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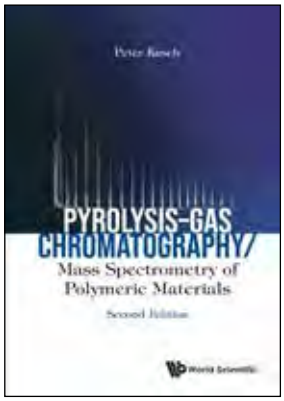
# Highlights

## Chemistry Catalogue 2024

page 4

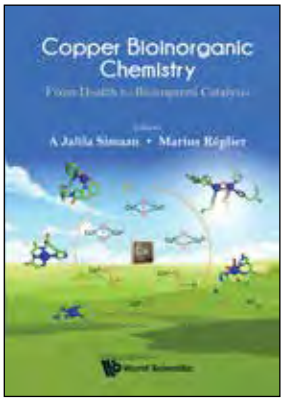

edited by **Hidetoshi Sato** *(Kwansei Gakuin University, Japan)*, **Jürgen Popp** *(Friedrich-Schiller University Jena, Germany)*, **Bayden R Wood** *(Monash University, Australia)* & **Yukihiro Ozaki** *(Kwansei Gakuin University, Japan)*

page 4




by **Peter Kusch** *(Bonn-Rhein-Sieg University of Applied Sciences, Germany)*

page 4

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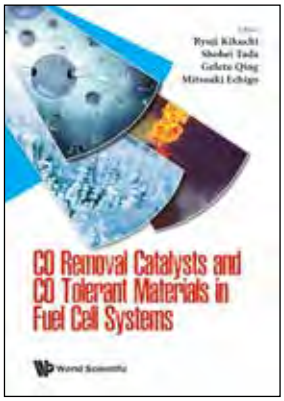
page 5

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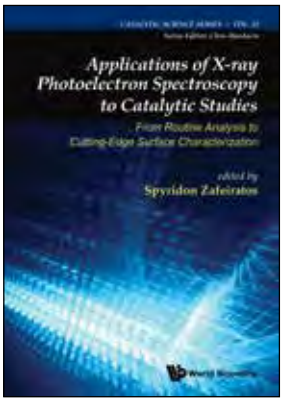
page 5

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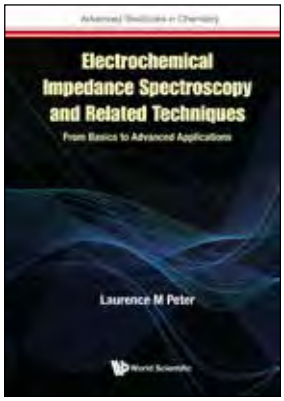
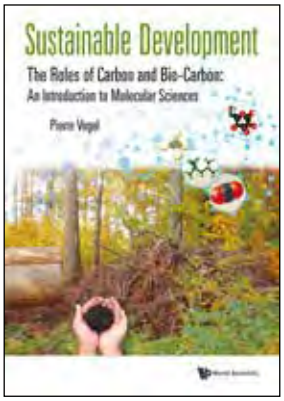
page 6




by **Laurence M Peter** *(University of Bath, UK)*

page 7

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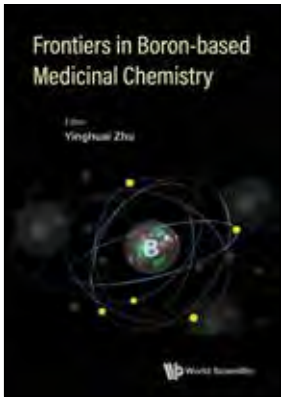
page 9

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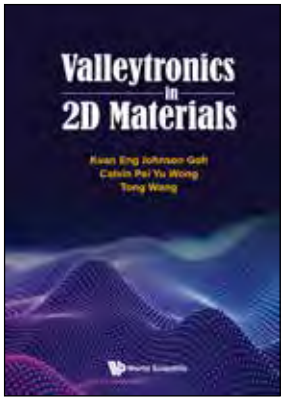
page 10

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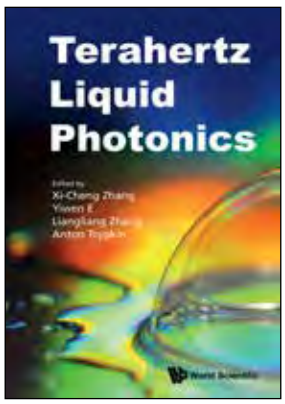
page 11

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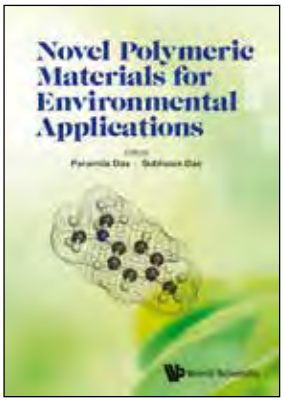
page 11

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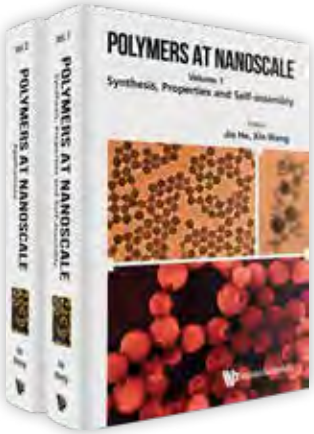
page 11

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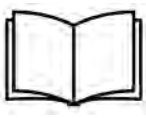

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Chemistry

C O N T E N T S

## ANALYTICAL CHEMISTRY

### RAMAN SPECTROSCOPY IN HUMAN HEALTH AND BIOMEDICINE


edited by **Hidetoshi Sato** *(Kwansei Gakuin University, Japan)*, **Jürgen Popp** *(Friedrich-Schiller University Jena, Germany)*, **Bayden R Wood** *(Monash University, Australia)* & **Yukihiro Ozaki** *(Kwansei Gakuin University, Japan)*

*"There is every reason to expect that Raman spectroscopy will revolutionize medical diagnostics making it universal, accurate, easy, and non-invasive. The Editors of the book are top experts in the field, and the content is well thought and appropriate."*

Igor K Lednev FRSC
**SUNY Distinguished Professor, University at Albany, USA**

**Readership:** Academics, researchers, lecturers, and graduate students in spectroscopy and data science.

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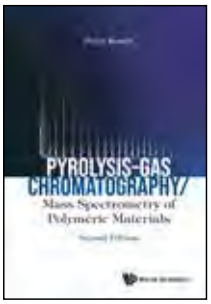
|---|---|---|
| **650pp** | **Sep 2023** | |
| **978-981-126-460-3** | **US$178** | **£155** |
| **978-981-126-461-0(ebook)** | **US$285** | **£250** |

### PYROLYSIS – GAS CHROMATOGRAPHY/ MASS SPECTROMETRY OF POLYMERIC MATERIALS




2nd Edition
by **Peter Kusch** *(Bonn-Rhein-Sieg University of Applied Sciences, Germany)*

***Review of the First Edition:***
*"…I particularly liked the summary format which the author applied to each of the referenced pristine and blended polymer types. Presenting an overview summary of polymer structure, characteristics, synthesis routes and application in addition to the pyrolytic fragmentation pattern information should be extremely useful to anyone working in the field of analytical characterization of polymeric materials."*

Don Wright
**Manager / Consultant, Georgetown, Texas**

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| **350pp** | **Aug 2023** | |
| **978-1-80061-298-3** | **US$138** | **£110** |
| **978-1-80061-299-0(ebook)** | **US$221** | **£175** |

Essential Textbooks in Chemistry

### PROBLEMS OF INSTRUMENTAL ANALYTICAL CHEMISTRY

A Hands-On Guide (2nd Edition)
by **JM Andrade-Garda** *(University of A Coruña, Spain)*, **A Carlosena-Zubieta** *(University of A Coruña, Spain)*, **MP Gómez-Carracedo** *(University of A Coruña, Spain)*, **MA Maestro-Saavedra** *(University of A Coruña, Spain)*, **MC Prieto-Blanco** *(University of A Coruña, Spain)*, **RM Soto-Ferreiro** *(University of A Coruña, Spain)* & **J Terán-Baamonde** *(University of A Coruña, Spain)*

This book is intended to help undergraduate students of Instrumental Analytical Chemistry develop strategies to generate information from experimental results in an efficient and reliable way. The exercises will provide standard protocols that students can follow to address the most common calculation steps required in laboratory daily work. Easy-to-follow diagrams are included to facilitate understanding of the calculations and avoid common errors.

