systems as relevant to energy and the environment. It provides the vision of addressing the foreseeable knowledge gap unfilled by classical knowledge in the field.

**Wey Yang Teoh** is Associate Professor in the School of Energy and Environment at the City University of Hong Kong, China. He is the recipient of the Joseph Wang Award in Nanomaterials in 2016, and he has published more than 60 scientific papers.

**Patrick Sit** is Assistant Professor in the School of Energy and Environment at City University of Hong Kong, China. Prior to joining City University of Hong Kong, he was an associate research scholar in the Department of Chemistry at Princeton University, USA.

Reference • Wiley-VCH • 9783527344154 • Apr 2021 • Cloth • 768pp • US$405.00

## CHEMICAL AND ENVIRONMENTAL HEALTH AND SAFETY




### Patty's Industrial Hygiene
4-Volume Set, 7th Edition

*Barbara Cohrssen*

*Patty's Industrial Hygiene* continues to be the main resource to address industrial hygiene issues in the workplace. Now in its Seventh edition the text is updated to provide relevant topics as well as becoming more global in nature with a representative number of contributors coming from outside the US and key topics that coordinate with the AIHA environmental initiative. Quoting Harry Elston, editor of *Journal of Chemical Health and Safety*, "'Patty's.' Enough said. The name has a golden reputation associated with it."

Reference • Wiley • 9781119438021 • Feb 2021 • Cloth • 1800pp • US$TBA • Previous ed: 9780470074886

System Safety for the 21st Century

### System Safety for the 21st Century
2nd Edition

*Richard A. Stephans*

The 2nd Edition to *System Safety for the 21st Century* does not only provide an update of the latest thinking pertaining to system safety engineering including its fundamental concepts, tools, methods, and needed management skills. The new editions also add an important chapter on risk management and a new multi-chapter application section on medical services, and how system safety principles can be used to benefit this complex field.

Reference • Wiley • 9781119634751 • Apr 2021 • Cloth • 464pp • US$155.95 • Previous ed: 9780471444541

## COMPUTATIONAL CHEMISTRY & MOLECULAR MODELING

Deep Learning for Physical Scientists

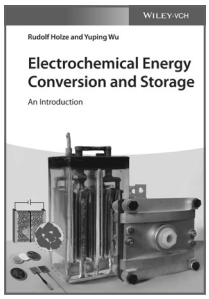
### Deep Learning for Physical Scientists
Accelerating Research with Machine Learning

*Edward O. Pyzer-Knapp*

By providing easy to follow explanations, set in familiar contexts with a large amount of coded examples, this book provides a much-needed point of entry into the rapidly growing field of deep learning for physical scientist. *Deep Learning for Physical Scientists* is designed to teach researchers to think in new ways, providing them with new avenues to attack problems, and avoid roadblocks within their research.

Reference • Wiley-Blackwell • 9781119408338 • Apr 2021 • Cloth • 248pp • US$95.00

## ELECTROCHEMISTRY



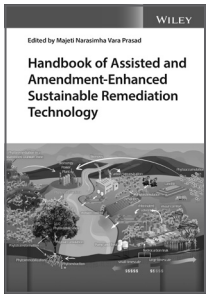

### Electrochemical Energy Conversion and Storage
An Introduction

*Rudolf Holze & Yuping Wu*

This pioneering textbook on the topic provides a clear and well-structured description of the fundamental chemistry involved in these systems, as well as an excellent overview of the real-life practical applications. Prof. Holze is a well-known researcher and an experienced author who guides the reader with his didactic style, and readers can test their understanding with questions and answers throughout the text. Written mainly for advanced students in chemistry, physics, materials science, electrical engineering and mechanical engineering, this text is equally a valuable resource for scientists and engineers working in the field, both in academia and industry.

Reference • Wiley-VCH • 9783527334315 • Apr 2021 • Paper • 398pp • US$110.00

## ENVIRONMENTAL CHEMISTRY



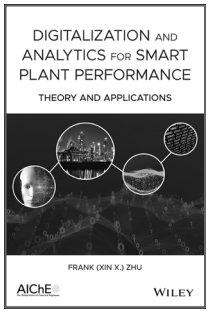

### Handbook of Assisted and Amendment-Enhanced Sustainable Remediation Technology

*M. N. V. Prasad*

A comprehensive reference on assisted and amendment-enhanced remediation, discussing sustainable approaches for the removal of contaminants from the environment. Strategies aimed at increasing the effectiveness of phytoremediation are reviewed, with a special attention paid to use of the organic amendments to facilitate both soil cleanup and the growth of phytoremediation plants. The handbook discusses the development of new remediation technologies for contaminated soils, global trends in the environmental remediation industry, and future challenges and opportunities.

Reference • Wiley • 9781119670360 • Mar 2021 • Cloth • 552pp • US$220.00

## INDUSTRIAL CHEMISTRY



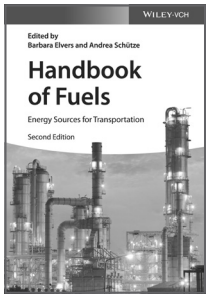

### Digitalization and Analytics for Smart Plant Performance

Theory and Applications

*Frank (Xin X.) Zhu*

This book provides a digital vision for integrating business and technical activities to enhance profit, reliability, safety, and environmental performance for manufacturing plants via advanced digital and analytics technologies. It discusses the needs and challenges for industrial digitalization and provides analytics theory and application cases to help industries to overcome these challenges and realize the true goals of digitalization.