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| **460pp** | **Mar 2024** | |
| **978-1-80061-443-7(pbk)** | **US$68** | **£60** |
| **978-1-80061-440-6** | **US$128** | **£115** |
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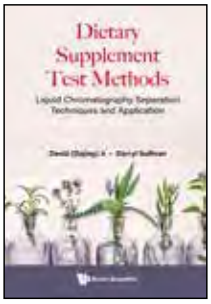
### DIETARY SUPPLEMENT TEST METHODS




Liquid Chromatography Separation Techniques and Application
by **David (Dajing) Ji** *(Analytical Laboratories in Anaheim, USA)* & **Darryl Sullivan** *(Eurofins Scientific, USA)*

This book describes the analytical approach to testing over 160 important dietary supplement ingredients. The procedures in this book include some of the most modern technologies that are available in the laboratory today. These basic principles of method development and troubleshooting can be implemented for food and food safety testing, drug development research, and agricultural areas. The contents of this book contain a very comprehensive collection of valuable analytical tools.

**Readership:** Dietary supplement manufacturer quality control laboratory, R&D department; Research scientists.

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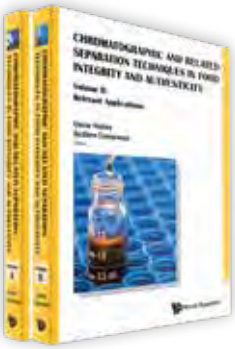
| **500pp** | **May 2022** | |
| **978-981-124-924-2** | **US$158** | **£140** |
| **978-981-124-925-9(ebook)** | **US$253** | **£200** |

### CHROMATOGRAPHIC AND RELATED SEPARATION TECHNIQUES IN FOOD INTEGRITY AND AUTHENTICITY

(In 2 Volumes)
Volume A: Advances in Chromatographic Techniques
Volume B: Relevant Applications
edited by **Oscar Núñez** *(University of Barcelona, Spain)* & **Guillem Campmajó** *(University of Barcelona, Spain)*



Volume A addresses fraud prevention and the latest chromatographic and related separation analytical techniques to guarantee food integrity and authenticity by giving special attention to relevant authenticity issues in food production. Volume B addresses the relevant application of techniques to assess different food products' integrity and authenticity.

**Readership:** Advanced undergraduate and graduate students, researchers and practitioners in the fields of food safety, control and authenticity, food control agencies.

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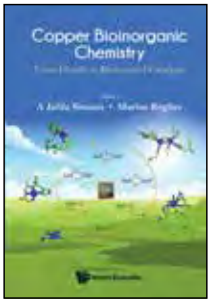
| **532pp** | **Sep 2021** | |
| **978-1-78634-991-0(Set)** | **US$348** | **£305** |
| **978-1-78634-992-7(Set)(ebook)** | **US$557** | **£490** |

## BIOCHEMISTRY

### COPPER BIOINORGANIC CHEMISTRY




From Health to Bioinspired Catalysis
edited by **A Jalila Simaan** *(Centre Nationale de la Recherche Scientifique, France & Aix Marseille Université, France)* & **Marius Réglier** *(Centre Nationale de la Recherche Scientifique, France & Aix Marseille Université, France)*

The seven chapters in this book, contributed by internationally recognized authors cover recent developments on these aspects illustrated by interdisciplinary fields from biology, chemistry, spectroscopy to bioinspired catalysis. It contains aspects ranging from human health issues (copper homeostasis in bacteria and the development of molecules as anticancer or antibacterial agents) to bioinspired catalysis.

**Readership:** Masters/graduate students and researchers in copper bioinorganic chemistry and biological chemistry.

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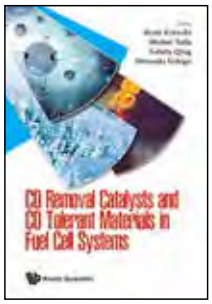
| **350pp** | **Aug 2023** | |
| **978-981-126-948-6** | **US$138** | **£120** |
| **978-981-126-949-3(ebook)** | **US$221** | **£195** |

# CATALYST CHEMISTRY

## CO REMOVAL CATALYSTS AND CO TOLERANT MATERIALS IN FUEL CELL SYSTEMS




edited by **Ryuji Kikuchi** *(The University of okyo, Japan)*, **Shohei Tada** *(Seikei University, Japan)*, **Geletu Qing** *(Michigan State University, USA)* & **Mitsuaki Echigo** *(Osaka Gas Co., Ltd, Japan)*

This book analyses the existing research on CO and $CO^2$ methanation to find key issues to perform CO methanation selectively and demonstrates the process experimentally in an actual reactor scale. It offers a focus on a new deep CO removal process in polymer electrolyte fuel cells (PEFCs), including selective CO methanation catalysts and reactors, along with conventional CO abatement processes such as water gas shift and preferential oxidation of CO (PROX).

**Readership:** Catalyst researchers, chemical engineer, and chemist; advanced undergraduates and graduate students.

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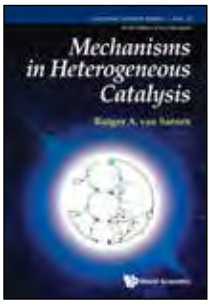
| **200pp** | **Feb 2024** | |
| **978-1-78634-502-8** | **US$98** | **£86** |
| **978-1-78634-503-5(ebook)** | **US$157** | **£125** |

Catalytic Science Series

## MECHANISMS IN HETEROGENEOUS CATALYSIS




by **Rutger A van Santen** *(Eindhoven University of Technology, The Netherlands)*

*"This new book by Rutger van Santen approaches the subject of heterogeneous catalysis from the understanding that can be gained from molecular physical chemistry. It is unique in this respect and will rapidly be adopted as the 'must read' text."*

Graham J Hutchings CBE FRS
**Regius Professor of Chemistry, Cardiff University, UK**

**Readership:** Researchers,graduate & undergraduate students in catalysis, surface science, chemistry.

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| **716pp** | **Jul 2023** | |
| **978-1-80061-400-0** | **US$188** | **£165** |
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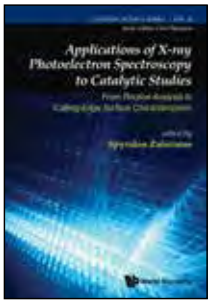
Catalytic Science Series - Vol 21

## APPLICATIONS OF X-RAY PHOTOELECTRON SPECTROSCOPY TO CATALYTIC STUDIES




From Routine Analysis to Cutting-Edge Surface Characterization
edited by **Spyridon Zafeiratos** *(CNRS, France & University of Strasbourg, France)*

The book aims to provide a comprehensive overview of the current status and future perspectives of X-ray photoelectron spectroscopy dedicated to catalytic applications, including thermal catalysis, electrocatalysis, and photo(electro)catalysis. The book contains 13 chapters, starting with the necessary introduction of the technique background, including basic phenomena and instrumentation aspects.