Reference • Wiley-AIChE • 9781119634034 • Feb 2021 • Cloth • 528pp • US$194.95



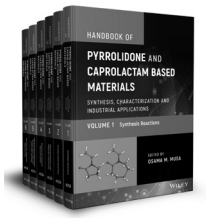

### Handbook of Fuels

Energy Sources for Transportation, 2nd Edition

*Barbara Elvers*

*The Handbook of Fuels* offers a comprehensive review of the wide variety of fuels used to power vehicles, aircraft and ships and examines the processes to produce these fuels. The updated second edition reflects the growing importance of fuels and fuel additives from renewable sources. New chapters include information on current production technology and use of bioethanol, biomethanol and biomass-to-liquid fuels. The book also reviews novel additives and performanace enhancers for conventional engines and fuels for novel bybrid engines.

Reference • Wiley-VCH • 9783527333851 • Jan 2021 • Cloth • 576pp • US$245.00 • Previous ed: 9783527307401




### Handbook of Pyrrolidone and Caprolactam Based Materials

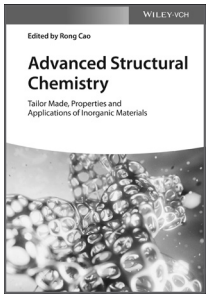
Synthesis, Characterization and Industrial Applications

*Osama M. Musa*

This comprehensive, six-volume set describes the broad technical universe of γ- and ε- lactams, reviewing in-depth the chemistry of the small lactam-based molecules, uncovering their unique properties and showing how they have enabled a myriad of commercially important applications. From synthesis, through production and into applications, this extensive work targets significant and recent trends in γ- and ε- lactams science and technology and addresses all key aspects of pyrrolidone- and caprolactam-based materials to produce a definitive overview of the field.

Reference • Wiley • 9781119468738 • Apr 2021 • Cloth • 2544pp • US$1000.00

## INORGANIC CHEMISTRY




### Advanced Structural Chemistry

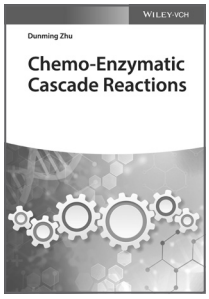
Tailor Made, Properties and Applications of Inorganic Materials

*Rong Cao*

A unique book addressing the relationship between the structure and function of matter, efficient and precise synthesis methodology, and theoretical tools for new functional clusters and porous materials. The book mainly includes two parts: synthesis and structure, structure and property. It focuses on the structural design and properties of clusters, porous materials for gas sorption, separation and catalysis, photoelectric or magnetic materials.

Reference • Wiley-VCH • 9783527349005 • Apr 2021 • Cloth • 1184pp • US$675.00

## ORGANIC CHEMISTRY

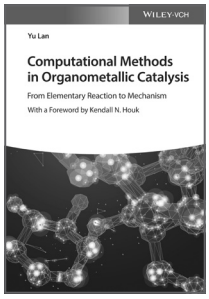



### Chemo-Enzymatic Cascade Reactions

*Dunming Zhu*

Both chemical synthesis and biotransformation have their own features, including advantages and disadvantages. Chemo-enzymatic cascade can give full play to their advantages, and thus offer tremendous opportunity for developing efficient and sustainable processes by designing novel synthetic routes from the starting materials to the products with retro-synthesis strategy. *Chemo-Enzymatic Cascade Reactions* is the first book dedicated exclusively to chemo-enzymatic cascade transformations and their application in the synthesis of valuable chemicals.

Reference • Wiley-VCH • 9783527344512 • Apr 2021 • Cloth • 384pp • US$163.98



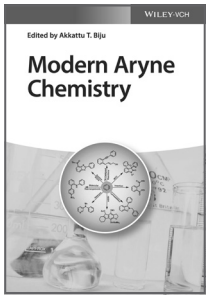

### Computational Methods in Organometallic Catalysis

From Elementary Reaction to Mechanism

*Yu Lan*

*Transition Metal Reactivity* systematically discusses the computional methods of organometallic catalysis. It not only provides a theoretical overview of organometallic catalysis, but also describes the computional studies for the mechanism of transition-metal-assisted reactions. This unique book allows chemists in academia and industry to broaden their fundamental knowledge of organometallic chemistry and catalysis.

Reference • Wiley-VCH • 9783527346011 • Apr 2021 • Cloth • 656pp • US$195.98




### Modern Aryne Chemistry

*Akkattu T. Biju*

*Modern Aryne Chemistry* gives a conceptual framework of reactions related to arynes and systematically introduces the cycloaddition reactions, insertion reactions and transition-metal-catalyzed transformations of arynes. It is aimed at highlighting a novel strategy for carbon-carbon and carbon-heteroatom bond construction utilizing arynes. The simplicity and sophistication of the synthetic strategy using arynes as introduced in this book will inspire a broad range of organic chemists to explore new possibilities and imaginative applications of the concept of arynes.

Reference • Wiley-VCH • 9783527346462 • Apr 2021 • Cloth • 300pp • US$190.00

Neglected Tropical Diseases and Phytochemicals in Drug Discovery

## Neglected Tropical Diseases and Phytochemicals in Drug Discovery

*Chukwuebuka Egbuna, Muhammad Akram & Jonathan Chinenye Ifemeje*

Dealing with a global problem gaining increasing attention from the drug industry, *Neglected Tropical Diseases and Phytochemicals in Drug Discovery* presents novel drug discovery updates from medicinal plants against the devastating effects of neglected tropical diseases (NTDs) on the global health care system.

Reference • Wiley • 9781119616603 • Apr 2021 • Cloth • TBApp • US$249.95

Nitroalkanes

## Nitroalkanes

Synthesis, Reactivity, and Applications

*Roberto Ballini & Alessandro Palmieri*

Aimed at synthetic organic chemists in academia and industry, *Nitroalkanes* summarizes recent developments in the preparation of nitroalkanes, their functionalization, and application for the synthesis of important heterocycles, natural products, and bioactive compounds.

Reference • Wiley-VCH • 9783527347452 • Apr 2021 • Cloth • 304pp • US$166.75


## Organic Reaction Mechanisms 2018

*Mark G. Moloney & A. C. Knipe*

*Latest edition of this annual review series*—Organic Reaction Mechanisms 2018—the 54th annual volume in this highly successful and unique series, surveys research on organic reaction mechanisms described in the available literature dated 2018. An experienced team of authors compile these reviews every year, so that the reader can rely on a continuing quality of selection and presentation.

Reference • Wiley-Blackwell • 9781119531968 • Apr 2021 • Cloth • 700pp • US$545.00

Organofluorine Chemistry

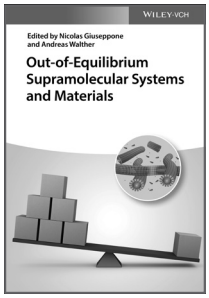
## Organofluorine Chemistry

Synthesis, Modeling, and Applications

*Kalman J. Szabo & Nicklas Selander*

By presenting novel methods for the efficient preparation of fluorinated compounds and their application in pharmaceutical and agrochemical chemistry as well as medicine, this is a valuable source of information for all researchers in academia and industry! *Organofluorine Chemistry* summarizes recent progress in the synthesis of organofluorine compounds, including trifluormethyl, trifluoroalkyl ($CF_3$, $C_nF_{2n+1}$), trifluoromethylthio/trifluorotrimethyloxo ($SCF_3$/ $OCF_3$), and fluorine-18 labelled species. It highlights catalytic electrophilic fluorination methods that can be performed under mild conditions with high selectivity and describes new reagents and techniques developed in the past ten years.

Reference • Wiley-VCH • 9783527347117 • Apr 2021 • Cloth • 456pp • US$205.00




## Out-of-Equilibrium Supramolecular Systems and Materials

*Nicolas Giuseppone & Andreas Walther*

*Out-of-Equilibrium Supramolecular Systems and Materials* presents a comprehensive overview of the synthetic approaches that use supramolecular bonds in various out-of-thermodynamic equilibrium situations. With contributions from noted experts on the topic, the text contains information on the design of dissipative self-assemblies that maintain their structures when fueled by an external source of energy. The contributors also examine molecules and nanoscale objects and materials that can produce mechanical work based on molecular machines.

Reference • Wiley-VCH • 9783527346158 • Apr 2021 • Cloth • 475pp • US$205.00

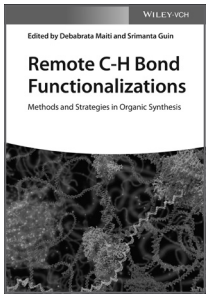

## Phytopharmaceuticals

Potential Therapeutic Applications

*Durgesh Nandini Chauhan & Kamal Shah*

Medicinal plants contain a variety of bioactive compounds–also referred to as phytochemicals–in the leaves, stems, flowers and fruits. This book covers these bioactive compounds, their available sources, how the bioactive molecules are isolated from the plants, the biochemistry, structural composition and potential biological activities. *Phytopharmaceuticals* discusses the developments made in medicinal plants study and phytotherapy, upgrades our scientific knowledge of herbal drug ingredients, their properties, and side effects, and promotes the use of phytopharmaceuticals obtained from plants to assist researchers and clinicians in alternative therapies.

Reference • Wiley-Scrivener • 9781119681915 • Feb 2021 • Cloth • 450pp • US$224.95



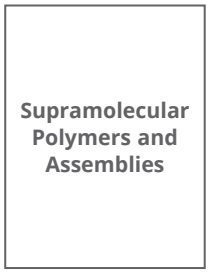

## Remote C-H Bond Functionalizations

Methods and Strategies in Organic Synthesis

*Debabrata Maiti & Srimanta Guin*

A systematic compilation of distal C-H functionalizations which belongs to the most important topics in present day organic synthesis—essential for every synthetic chemist. The scope of this book opens up a new dimension and insight into remote C-H bond functionalizations that could be applied routinely in various pharmaceutical and agrochemical industries. The mechanistic understandings are elucidated along with the engineering of templates and strategies are also discussed in detail.

Reference • Wiley-VCH • 9783527346677 • Feb 2021 • Cloth • 416pp • US$205.00



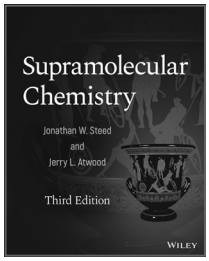

## Supramolecular Polymers and Assemblies

From Synthesis to Properties and Applications

*Ulrich Schubert, George R. Newkome & Andreas Winter*

Filling the gap for a practical approach in this emerging field, this book gives an excellent summary and describes concepts, synthetic strategies, characterization and applications. A certain emphasis is placed on metallo-supramolecular polymers, while such applications as self-healing materials, opto-electronics, sensing and catalysis are equally included. Uniformly written by a highly renowned, international author team.

Reference • Wiley-VCH • 9783527333561 • Apr 2021 • Cloth • 560pp • US$150.00



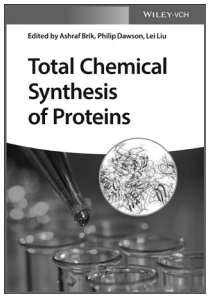

## Supramolecular Chemistry

3rd Edition

*Jonathan W. Steed & Jerry L. Atwood*

Supramolecular chemistry is a cross-discipline topic which takes in most areas of chemistry, materials science, nanotechnology and biochemistry. Thoroughly revised and updated, the Third Edition of *Supramolecular Chemistry* delivers a comprehensive and integrated approach to this rapidly evolving and quickly expanding field. Distinguished professors and authors Steed and Atwood provide readers with a broad and exhaustive resource that assumes little in the way of prior knowledge of supramolecular chemistry.