**Readership:** Researchers and graduate students, working in the field of catalysis and materials science.

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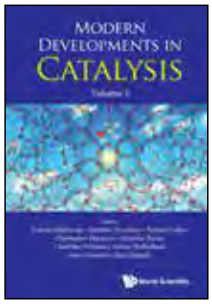
| **548pp** | **Jul 2023** | |
| **978-1-80061-328-7** | **US$168** | **£150** |
| **978-1-80061-329-4(ebook)** | **US$269** | **£235** |

## MODERN DEVELOPMENTS IN CATALYSIS




Volume 2
edited by **Graham Hutchings** *(Cardiff University, UK)*, **Matthew Davidson** *(University of Bath, UK)*, **Richard Catlow** *(University College London, UK & Cardiff University, UK)*, **Christopher Hardacre** *(University of Manchester, UK)*, **Nicholas Turner** *(University of Manchester, UK)*, **Charlotte Williams** *(University of Oxford, UK)*, **Adrian Mulholland** *(University of Bristol, UK)*, **Josie Goodall** *(UK Catalysis Hub, UK & Cardiff University, UK)* & **Chris Mitchell** *(SABIC UK Petrochemicals Ltd, UK)*

The book provides a review and update of current research and practice on catalysis. Topics range from the treatment of water using novel techniques for carbon neutrality, cutting-edge techniques using intense radiation including Operando Synchrotron Infrared Microspectroscopy to innovation in homogeneous catalysis, heterogeneous catalysis and biocatalysis.

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| **640pp** | **Mar 2023** | |
| **978-1-80061-200-6** | **US$188** | **£150** |
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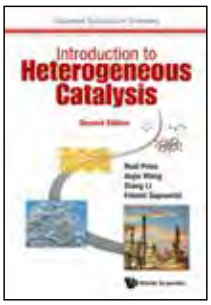
## INTRODUCTION TO HETEROGENEOUS CATALYSIS




2nd Edition
by **Roel Prins** *(ETH Zürich, Switzerland)*, **Anjie Wang** *(Dalian University of Technology, China)*, **Xiang Li** *(Tianjin University of Science and Technology, China)* & **Foteini Sapountzi** *(Syngaschem BV, The Netherlands)*

***Review of the First Edition:***
*"The book is very nicely illustrated with diagrams and figures, many that are unique in their presentation, and the text is punctuated by photographs of famous historical figures. There are also problems at the back of each chapter which are useful and, in many cases, thought-provoking. This is a must-have book in the personal library of people interested in catalysis."*

Professor S Ted Oyama
**The University of Tokyo, Japan & Virginia Tech, USA**

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| **412pp** | **Jul 2022** | |
| **978-1-80061-161-0(pbk)** | **US$58** | **£45** |
| **978-1-80061-150-4** | **US$108** | **£85** |
| **978-1-80061-151-1(ebook)** | **US$173** | **£140** |

Series on Chemistry, Energy and the Environment - Vol 9

## TOPICS IN ENANTIOSELECTIVE CATALYSIS


Recent Achievements and Future Challenges
edited by **Angela Marinetti** *(CNRS-ICSN, France & Paris-Saclay University, France)*

This book illustrates the broad field of enantioselective catalysis by highlighting a few topics, out of myriads, with the double aim to typify selected synthetic achievements and future challenges. Eleven research groups have highlighted topics of interest in either organo- or organometallic catalysis, related to their own expertise.

**Readership:** Graduate students, researchers and professionals in Catalyst chemistry and Organic Chemistry.

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| **500pp** | **Sep 2022** | |
| **978-981-124-842-9** | **US$158** | **£125** |
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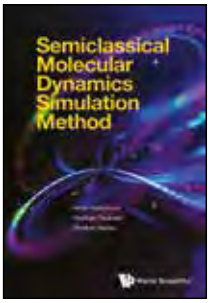
## COMPUTATIONAL CHEMISTRY

### SEMICLASSICAL MOLECULAR DYNAMICS SIMULATION METHOD




by **Hiroki Nakamura** *(National Institutes of Natural Sciences, Japan & Graduate University for Advanced Studies, Japan)*, **Yoshiaki Teranishi** *(National Yang Ming Chiao Tung University, Taiwan)* & **Shinkoh Nanbu** *(Sophia University, Japan)*

*"Hiroki Nakamura is one of the world leaders of quantum dynamics in molecules. While he published many significant works, the most important is the Zhu-Nakamura theory, which is unique, gives one of the last complete solutions to the Schrödinger equations, and overcomes the defects of the Landau-Zener theory. Since it was developed in 1994, Nakamura and his collaborators have been continuously expanding the realm of its applicability to various quantum dynamics problems. This new book will summarize the many fruits of his lifework. I strongly recommend it."*

Yuko Okamoto
**Professor Emeritus, Nagoya University, Japan**

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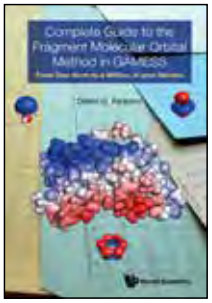
| **200pp** | **Mar 2024** | |
| **978-981-126-634-8** | **US$88** | **£75** |
| **978-981-126-635-5(ebook)** | **US$141** | **£125** |

### COMPLETE GUIDE TO THE FRAGMENT MOLECULAR ORBITAL METHOD IN GAMESS




From One Atom to a Million, at your Service
by **Dmitri G Fedorov** *(National Institute of Advanced Industrial Science and Technology (AIST), Japan)*

*"…The implementation within GAMESS with a clear description of how to invoke FMO options, practical tips on how to apply these, and concrete examples will be of great practical value in addressing computational materials problems in biology, chemistry, and physics. A comprehensive treatment of both fundamental and practical concerns in FMO are included: the use of various levels of quantum chemical theory within FMO, PIEDA, segmentation and fragmentation, effective potentials and grids, and massively scaling up the calculation size."*

Kang Hway Chuan
**Associate Professor of Chemistry**
**National University of Singapore**

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| **328pp** | **Mar 2023** | |
| **978-981-126-362-0** | **US$118** | **£95** |
| **978-981-126-363-7(ebook)** | **US$189** | **£150** |

## ELECTROCHEMISTRY

### AQUEOUS ZINC BATTERIES


edited by **Hongjin Fan** *(Nanyang Technological University, Singapore)*

This book is uniquely placed to be a compendium of the state of the art by key players in the field with diverse and complementary sets of expertise. It will cover all parts of the device, including electrode design, electrolyte engineering, different battery design, flexible devices, and thermal protection.

**Readership:** Academics, researchers and graduate students in the battery science and electrochemistry.

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| **500pp** | **Dec 2023** | |
| **978-981-127-831-0** | **US$168** | **£150** |
| **978-981-127-832-7(ebook)** | **US$269** | **£235** |

Advanced Textbooks in Chemistry

### ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY AND RELATED TECHNIQUES


From Basics to Advanced Applications
by **Laurence M Peter** *(University of Bath, UK)*

This book begins by introducing the basic concepts of impedance to non-specialist readers who have only an elementary knowledge of physics and mathematics. Mathematical concepts are explained clearly at appropriate points in a series of Theory Notes. Subsequent chapters cover RCL (resistor, capacitor, inductor) circuits, with many simulated examples, before moving on to develop key ideas relating to the application of impedance spectroscopy to electrochemical systems.

**Readership:** Postgraduate students and professionals in the industries of chemistry, physics, materials science.

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| **200pp** | **Nov 2023** | |
| **978-1-80061-450-5** | **US$98** | **£85** |
| **978-1-80061-451-2(ebook)** | **US$157** | **£140** |

Series on Chemistry, Energy and the Environment - Vol 10

### ELECTROCHEMISTRY OF METALLOPORPHYRINS


by **Karl M Kadish** *(University of Houston, USA)*, **W Ryan Osterloh** *(University of Houston, USA)* & **Eric Van Caemelbecke** *(University of Houston, USA)*

The book covers all aspects of porphyrin electrochemistry in nonaqueous media and should be of benefit and interest to beginning graduate students as well as experienced researchers in many fields of porphyrin chemistry where electrochemistry is known to play a key role in influencing properties of the compounds as well as mechanisms and biological functions. The first half of the book is aimed at non-experts in the field of electrochemistry who would like to begin studies on porphyrin electrochemistry followed by detailed examples of how changes in the central metal ion of a given metalloporphyrin will affect its redox properties. The scope of the work covers the period in the literature between the mid-1960s and mid-2022 and expands greatly upon several earlier reviews by the senior author.