Reference • Wiley-Blackwell • 9781119582519 • Apr 2021 • Paper • 1000pp • US$100.00 • Previous ed: 9780470512340




## Total Chemical Synthesis of Proteins

*Ashraf Brik, Philip Dawson & Lei Liu*

This unique collection of synthetic methods and strategies for the total synthesis of native and modified proteins is a seminal reference for the entire field. *Total Chemical Synthesis of Proteins* covers the three main ligation methods; native chemical ligation (NCL), sugar-assisted ligation (SAL), and ketoacid-hydroxylamine ligation (KAHA). Synthetic strategies for different protein types are systematically covered, including glycoproteins, sulfoproteins and membrane proteins. Finally, the most important application areas for total protein synthesis are discussed, such as protein crystallography, protein engineering, and biomedical research.

Reference • Wiley-VCH • 9783527346608 • Apr 2021 • Cloth • 550pp • US$208.57

## PHARMACEUTICAL & MEDICINAL CHEMISTRY

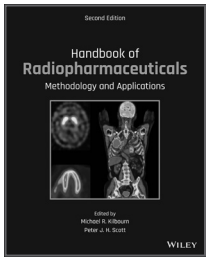

## Burger's Medicinal Chemistry, Drug Discovery and Development

Eighth Edition Set Volumes 1-8

*Donald J. Abraham & Michael Myers*

This flagship reference for medicinal chemists and pharmaceutical professionals has been thoroughly updated and expanded to incorporate the concepts of drug hunting along with its existing coverage of the entire process of drug discovery and development. Bringing in a new and expert editorial board, this new edition updates existing chapters and adds 35 new ones, with topics including: opioid addiction treatments, antibody and gene therapy for cancer, blood-brain barrier, HIV treatments, and industrial-academic collaboration structures.

Reference • Wiley • 9781119530305 • Mar 2021 • Cloth • 8000pp • US$3999.95 • Previous ed: 9780470278154




## Handbook of Radiopharmaceuticals

Methodology and Applications, 2nd Edition

*Michael R. Kilbourn & Peter J. H. Scott*

The second edition of *Handbook of Radiopharmaceuticals* is a comprehensive review of the field, presenting up-to-date coverage of central topics such as radionuclide production, synthetic methodology, radiopharmaceutical development and regulations, and a wide range of practical applications. The volume explores the latest concepts and issues involving both targeted diagnostic and therapeutic radiopharmaceuticals. Contributions from a team of experts from across sub-disciplines provide readers with an immersive examination of radiochemistry, nuclear medicine, molecular imaging, and more.

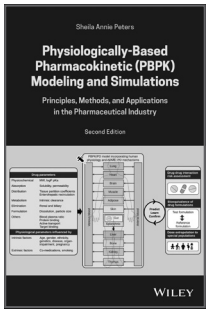
Reference • Wiley • 9781119500544 • Jan 2021 • Cloth • 768pp • US$325.00 • Previous ed: 9780471495604


## New Drug Development for Known and Emerging Viruses

*Helga Rbsamen-Schaeff, Helmut Buschmann, Raimund Mannhold & Jrg Holenz*

The entire field of antiviral drug discovery and development is discussed by leading medicinal chemists from academia and industry. Based on the experience from the nine human viruses for which approved drugs are on the market (HIV, HCV, Influenza, RSV, HBV, HPV, HCMV, HSV, VZV), the discovery and development process for different classes of viruses and targets is described. The properties and development potential of ca. 20 classes of currently approved antivirals are discussed, including combination drugs. The final section provides an outlook on drug development options for antivirals against emerging pathogens such as Ebola, Zika, West Nile, Norovirus and SARS-CoV-2, the causative agent of Covid-19.

Reference • Wiley-VCH • 9783527343379 • Jan 2021 • Cloth • 448pp • US$215.00



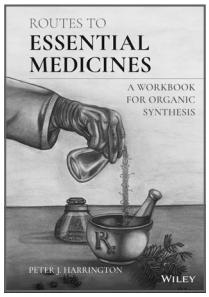

## Physiologically-Based Pharmacokinetic (PBPK) Modeling and Simulations

Principles, Methods, and Applications in the Pharmaceutical Industry, 2nd Edition

*Sheila Annie Peters*

*Physiologically Based Pharmacokinetic (PBPK) Modelling and Simulations* is the only book of its kind to serve the rapidly growing PBPK user community, developing principles from basics in clear, concise language. Connecting theory with practice, the book explores the incredible potential of PBPK modeling for improving drug discovery and development. The new edition provides stronger emphasis on applications and relevant case studies, along with a companion website with datasets, covering many key developments in the field of PBPK modelling and simulations since the first edition's publication in 2012.

Reference • Wiley • 9781119497684 • Apr 2021 • Cloth • 512pp • US$TBA • Previous ed: 9780470484067



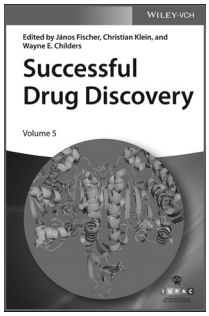

## Routes to Essential Medicines

A Workbook for Organic Synthesis

*Peter J. Harrington*

This book highlights synthetic organic chemistry's use for manufacturing nearly three hundred medicines on the World Health Organization (WHO) Model List of Essential Medicines. Each target molecule described in the book features one manufacturing route that has the shortest sequence from starting materials to target molecule and is likely to be a route still in use today. Formatted to facilitate active engagement, this book allows readers to search for, evaluate, and present the key details for the success of each reaction and the overall route.

Reference • Wiley • 9781119722861 • Apr 2021 • Paper • 300pp • US$79.95




## Successful Drug Discovery, Volume 5

*Janos Fischer, Christian Klein & Wayne E. Childers*

Following the successful approach of the previous volumes in the series, the inventors and primary developers of drugs that made it to the market tell the story of the drug's discovery and development and discuss the sometimes twisted route from the first drug candidate molecule to the final marketed drug. After a general section that addresses overarching topics for drug discovery, 8 selected case studies of individual drugs or drug classes describe recently introduced drugs, encompassing small molecules, antibodies and oligonucleotides, thereby providing a representative cross-section of the present-day drug development effort.

Reference • Wiley-VCH • 9783527347544 • Mar 2021 • Cloth • 336pp • US$190.00

**Transporters and Drug-Metabolizing Enzymes in Drug Toxicity**

## Transporters and Drug-Metabolizing Enzymes in Drug Toxicity

*Albert P. Li*

*Transporters and Drug-Metabolizing Enzymes in Drug Toxicity* provides a comprehensive and up-to-date coverage of the relationship between drug metabolism enzymes and transporters on drug toxicity. It brings together the scientific disciplines of drug metabolism and toxicology, with a focus on the role of biotransformation on drug toxicity and as a major factor for species and individual differences. In addition, the author describes promising experimental approaches to accurately assess human drug toxicity via the incorporation of human-specific drug metabolism in toxicity assays.

Reference • Wiley • 9781119170846 • Apr 2021 • Cloth • 352pp • US$149.95

## PHYSICAL CHEMISTRY

**Solar-to-Chemical Conversion**

## Solar-to-Chemical Conversion

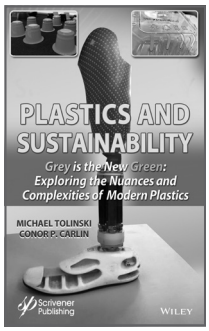
Photocatalytic and Photoelectrochemcial Processes

*Hongqi Sun*

This comprehensive book systematically covers the fundamentals in solar energy conversion to chemicals, either fuels or chemical products. It includes natural photosynthesis with emphasis on artificial processes for solar energy conversion and utilization. The chemical processes of solar energy conversion via homogeneous and/or heterogeneous photocatalysis has been described with the mechanistic insights. It also consists of reaction systems toward a variety of applications, such as water splitting for hydrogen or oxygen evolution, photocatalytic CO2 reduction to fuels, and light driven N2 fixation, etc.

Reference • Wiley-VCH • 9783527347186 • Apr 2021 • Cloth • 496pp • US$178.50

## SUSTAINABLE CHEMISTRY & GREEN CHEMISTRY




## Plastics and Sustainability Grey is the New Green

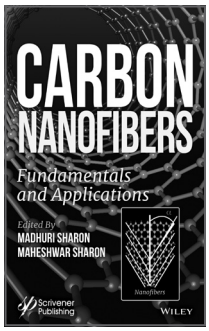
Exploring the Nuances and Complexities of Modern Plastics, 2nd Edition

*Michael Tolinski & Conor P. Carlin*

*Plastics & Sustainability* clearly lays out the thorny and contentious issues that we encounter at the nexus of plastics and sustainability. The book serves as a practical guide for making sustainability decisions about how plastics are made and used, including current developments in the newest bio-based plastics. Designers, marketers, academics, and engineers will all find something of value in this balanced and thoughtful second edition.

Reference • Wiley-Scrivener • 9781119591849 • Jan 2021 • Cloth • 300pp • US$124.95 • Previous ed: 9780470938782

## CARBON MATERIALS




## Carbon Nanofibers

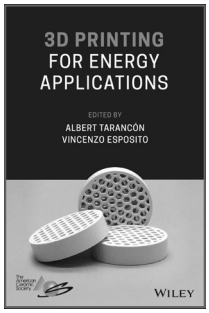
Fundamentals and Applications

*Madhuri Sharon & Maheshwar Sharon*

Carbon is the most used material in hundreds of applications. *Carbon Nanofibers* provides detailed information on the structure, properties, characterization, synthesis and various applications of carbon nanofibers (CNF), including in lithium-ion battery, solar cell, antenna, cosmetics, usefulness in regenerative medicine, as well as various aspects of agrotechnology. The application of CNF for environmental concerns is also detailed by assessing its usefulness in dye and heavy metal removal from polluted water.

Reference • Wiley-Scrivener • 9781119768814 • Jan 2021 • Cloth • 430pp • US$224.95

CERAMICS




## 3D Printing for Energy Applications

*Albert Tarancón & Vincenzo Esposito*

This book covers aspects related to additive manufacturing of functional materials with applicability in the energy sector. *3D Printing for Energy Applications* comprehensively reviews both the technology itself (printable materials and 3D printing strategies) and its specific use in energy devices or systems. Split into three sections the book cover the 3D printing of functional materials; 3D printing of energy devices; and printing challenges for production of complex objects.

Reference • Wiley-American Ceramic Society • 9781119560753 • Feb 2021 • Cloth • 384pp • US$184.95

**Dynamic Response of Advanced Ceramics**

## Dynamic Response of Advanced Ceramics

*Ghatu Subhash, Dipankar Ghosh & Amnaya Prakash*

*Dynamic Response of Advanced Ceramics* summarizes fundamental concepts and recent advances in experimental, analytical and computational realms of the dynamic behavior of advanced structural ceramics and transparent materials. The book provides new insights into research challenges, emerging directions for technological advancements and finally, lays foundation for material synthesis and discovery of ultrahard ceramic materials.

Reference • Wiley-American Ceramic Society • 9781119599777 • Apr 2021 • Cloth • 288pp • US$174.95

**Encyclopedia of Glass Science, Technology, History, and Culture**

## Encyclopedia of Glass Science, Technology, History, and Culture

*Pascal Richet*

Glass is, and promises to be the subject of growing research and funding as a material of the future. In a single source this encyclopedia provides consistent, comprehensive, and up-to-date information for those interested in the nature, properties, fabrication and history of glass. More than 100 chapters have been written in a perspective that combines the various aspects of this unique material, be they scientific, technological, industrial, historical or cultural.