**Readership:** Graduate students and researchers in porphyrin electrochemistry.

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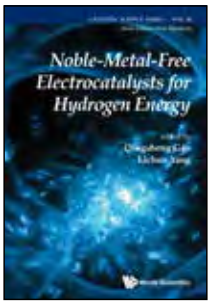
| **644pp** | **Jul 2023** | |
| **978-981-126-761-1** | **US$188** | **£165** |
| **978-981-126-762-8(ebook)** | **US$301** | **£265** |

Catalytic Science Series - Vol 20

### NOBLE-METAL-FREE ELECTROCATALYSTS FOR HYDROGEN ENERGY




edited by **Qingsheng Gao** *(Jinan University, China)* & **Lichun Yang** *(South China University of Technology, China)*

The chapters within contain cutting-edge breakthroughs, horizons, and insights into functional materials for energy applications. This book contains over 3000 references and 200 figures, and is a highly valuable resource for scientists, students, and engineers working in the fields of electrochemistry, catalysis, fuel cells, batteries, and supercapacitors.

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| **608pp** | **Oct 2022** | |
| **978-1-80061-156-6** | **US$198** | **£175** |
| **978-1-80061-157-3(ebook)** | **US$317** | **£255** |

## ENVIRONMENTAL / ATMOSPHERIC CHEMISTRY

### INTRODUCTION TO EMERGING FIELDS IN MATERIALS SUSTAINABILITY


by **Pankaj Pathak** *(SRM University Andhra Pradesh, India)*, **Susmita Sharma** *(National Institute of Technology Meghalaya, India)*, **Ramadoss Tamil Selvan** *(National University of Singapore, Singapore)* & **Seeram Ramakrishna** *(National University of Singapore, Singapore)*

*"This excellent new book covers important concepts of sustainability focusing on materials and their waste streams... The materials sector is extremely dynamic and is providing a pipeline of new and novel solutions to meet mankind's needs in imaginative but sustainable ways. These future trends are covered and should allow the readers to develop their own opinions on how society can seek carbon neutrality whilst continuing to meet its demands for products, services, and infrastructure."*

Paul Hogg

**Professor, Royal Holloway University of London, UK**

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| **200pp** | **Apr 2024** | |
| **978-981-124-764-4** | **US$78** | **£70** |
| **978-981-124-765-1(ebook)** | **US$125** | **£100** |

Analysis: Historical Cases in Chemistry - Vol 1

### GREEN CHEMISTRY AVANT LA LETTRE

Pine Institute and Resin Chemistry in Aquitaine (1900 – 1970)

by **Marcin Krasnodębski** *(Polish Academy of Sciences, Poland)*

This book explains the success of the material itself and of the scientific-industrial network that made it possible to exploit it sustainably over many decades. It carefully examines its organisational features, relations with the local economy, as well as the core elements of resin chemistry as an independent discipline prefigurating sustainable chemistry of today. The book constitutes an original and pioneering work on the origins of some of the ideas that are being labeled today as green or sustainable chemistry.

**Readership:** Undergraduate, graduate students and researchers of resin chemistry.

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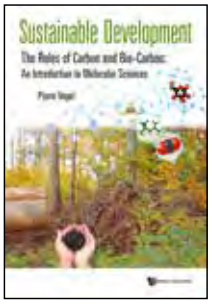
| **350pp** | **Apr 2024** | |
| **978-981-125-285-3** | **US$118** | **£95** |
| **978-981-125-286-0(ebook)** | **US$189** | **£150** |

### SUSTAINABLE DEVELOPMENT




The Roles of Carbon and Bio-Carbon: An Introduction to Molecular Sciences

by **Pierre Vogel** *(Swiss Institute of Technology in Lausanne (EPFL), Switzerland)*

This textbook is an introduction to the molecular sciences and shows how we depend on carbon compounds, what they are and how they are transformed. This book contains 100 problems and solutions; more than 180 colour pages; and bibliographical sketches of most important scientists and inventors.

**Readership:** Pre-university, undergraduate students and teachers interested in sustainable development

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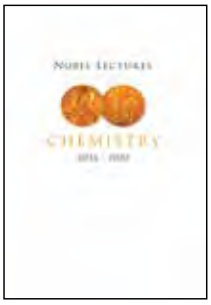
| **612pp** | **Sep 2022** | |
| **978-981-124-048-5** | **US$158** | **£140** |
| **978-981-124-049-2(ebook)** | **US$253** | **£200** |



## GENERAL CHEMISTRY

### NOBEL LECTURES IN CHEMISTRY (2016 – 2020)



edited by **Sven Lidin** *(Lund University, Sweden)*

List of Nobel laureates and their award citations:

(2016) **Jean-Pierre Sauvage**, **Sir J Fraser Stoddart** and **Bernard L Feringa** "for the design and synthesis of molecular machines"

(2017) **Jacques Dubochet**, **Joachim Frank** and **Richard Henderson** "for developing cryo-electron microscopy for the high-resolution structure determination of biomolecules in solution"

(2018) **Frances H Arnold** "for the directed evolution of enzymes", **George P Smith** and **Sir Gregory P Winter** "for the phage display of peptides and antibodies"

(2019) **John B Goodenough**, **M Stanley Whittingham** and **Akira Yoshino** "for the development of lithium-ion batteries"

(2020) **Emmanuelle Charpentier** and **Jennifer A Doudna** "for the development of a method for genome editing"

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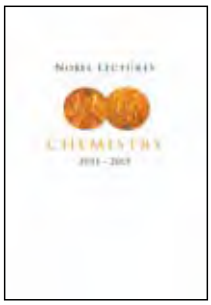
| **550pp** | **Jan 2024** | |
| **978-981-126-057-5** | **US$158** | **£125** |
| **978-981-126-058-2(ebook)** | **US$253** | **£200** |

### NOBEL LECTURES IN CHEMISTRY (2011 – 2015)



edited by **Sven Lidin** *(Lund University, Sweden)*

List of Nobel laureates and their award citations:

(2011) **Dan Shechtman** "for the discovery of quasicrystals"

(2012) **Robert J Lefkowitz** and **Brian K Kobilka** "for studies of G-protein-coupled receptors"

(2013) **Martin Karplus**, **Michael Levitt** and **Arieh Warshel** "for the development of multiscale models for complex chemical systems"

(2014) **Eric Betzig**, **Stefan W Hell** and **William E Moerner** "for the development of super-resolved fluorescence microscopy"

(2015) **Tomas Lindahl**, **Paul Modrich** and **Aziz Sancar** "for mechanistic studies of DNA repair".

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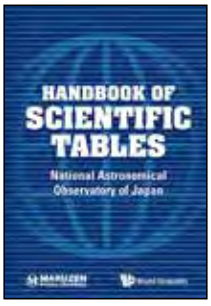
| **544pp** | **Apr 2022** | |
| **978-981-124-681-4(pbk)** | **US$98** | **£80** |
| **978-981-124-555-8** | **US$158** | **£125** |
| **978-981-124-556-5(ebook)** | **US$253** | **£200** |

### HANDBOOK OF SCIENTIFIC TABLES




by **National Astronomical Observatory of Japan**

This data book of scientific information is an essential guide for all STEM researchers, teachers and students. It comprises six sections on astronomy, meteorology, physics/chemistry, earth science, biology, and environmental science. It also serves historical data such as earthquakes and volcanic activities and geographical data such as rivers and lakes of the world

**Readership:** Undergraduate, graduate and research students; research professionals; general public.

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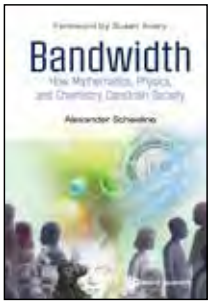
| **1056pp** | **May 2022** | |
| **978-981-127-700-9(pbk)** | **US$88** | **£75** |
| **978-981-3278-51-6** | **US$268** | **£215** |
| **978-981-3278-52-3(ebook)** | **US$429** | **£345** |

## BANDWIDTH




How Mathematics, Physics, and Chemistry Constrain Society
by **Alexander Scheeline** *(University of Illinois at Urbana-Champaign, USA)*