Reference • Wiley-American Ceramic Society • 9781118799420 • Nov 2020 • Cloth • 1616pp • US$549.95

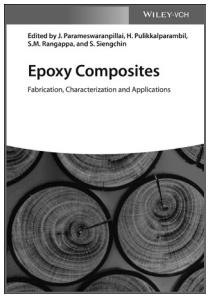
**Processing of Ceramic Optical Materials**

## Processing of Ceramic Optical Materials

*Akio Ikesue*

Focusing on optical applications mainly in lasers, scintillators, Faraday rotators, lighting, and passive materials, *Processing of Ceramic Optical Materials* progresses from an introduction to the topic through principle of function creation, material preparation, properties (characteristics), and future trends in optica ceramics. The book covers practical applications of transparent ceramics such as lighting, passive applications (windows, domes, and armor), and future technologies such as bonding technologies.

Reference • Wiley-American Ceramic Society • 9781119538707 • Apr 2021 • Cloth • 304pp • US$TBA




## Epoxy Composites

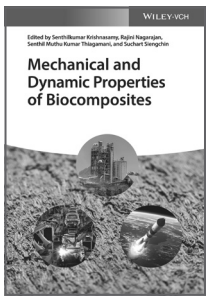
Preparation, Characterization and Applications

*Jyotishkumar Parameswaranpillai, Herikrishnan Pulikkalparambil, Sanjay M. Rangappa & Suchart Siengchin*

The book summarizes the recent developments in the area of epoxy composites, emphasizing their preparation, characterization and applications. It provides a comprehensive understanding of the correlation of rheology, cure reaction, morphology, and thermo-mechanical properties with filler dispersion and is therefore highly relevant to engineers, technologist and academic and industrial researchers.

**Jyotishkumar Parameswaranpillai** is Faculty member in the Center of Innovation in Design and Engineering for Manufacturing at the King Mongkut's University of Technology North Bangkok, Thailand, and is a multi-award winner including the prestigious Kerala State Award for the Best Young Scientists in 2016 and the INSPIRE Faculty Award in 2011. **Harikrishnan Pulikkalparambil** is a senior research fellow at King Mongkut's University of Technology North Bangkok, Bangkok, Thailand. His research is focused on natural fiber composites and polymer composites. **Sanjay Mavinkere Rangappa** is Assistant Professor in the Department of Mechanical and Process Engineering at the King Mongkut's University of Technology North Bangkok, Thailand. His research areas include natural fiber composites and polymer composites. **Suchart Siengchin** is President of the King Mongkut's University of Technology North Bangkok (KMUTNB), Thailand. His research focuses on polymer processing and composite material, and he has published more than 80 journal articles.

Reference • Wiley-VCH • 9783527346783 • Mar 2021 • Cloth • 448pp • US$171.77




## Mechanical and Dynamic Properties of Biocomposites

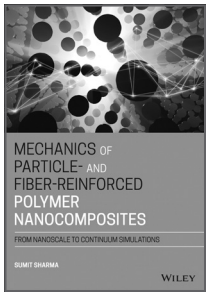
*Senthilkumar Krishnasamy, Rajini Nagarajan, Senthil Muthu Kumar Thiagamani & Suchart Siengchin*

The book gives an overview of the mechanical and dynamic properties biocomposites and natural fiber-reinforced polymer composites to facilitate an informed materials selection for the development of products in fields such as automotive and aerospace engineering or the construction of structures in civil engineering.

**Senthil Muthu Kumar Thiagamani** is postdoctoral researcher at the Centre of Innovation in Design Engineering for Manufacturing (CoI-DEM), King Mongkut's University of Technology North Bangkok (KMUTNB), Thailand.

**Suchart Siengchin** is President of the King Mongkut's University of Technology North Bangkok (KMUTNB), Thailand.

Reference • Wiley-VCH • 9783527346264 • Apr 2021 • Cloth • 400pp • US$179.95




## Mechanics of Particle- and Fiber-Reinforced Polymer Nanocomposites

Nanoscale to Continuum Simulations

*Sumit Sharma*

This book correlates the properties of polymer-based nanocomposites with mechanical models at different length scales. *Mechanics of Particle- and Fiber-Reinforced Polymer Nanocomposites* discusses the reinforcements with particle and fiber and provides an overview of nanocomposites development, theoretical models and simulation methods. Foundations of molecular dynamics and continuum mechanics methods are laid and comparison between results of experimental and theoretical works is performed. The book also contains case studies and provides scripting tutorials for enthusiasts to exercise simulations and to develop further.

Reference • Wiley • 9781119653622 • Mar 2021 • Cloth • 300pp • US$149.95


## Polymer Composites

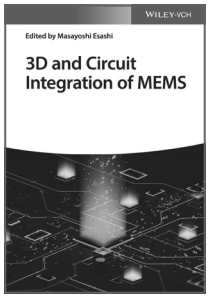
From Signal Sensing to Information Storage

*Ye Zhou & Guanglong Ding*

This book presents an overview of polymer nanocomposites in terms of zero, one, and two dimensional nanomaterials. Their environmental compatibility and typical applications in energy, information and biotechnology devices such as sensors, solar cells, memories, artificial synapse and integrated device are discussed respectively. The book also addresses materials and device challenges, possible strategies and the future directions in the end to promote the commercial translation of these polymer nanocomposites based electronic devices.

Reference • Wiley-VCH • 9783527347445 • Apr 2021 • Cloth • 300pp • US$153.57

## ELECTRONIC MATERIALS

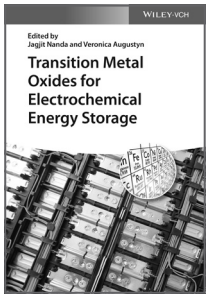



### 3D and Circuit Integration of MEMS

*Masayoshi Esashi*

*3D and Circuit Integration of MEMS* introduces technologies for microsystem packaging and heterogeneous integration comprehensively and systematically. It focuses on the silicon MEMS which have been used in large volume and the technologies concerning system integration. The topics include bulk micromachining, surface micromachining, CMOS-MEMS, wafer Interconnection, Wafer bonding and Sealing.

Reference • Wiley-VCH • 9783527346479 • Feb 2021 • Cloth • 840pp • US$445.00



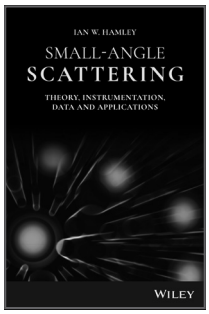

### Transition Metal Oxides for Electrochemical Energy Storage

*Jagjit Nanda & Veronica Augustyn*

The handbook focuses on the science and applications of metal oxides in intercalation-based batteries, solid electrolytes for ionic conduction, pseudocapacitive charge storage, transport and 3D architectures and interfacial phenomena and defects. As such, *Transition Metal Oxides for Electrochemical Energy Storage* serves as a single source of information for materials researchers looking for both fundamental and applied knowledge pertaining to these classes of materials.

Reference • Wiley-VCH • 9783527344932 • Mar 2021 • Cloth • 500pp • US$203.95

## MATERIALS CHARACTERIZATION




### Small-Angle Scattering

Theory, Instrumentation, Data and Applications

*Ian W. Hamley*

*Small-Angle Scattering* provides authoritative coverage of both small-angle X-ray scattering (SAXS), small-angle neutron scattering (SANS) and grazing incidence small-angle scattering (GISAS) including GISAXS and GISANS. This single-volume resource offers researchers and graduate students in the field an up-to-date view of the state of the field, including the theoretical foundations, experimental methods, and practical applications of small-angle scattering (SAS) techniques including laboratory and synchrotron SAXS and reactor/spallation SANS.

Reference • Wiley • 9781119768302 • Apr 2021 • Cloth • 256pp • US$125.00

## MATERIALS FOR ENERGY SYSTEMS


### Wide Bandgap Semiconductors for Power Electronics

Materials, Devices, Applications

*Peter Wellmann, Noboru Ohtani & Roland Rupp*

The book gives a comprehensive overview the wide bandgap materials silicon carbide, gallium nitride, diamond and gallium(III) oxide, covering in detail the growth of these materials, their characterization and their use in a variety of power electronics devices such as transistors and diodes, but also in the areas of quantum information and hybrid electric vehicles. The academic perspective is complemented by an industrial perspective, making the book uniquely useful both for materials scientists, physicists and engineers at universities and for those in corporate research and development.

**Noboru Ohtani** is Professor at the School of Science and Technology and Director of the R&D Center for SiC Materials and Processes at Kwansei Gakuin University, Hyogo, Japan. Prior to joining Kwansei Gakuin University, he worked at the Advanced Technology Research Laboratories of the Nippon Steel Corporation.

Reference • Wiley-VCH • 9783527346714 • Apr 2021 • Cloth • 715pp • US$341.42

## MATERIALS PROCESSING

Modeling and Optimization in Manufacturing

### Modeling and Optimization in Manufacturing

*Jun Jiang & Catalin Pruncu*

The book provides state-of-the-art knowledge on multiscale modeling and optimization in manufacturing, covering processes such as forming, machining, casting, joining, coating, and additive manufacturing. Industrial applications are included, and examples are given in each category for context. The future perspectives of modeling and optimization, namely usage of large materials databases and machine learning are also discussed.

Reference • Wiley-VCH • 9783527346943 • Mar 2021 • Cloth • 252pp • US$190.00

Wafer Manufacturing

### Wafer Manufacturing

Shaping of Single Crystal Silicon Wafers

*Imin Cao & Milind Bhagavat*

Presenting all the major stages in wafer manufacturing, from crystals to prime wafers. This book outlines the physics, associated metrology, process modelling and quality requirements, and discusses wafer forming and wafer surface preparation techniques. It rounds off with a chapter on the research and future challenges in wafer manufacturing.

Reference • Wiley • 9780470061213 • Mar 2021 • Cloth • 375pp • US$160.00

## NANOBIOTECHNOLOGY

Microbial Interactions at Nanobiotechnology Interfaces

### Microbial Interactions at Nanobiotechnology Interfaces

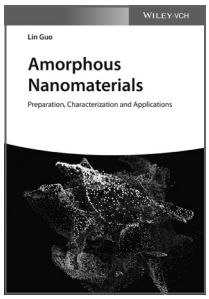
Molecular Mechanisms and Applications

*R. Navanietha Krishnaraj & Rajesh K. Sani*

This book provides a basic understanding about the interaction of nanomaterials with living cells/proteins/enzymes at a molecular level including factors that influence these interactions. It provides a clear and in-depth foundation to understand the modern concepts of nanobiotechnology as well as developing their own technologies and includes numerous examples, critical thinking, and can be used as an advanced text for courses on the subject with end of chapter questions.