*"In Bandwidth, Alex Scheeline describes how we get trapped in wells of information while struggling to perceive the universe. Science is only one of many possible wells, he argues, while agreeing that spiritual understandings of the universe are also valid. Scheeline makes a persuasive argument that certain core insights from science constrain how society functions, despite one's spiritual beliefs. As he puts it, 'gravity can be resented, but it can't be ignored.'"*

Raima Larter
**Former Professor of Chemistry,**
**Indiana University – Purdue University Indianapolis, USA**

**Readership:** General readers and scientists.

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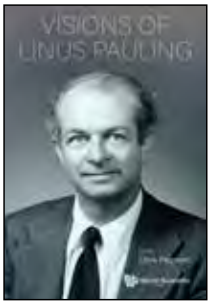
| **448pp** | **Jun 2023** | |
| **978-981-123-854-3(pbk)** | **US$48** | **£40** |
| **978-981-123-787-4** | **US$108** | **£95** |
| **978-981-123-788-1(ebook)** | **US$173** | **£150** |

## VISIONS OF LINUS PAULING




edited by **Chris Petersen**
*(Oregon State University, USA)*

In a stunningly original examination of the two-time Nobel Laureate, author touches upon the major eras of Pauling's life and dials into specific episodes, themes, accomplishments, and failures at a level of detail that has not been put forth elsewhere. Topics exclusively covered here include Pauling's generative process as author of the groundbreaking text *The Nature of the Chemical Bond* and the colorful history of the Linus Pauling Institute; his symbiotic relationship with the W H Freeman & Co. publishing house; two entirely separate clashes with the United States Senate and the Soviet Academy of Science; and the story of his brilliant and troubled son Peter.

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| **396pp** | **Oct 2022** | |
| **978-981-126-075-9** | **US$78** | **£60** |
| **978-981-126-076-6(ebook)** | **US$125** | **£100** |

## O MG! HOW CHEMISTRY CAME TO BE


by **Stephen M Cohen**

*"This book is a graphic novel which tells you the story of chemistry, how it started and progressed, and of many major discoveries. It takes the reader on a journey from ancient science to the present day, using a character called Ben Zene to narrate it ... This book deserves to be widely read and used if we are to increase the prominence of chemistry in both the public consciousness and on the popular science shelves in bookshops. Chemists who are historically inclined will delight in the detail and those involved in education should find plenty to inspire their students ... "*

The Royal Society of Chemistry

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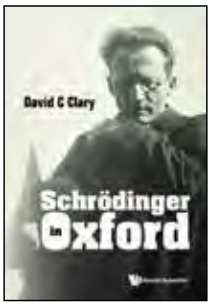
| **224pp** | **Jul 2022** | |
| **978-981-126-223-4(pbk)** | **US$39.95** | **£30** |
| **978-981-125-040-8** | **US$78** | **£60** |
| **978-981-125-041-5(ebook)** | **US$125** | **£100** |

## SCHRÖDINGER IN OXFORD




by **David C Clary** *(University of Oxford, UK)*

*"This is a biography of a towering figure in the most marvellous century of science, just past. The delight of this book is to share with its reader the miracle of Schrö dinger's equation in which it was revealed how solid matter partakes of the properties of waves. The reader will learn that even the most solitary scientist depends on the brilliance of his colleagues, and also on the existence of great centres of learning."*

John Polanyi FRS
**Nobel Laureate in Chemistry, 1986**

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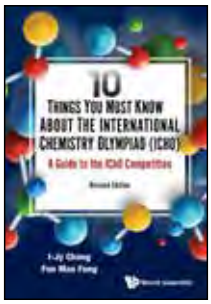
| **420pp** | **Mar 2022** | |
| **978-981-125-100-9(pbk)** | **US$38** | **£35** |
| **978-981-125-000-2** | **US$98** | **£85** |
| **978-981-124-996-9(ebook)** | **US$157** | **£135** |

## 10 THINGS YOU MUST KNOW ABOUT THE INTERNATIONAL CHEMISTRY OLYMPIAD (ICHO)




A Guide to the IChO Competition
Revised Edition
by **I-Jy Chang** *(National Taiwan Normal University, Taiwan)* & **Fun Man Fung** *(National University of Singapore, Singapore)*

*"As we approach the 2030 deadline set by the United Nations to achieve the Sustainable Development Goals (SDGs), it is even more important to clarify the role of chemistry in this endeavour. Chemistry lies at the heart of many of the 17 SDGs ... The future of our planet will depend on how the next generation of scientists and chemists address these issues ... As an ardent supporter of international collaboration and chemistry outreach, I am pleased that the IChO is able to foster bonds and form friendships among the international chemistry community ..."*

Professor TAN Choon Hong
**Chair, School of Physical and Mathematical Sciences,**
**Nanyang Technological University**
**Immediate Past President,**
**Singapore National Institute of Chemistry**
**Executive Board Member, Commonwealth Chemistry**

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| **224pp** | **Mar 2023** | |
| **978-981-121-737-1** | **US$58** | **£50** |
| **978-981-121-738-8(ebook)** | **US$98** | **£85** |

## JOINING THE DARK SIDE


The Role of the Forensic Science Defence Expert
by **David Schudel**

The book outlines the evolution of a fascinating career that starts out in the dark side and looks at what problems can appear in forensic cases. The book delves into the problems inherent to forensic science, in particular cognitive bias and scientific philosophy. It also looks at the emotional impact and specific challenges behind forensic science and provides the reader with some sage advice on giving evidence in Court.

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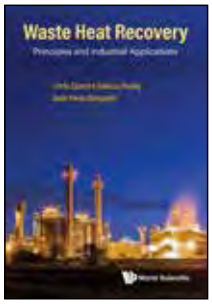
| **220pp** | **Sep 2022** | |
| **978-1-80061-256-3(pbk)** | **US$28** | **£20** |
| **978-1-80061-244-0** | **US$58** | **£45** |
| **978-1-80061-245-7(ebook)** | **US$98** | **£80** |

## INDUSTRIAL CHEMISTRY

### WASTE HEAT RECOVERY




Principles and Industrial Applications
by **Chirla Chandra Sekhara Reddy** & **Gade Pandu Rangaiah** *(National University of Singapore, Singapore)*

This book presents a comprehensive coverage of fundamentals, latest technologies and industrial applications of Waste Heat Recovery (WHR) in process industries. Simple and effective WHR techniques are illustrated with industrial examples, to help readers to identify, calculate and develop heat recovery potential in their processes. Techniques for reaping benefits of WHR projects for longer periods are also outlined. Applying these techniques with an understanding of the principles explained in this book, and taking cues from the examples and suggestions, the reader will be able to realise sustained benefits in their process.

**Readership:** Students, researchers, professionals, and practitioners in chemical/process/energy engineering.

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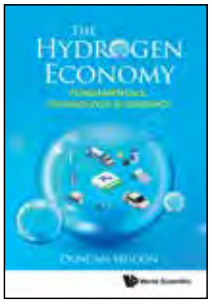
| **884pp** | **Jun 2022** | |
| **978-981-124-839-9** | **US$198** | **£160** |
| **978-981-124-840-5(ebook)** | **US$338** | **£270** |

### THE HYDROGEN ECONOMY




Fundamentals, Technology, Economics
by **Duncan Seddon** *(Duncan Seddon & Associates Pty. Ltd, Australia)*

The book covers the various means and costs of production from fossil fuels (with carbon capture) – blue hydrogen – electrolysis – green hydrogen – or biomass. The book covers hydrogen storage as liquid or compressed gas and transport, through pipelines as liquid or by an intermediary fluid such as ammonia or a hydrocarbon. The book also discusses the production and costs of hydrogen delivery at the user end of a logistics chain. It also compares the relative energy value of energy delivered hydrogen versus the current suite of conventional fuels.

**Readership:** Academics and researchers in industrial chemistry, chemical engineering, and inorganic chemistry.

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| **312pp** | **May 2022** | |
| **978-981-124-854-2** | **US$108** | **£85** |
| **978-981-124-855-9(ebook)** | **US$173** | **£140** |

## INORGANIC CHEMISTRY

### FRONTIERS IN BORON-BASED MEDICINAL CHEMISTRY


edited by **Yinghuai Zhu**
*(HEC Pharm Co. Ltd., China)*

*"Boron neutron capture therapy (BNCT) has emerged as a promising method in cancer treatment. The book covers broad areas in BNCT research, so it is of interest to both academia and the pharmaceutical industry."*

Xuanjun Zhang
**Associate Professor,**
**University of Macau, China**

**Readership:** Industrial scientists, academics, and graduate students in medicinal/pharmaceutical chemistry, drug design/development, nanomedicine and cancer research.

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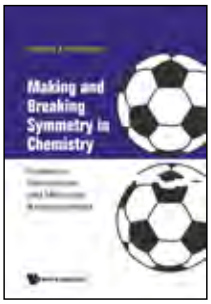
| **232pp** | **May 2023** | |
| **978-981-126-796-3** | **US$88** | **£75** |
| **978-981-126-803-8(ebook)** | **US$141** | **£125** |

### MAKING AND BREAKING SYMMETRY IN CHEMISTRY




Syntheses, Mechanisms and Molecular Rearrangements
by **Michael J McGlinchey**
*(University College Dublin, Ireland)*

*"This book illustrates how chemical reactivity is controlled by molecular and electronic symmetry. Professor McGlinchey applies symmetry-based arguments to explore the origins of well-known phenomena which illustrate fundamental principles, and then use these examples to thread together the arcana of organic, inorganic and organometallic chemistry...s. In addition, McGlinchey 'humanizes' his analysis by providing vignettes of the lives of some of the individuals whose discoveries molded the way we think about chemistry. The refreshingly light and catholic nature of its presentation will be an exciting and useful read for all those interested in the way the molecular and electronic structure control chemistry."*

Richard Oakley
**Emeritus Professor,**
**University of Waterloo, Canada**

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| **292pp** | **Apr 2022** | |
| **978-981-124-965-5** | **US$98** | **£80** |
| **978-981-124-966-2(ebook)** | **US$157** | **£130** |

Series on Chemistry, Energy and the Environment - Vol 8

### PROGRESS IN LAYERED DOUBLE HYDROXIDES


From Synthesis to New Applications
edited by **Morena Nocchetti** *(University of Perugia, Italy)* & **Umberto Costantino** *(University of Perugia, Italy)*

This book addresses basic aspects of Layered Double Hydroxides (LDH) as the implementations in the methodologies based on density functional theory (DFT) to understand the properties and applications of LDHs, the synthetic methods to prepare LDHs and LDH based core-shell structures, and the swelling and exfoliation behaviors of LDH compounds. A relevant part of the book is devoted to consolidated and emerging applications of LDHs as catalysts in photocatalysis, electrocatalysis and water oxidation processes, as biomaterials and as functional fillers in food packaging.

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| **528pp** | **May 2022** | |
| **978-981-124-060-7** | **US$168** | **£135** |
| **978-981-124-061-4(ebook)** | **US$269** | **£215** |

### THE LANTHANIDES AND ACTINIDES


Synthesis, Reactivity, Properties and Applications
edited by **Stephen T Liddle** *(The University of Manchester, UK)*, **David P Mills** *(The University of Manchester, UK)* & **Louise S Natrajan** *(The University of Manchester, UK)*

This is an introduction to and comprehensive coverage of f-block chemistry encompassing the following areas: periodicity, natural occurrence and extraction, separations, electronic structure, coordination chemistry, organometallic chemistry, small molecule activation, catalysis, organic synthesis applications, magnetism, spectroscopy, computation, materials, photonics, solar cell technology, biological imaging, and technological applications.

**Readership:** Academics, postgraduates and advanced graduates.

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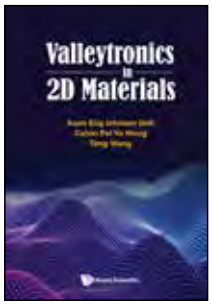
| **728pp** | **Mar 2022** | |
| **978-1-80061-015-6** | **US$198** | **£160** |
| **978-1-80061-016-3(ebook)** | **US$317** | **£255** |

## MATERIALS CHEMISTRY / NANOCHEMISTRY

### VALLEYTRONICS IN 2D MATERIALS




edited by **Kuan Eng Johnson Goh** *(Agency for Science, Technology and Research (A*STAR), Singapore)*, **Calvin Pei Yu Wong** *(Agency for Science, Technology and Research (A*STAR), Singapore)* & **Tong Wang** *(Agency for Science, Technology and Research (A*STAR), Singapore)*

*"This is a timely book — the field of valleytronics is emerging and I have yet to see a book on this topic; and the field of 2D materials is just publishing its first books. Valleytronics in 2D Materials introduces the brief history of valleytronics, the valley physics of 2D semiconductors, and recent attempts to engineer valley devices for practical purposes. The field is still developing, and this book will provide a useful reference for researchers in the field."*

Andrew Wee
**Professor of Physics, National University of Singapore**

**Readership:** Researchers, postgraduate in valleytronics, 2D materials, solid-state chemistry & semiconductors.

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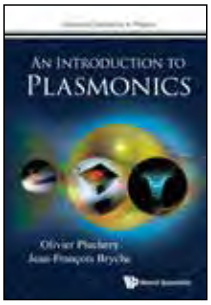
| **360pp** | **Jul 2023** | |
| **978-981-122-909-1** | **US$138** | **£120** |
| **978-981-122-910-7(ebook)** | **US$221** | **£175** |

Advanced Textbooks in Physics

### AN INTRODUCTION TO PLASMONICS




by **Olivier Pluchery** *(Sorbonne University, France)* & **Jean-François Bryche** *(CNRS, France & Sherbrooke University, Canada)*

This book starts with the concepts of wave and the electromagnetic description of light when it interacts with metals and then dedicates every chapter thereafter to all aspects of plasmonics. In particular, the Surface Plasmon Polariton wave is explained in full detail as well as the Localized Surface Plasmon Resonance of metallic nanoparticles. Each chapter ends with a set of exercises that will help the reader revise the concepts. More than 70 exercises are included.

**Readership:** Academia. Graduate students. PhD students and researchers in plasmonics.

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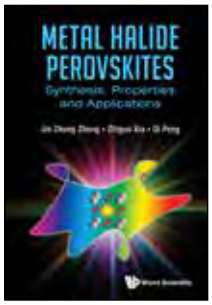
| **334pp** | **Aug 2023** | |
| **978-1-80061-339-3** | **US$88** | **£75** |
| **978-1-80061-340-9(ebook)** | **US$141** | **£125** |

### METAL HALIDE PEROVSKITES

Synthesis, Properties and Applications




by **Jin Zhong Zhang** *(University of California Santa Cruz, USA)*, **Zhiguo Xia** *(South China University of Technology, China)* & **Qi Pang** *(Guangxi University, China)*

This unique compendium covers systematically the fundamental aspects of synthesis, properties, and applications of metal halide perovskites that exhibit unique properties and useful functionalities. This is a reference text provides a good balance between fundamental concepts/principles and related recent researches with many highlighted examples.

**Readership:** Researchers, academics & graduate students.

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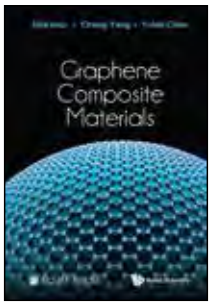
| **260pp** | **Apr 2023** | |
| **978-981-125-741-4** | **US$98** | **£85** |
| **978-981-125-742-1(ebook)** | **US$157** | **£140** |

### GRAPHENE COMPOSITE MATERIALS




by **Sijia Hao** *(Beijing Institute of Aeronautical Materials, China & Beijing Institute of Graphene Technology Co. Ltd., China)*, **Cheng Yang** *(Beijing Institute of Aeronautical Materials, China & Beijing Institute of Graphene Technology Co. Ltd., China)* & **Yubin Chen** *(Beijing Institute of Aeronautical Materials, China & Beijing Institute of Graphene Technology Co. Ltd., China)*

This unique compendium introduces in detail the basic theory, process methods, property evaluation, research progress, development trend, and basic scientific issues in the combination of graphene and its composite materials in recent years. The reference text focuses on four categories of graphene composite materials based on the matrix materials, metal, resin, rubber composites, and composite coatings. The research background, research achievements, and possible applications in the corresponding fields of each section are also reviewed.