Reference • Wiley • 9781119617198 • Apr 2021 • Cloth • 400pp • US$194.95

## NANOMATERIALS



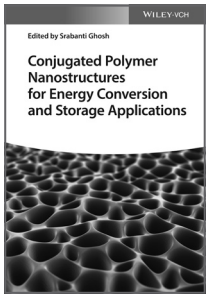

### Amorphous Nanomaterials

Preparation, Characterization and Applications

*Lin Guo*

This book covers the fundamental concept, synthesis, characterization, properties, and applications of nano-scaled amorphous materials. It starts with the introduction of amorphous materials, then gives a global view of the history, structure and growth mechanism of amorphous nanomaterials. Techniques to characterize amorphous materials, such as X-ray absorption fine structure spectroscopy, spherical aberration electron microscope, in-situ-TEM, EELS, and some other defect characterization technologies are discussed. The properties and applications related to amorphous nanomaterials including the applications in electrocatalysis, batteries, supercapacitors, photocatalysis, mechanics, and more are also presented.

Reference • Wiley-VCH • 9783527347476 • Apr 2021 • Cloth • 400pp • US$166.75




## Conjugated Polymer Nanostructures for Energy Conversion and Storage Applications

*Srabanti Ghosh*

The book gives a comprehensive description of conjugated polymer nanostructures and polymer-based hybrid materials for energy conversion applications such as water splitting or degradation of organic pollutants, photovoltaics and solar cells and energy storage devices, such as supercapacitors, lithium ion battery electrodes as well as their associated technology development. It covers the most recent advances in synthesis, characterization of conjugated polymer nanostructures, and the measurement of their applicability in energy harvesting and storage application.

Reference • Wiley-VCH • 9783527345571 • Mar 2021 • Cloth • 504pp • US$189.73

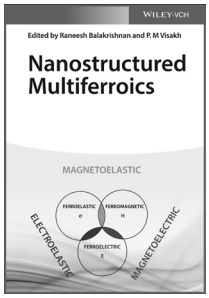

## Metal Oxide Nanoparticles

Formation, Functional Properties and Interfaces

*Oliver Diwald & Thomas Berger*

Metal oxide nanoparticles are integral to a wide range of natural and technological processes—from mineral transformation to electronics—and all the fields of engineering, electronics, energy technology, and electronics utilize metal oxide nanoparticle powders. *Metal Oxide Nanoparticles* presents a valuable resource for readers seeking detailed information about state-of-the-art approaches for the physical, chemical, surface and interface characterization of metal oxide nanoparticle powders and dispersions.

Reference • Wiley • 9781119436744 • Apr 2021 • Cloth • 632pp • US$250.00

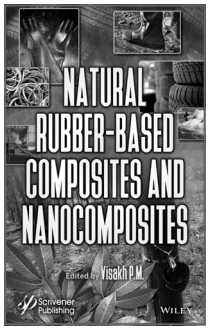



## Nanostructured Multiferroics

*Visakh P. M. & Raneesh Balakrishnan*

*Nanostructured Multiferroics* summarizes many of the recent research accomplishments in the area of nanostructured multiferroics and their preparation, characterization and applications. The book covers single-phase and composite multiferroics, nanomultiferroics and multiferroic composites. It elucidates the physical properties, the underlying physical principles as well as the technology and application aspects of nanostructured multiferroics, for example in the fields of energy harvesting and spintronics.

Reference • Wiley-VCH • 9783527343201 • Mar 2021 • Cloth • 500pp • US$175.00



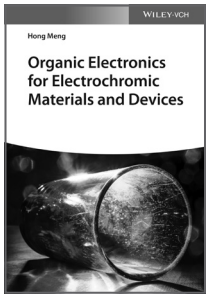

## Natural Rubber-Based Composites and Nanocomposites

*Visakh P. M.*

The book summarizes the recent research accomplishments in the area of natural rubber and their composites and nanocomposites. It discusses many topics such as the synthesis; applications of natural rubber-based biocomposites and bionanocomposites; compatibilization; thermo-mechanical; rheological and morphological properties; natural rubber recycling; the use of green additives in eco-friendly compounds based on natural rubber.

Reference • Wiley-Scrivener • 9781119370208 • Feb 2021 • Cloth • 256pp • US$194.95

## OPTICAL MATERIALS

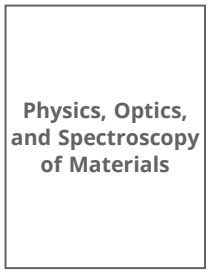



### Organic Electronics for Electrochromic Materials and Devices

*Hong Meng*

Gives a comprehensive overview of all aspects of organic electrochromic materials and devices, from small molecules, polymers, to organic-inorganic hybrid. *Organic Electronics for Electrochromic Materials and Devices* also highlights the recent research results of organic electrochromic materials from universities and enterprises around the world, discusses the existing industrial materials and devices, as well as addresses the issues and challenges that the broad application of organic electrochomic materials facing.

Reference • Wiley-VCH • 9783527348718 • Mar 2021 • Cloth • 550pp • US$173.68



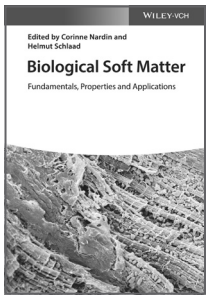

### Physics, Optics, and Spectroscopy of Materials

*Zeev Burshtein*

*Physics, Optics, and Spectroscopy of Materials* allows professionals in materials science and engineering, optics, and spectroscopy in developing a basic understanding for stimulating current research, changing of interest area, as well as developing and using of new laser devices often practiced in optical spectroscopy.

Reference • Wiley • 9781119768739 • Mar 2021 • Cloth • 560pp • US$174.95

## SOFT MATERIALS

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*Corinne Nardin & Helmut Schlaad*

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### Atomic Layer Processing

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*Thorsten Lill*

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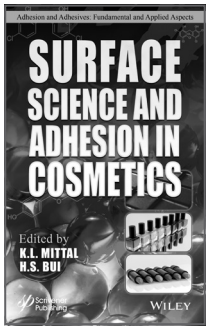


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*K. L. Mittal & H. S. Bui*

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