**Readership:** Researchers, academics & graduate students.

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| **352pp** | **Jul 2023** | |
| **978-981-127-678-1** | **US$138** | **£120** |
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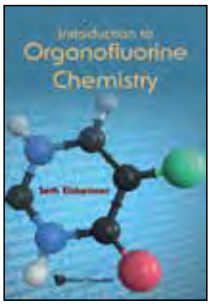
## ORGANIC CHEMISTRY

**Textbook**

### INTRODUCTION TO ORGANOFLUORINE CHEMISTRY




by **Seth Elsheimer** *(University of Central Florida, USA)*

This comprehensive and well-structured book is divided into seven sections of 28 chapters. Readers are first introduced to the privileged role and landmark developments of the ninth element, its physical chemistry, and its fascinating effects on reactive intermediates. The second half of the text covers the synthesis, reactions and analysis of organofluorine compounds. The astonishing ability of fluoroorganics to exert their importance in a plethora of fields is sketched out in the final segment.

**Readership:** Graduate/advanced undergraduates students in organic chemistry. Academic and researchers.

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| **300pp** | **Jun 2024** | |
| **978-981-127-633-0(pbk)** | **US$58** | **£50** |
| **978-981-127-549-4** | **US$108** | **£95** |
| **978-981-127-550-0(ebook)** | **US$173** | **£150** |

### MODERN SUSTAINABLE TECHNIQUES IN TOTAL SYNTHESIS OF BIOACTIVE NATURAL PRODUCTS


by **Sasadhar Majhi** *(Kazi Nazrul University, India)* & **Bhubaneswar Mandal** *(Indian Institute of Technology Guwahati, India)*

The book comprises five parts for green tools, such as ultrasonic waves, microwave heating, visible-light photochemistry, organic electrochemistry, and flow chemistry, along with 72 chapters for each bioactive molecule of natural origin. Each chapter explores the natural source, structure, systematic name, structural features, compound class, biological activity, conventional approaches for their chemical synthesis, and demerit(s) of conventional approaches (where applicable).

**Readership:** Researchers and students.

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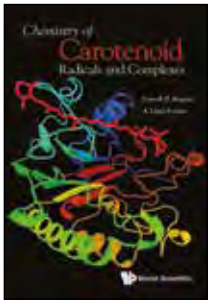
| **468pp** | **May 2023** | |
| **978-981-126-868-7** | **US$158** | **£140** |
| **978-981-126-869-4(ebook)** | **US$253** | **£220** |

## PHOTOCHEMISTRY

### CHEMISTRY OF CAROTENOID RADICALS AND COMPLEXES




by **Lowell D Kispert** *(University of Alabama, Tuscaloosa, USA)* & **A Ligia Focsan** *(Valdosta State University, USA)*

This book introduces the chemistry of carotenoid radicals, and additionally present studies on special carotenoid complexes. The book provide instructive procedures for various measurement techniques on carotenoid radicals and complexes (optical, electrochemical, electron paramagnetic resonance, density functional theory), and analyze examples. Inclusion complexes of carotenoids with different bio-delivery systems are discussed in a final application chapter.

**Readership:** Academic and industrial scientists, graduate and senior undergraduate students.

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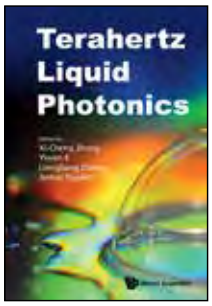
| **200pp** | **Jan 2024** | |
| **978-981-127-834-1** | **US$88** | **£75** |
| **978-981-127-835-8(ebook)** | **US$141** | **£125** |

### TERAHERTZ LIQUID PHOTONICS




edited by **Xi-Cheng Zhang** *(University of Rochester, USA)*, **Yiwen E** *(University of Rochester, USA)*, **Liangliang Zhang** *(Capital Normal University, China)* & **Anton Tcypkin** *(ITMO University, Russia)*

*"This book is a comprehensive source of information on THz liquid photonics and will be of interest to students, scientists and researchers working in relevant fields of THz science, laser physics, plasma, and light-matter interaction. The lead editor is one of the champions in the world in THz research and the pioneer of THz liquid photonics."*

Jinghua Teng
**Principal Scientist, IMRE, A*STAR, Singapore**

**Readership:** Academics, researchers, lecturers, and graduate students in terahertz photonics and spectroscopy, laser physics, AMO physics, ultrafast science.

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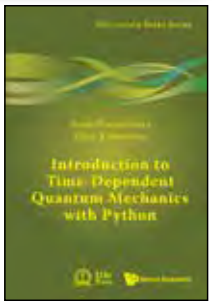
| **250pp** | **Sep 2023** | |
| **978-981-126-563-1** | **US$98** | **£85** |
| **978-981-126-564-8(ebook)** | **US$157** | **£140** |

## PHYSICAL CHEMISTRY

IISc Lecture Notes Series - Vol 7

### INTRODUCTION TO TIME-DEPENDENT QUANTUM MECHANICS WITH PYTHON




by **Atanu Bhattacharya** *(GITAM University, India)* & **Elliot R Bernstein** *(Colorado State University, USA)*

Different concepts of time-dependent quantum mechanics are systematically presented by first giving emphasis on the contrasting viewpoint of classical and quantum mechanical motion of a particle. This book take readers to a hands-on tour with Python programming, then by introducing the position-space grid representation of the wavefunction, thereafter, by making them familiarized with the Fourier transform to represent the discretized wavefunction in momentum space.

**Readership:** Advanced undergraduate, graduate students, researchers and practitioners.

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| **300pp** | **Nov 2023** | |
| **978-981-127-716-0** | **US$98** | **£85** |
| **978-981-127-717-7(ebook)** | **US$157** | **£140** |

### UNDERSTANDING ADVANCED CHEMISTRY THROUGH PROBLEM SOLVING

The Learner;s Approach (In 2 Volumes)

by **Kim Seng Chan** *(Eunoia Junior College, Singapore)* & **Jeanne Tan**

Written for students taking either the University of Cambridge Advanced Level examinations or the International Baccalaureate examinations, this guidebook covers essential topics and concepts under both stipulated chemistry syllabi. The book is written in such a way as to guide the reader through the understanding and applications of essential chemical concepts using the problem-solving approach

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| **700pp** | **Dec 2023** | |
| **978-981-128-979-8(pbk)** | **US$48** | **£40** |
| **978-981-128-968-2** | **US$158** | **£140** |

## POLYMER CHEMISTRY

### NOVEL POLYMERIC MATERIALS FOR ENVIRONMENTAL APPLICATIONS


edited by **Paramita Das** *(Indian Institute of Science Education and Research (IISER) Bhopal, India)* & **Subhasis Das** *(The Energy and Resources Institute, India)*

This book contains eleven comprehensive chapters covering topics from deriving polymers from natural resources or wastes to developing novel functional polymeric materials in the form of membranes, hydrogels, foams, nanocomposites for various environmental applications. This book also discusses the utilization of waste plastics and the challenges and progress made in recycling and reusing commercially viable polymers.

**Readership:** The academicians, students, researchers, technologists, and environmental professionals working on polymer-based materials.

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| **496pp** | **May 2023** | |
| **978-981-126-592-1** | **US$148** | **£130** |
| **978-981-126-593-8(ebook)** | **US$237** | **£210** |

### POLYMERS AT NANOSCALE

(In 2 Volumes)
Volume 1: Synthesis, Properties and Self-assembly
Volume 2: Applications

edited by **Jie He** *(University of Connecticut, USA)* & **Xin Wang** *(Songshan Lake Materials Laboratory, China)*


This book covers the basics and recent advances in polymer nanoparticles, including polymer synthesis, self-assembly, properties, and applications. It encompasses the various preparation methods of polymer nanoparticles, broadly ranged from single chain collapse to polymerization methods and solution self-assembly. It showcases a wide range of advanced applications of polymer nanoparticles in several fields that include pharmaceutics (drug and nucleotide delivery), biomedicals (bioimaging, diagnosis, and therapeutics), energy (batteries and solar cells) and environmental (catalysis and water purification).

**Readership:** Academic researchers, postgraduate students, undergraduate students, in polymers, nanomaterials and nanostructures.

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| **642pp** | **Nov 2023** | |
| **978-981-126-298-2(Set)** | **US$248** | **£220** |
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## SOLID STATE CHEMISTRY

### HIGH-ORDER HARMONIC GENERATION IN SOLIDS

edited by **Marcelo Ciappina** *(Guangdong-Technion Israel Institute of Technology, China)* & **Paraskevas Tzallas** *(Institute of Electronic Structure and Laser of the Foundation for Research and Technology-Hellas (IESL-FORTH), Greece)*

*"High-order harmonic generation in solids has been a very hot topic in strong-field physics because of its attractive applications for obtaining high-intensity table-top coherent lights and generating intense attosecond pulses. Many important progresses have been achieved both in experiments and theories especially for uncovering the mechanism of high-order harmonic generation from solids in the last decade. This book will give very good summaries and outlooks for this hot topic in time. Graduate students and young scientists can benefit a lot from this important book."*

Song-Feng Zhao
**Professor, Northwest Normal University, China**

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| **300pp** | **May 2024** | |
| **978-981-127-955-3** | **US$118** | **£105** |
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## SUPRAMOLECULAR CHEMISTRY

### CHIROGENESIS IN CHEMICAL SCIENCE


edited by **Victor Borovkov** *(Tallinn University of Technology, Estonia)* & **Riina Aav** *(Tallinn University of Technology, Estonia)*

The book takes readers inside the world of chirality and chirogenesis. Chirality is a fundamental property of the universe and has significance in different organic/inorganic materials, living organisms, and human beings. The basic principle of chirality is existence of an object in two mirror image forms, which are not superimposable. Understanding the mechanisms and various influencing factors is of particular significance for smart control and further effective application of chirogenesis in chemistry.

**Readership:** Graduate students and researchers in the fields of stereochemistry and chirality.

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| **520pp** | **Jan 2023** | |
| **978-981-125-921-0** | **US$158** | **£140** |
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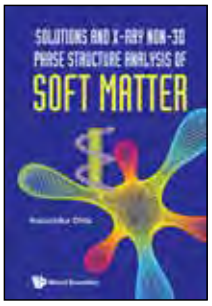
### SOLUTIONS AND X-RAY NON-3D PHASE STRUCTURE ANALYSIS OF SOFT MATTER




by **Kazuchika Ohta** *(Shinshu University, Japan)*

*"I believe it is only Professor Ohta in the world who can provide correct answers for these exercises. This requires methods developed by him. In particular, the 'Golden Rules' and 'Reciprocal Lattice Method' introduced in Chapter 3 are substantially his original and useful for the structural analyses of all the molecular assemblies having two-dimensional and/or one-dimensional lattices not only in liquid crystals but also in all the other materials."*

Professor Nagao Kobayashi
**Shinshu University, Japan**

**Readership:** Graduate students and researchers in physical chemistry, supramolecular chemistry.

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| **240pp** | **Aug 2023** | |
| **978-981-127-241-7** | **US$88** | **£75** |
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## SURFACE / INTERFACE CHEMISTRY

### SCANNING PROBE MICROSCOPY

A Multidisciplinary Research Tool

by **Jayne C Garno** *(Louisiana State University, USA)*, **Song Xu** *(Park Systems Inc., USA)* & **Jing-Jiang Yu** *(Hitachi High-Technologies America Inc., USA)*

This book provides a comprehensive and high-level guide to the operating principles of a wide array of SPM instruments. While the well-known atomic force microscopy (AFM) is covered in-depth in 9 chapters, modern variants are also introduced, such as chemical force microscopy, magnetic force microscopy, scanning electrochemical microscopy, and near-field scanning optical microscopy, amongst many others, concluding with the futuristic artificial intelligence-driven SPM. The authors explain how the science translates into cutting-edge technology and industrial applications.

**Readership:** Researchers, students and lecturers in Surface/Materials/Solid-State Chemistry.

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| **300pp** | **Apr 2024** | |
| **978-981-126-474-0** | **US$108** | **£95** |
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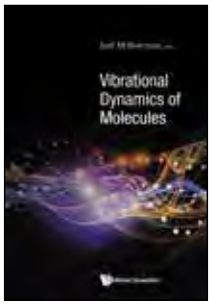
### VIBRATIONAL DYNAMICS OF MOLECULES




edited by **Joel M Bowman** *(Emory University, USA)*

*"The book is distinguished by bringing together nearly all the leaders of the field of computational vibrational dynamics with detailed descriptions of the methods they have developed. This book is a must for any university or institution undertaking theoretical or experimental research in chemical physics and related fields such as astrochemistry and optics."*

Prof Sir David Clary
**University of Oxford**

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| **604pp** | **Jul 2022** | |
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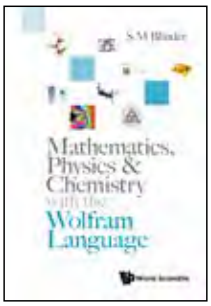


by **S M Blinder** *(University of Michigan, USA & Wolfram Research, USA)*

*"This book will be of great help for instructors teaching math, physics and chemistry classes... This compute-to-learn approach can be thought of as a form of active learning. In the process, it also provides an intuitive learn-by-example way of teaching the reader how to use coding in order to solve and provide graphic interpretation for a wide range of mathematical and scientific problems. The fact that the code is provided and explained as an integral part of the text is very helpful and would make it possible for the reader to experiment with altering the code and optimizing it to the reader's needs. I thoroughly enjoyed reading it."*

Geva
**Professor, University of Michigan, USA**

**Readership:** Researchers, instructors, graduate and undergraduate students

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| **444pp** | **Mar 2022** | |
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The volumes aim to show the strength and international character of the current research in synthetic chemistry that is being developed in Portugal or abroad by teams that cooperate with this country. It gathers representative contributions of main Portuguese research groups and foreign collaborating ones. Nevertheless, the topic should be understood in a wide sense, being open to types of studies with significance on sustainable synthesis and applications in chemistry, materials and/or related sciences.

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Editor-in-chief: **Luis M Liz-Marzán** *(CIC biomaGUNE, Spain)*

This is a book collection that encompasses multiple aspects of the exciting and timely field of nanoplasmonics, under the coordination of international plasmonic nanomaterials expert, Dr Luis Liz-Marzán. Given the breadth of the materials, phenomena and applications related to plasmonics, this Reference Set offers a collection of chapters within dedicated volumes, focusing on the description of selected phenomena, with an emphasis in chemistry as an enabling tool for the fabrication of, often sophisticated, plasmonic nanoarchitectures and biomedicine as the target application.

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| **2328pp** | **May 2022** | |
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edited by **Zeev Valy Vardeny** *(University of Utah, USA)*, **Matt C Beard** *(National Renewable Energy Laboratory, USA)*
Editors-in-chief: **Zeev Valy Vardeny** *(University of Utah, USA)* & **Matt C Beard** *(National Renewable Energy Laboratory, USA)*

This handbook gives an overview of hybrid organic inorganic perovskites, both two dimensional (2D) and three dimensional (3D), from synthesis and characterization and simulation to optoelectronic devices, spintronics devices and catalysis application.

Volume 1: Material physical properties-structure, deposition characteristic and the structure of the electronic bands.

Volume 2: Hybrid perovskite optical properties- ultrafast optical response, photoluminescence and laser action.

Volume 3: Spin response - application such as spin valves, photogalvanic effect, and magnetic response of light emitting diodes and solar cell devices.

Volume 4: Physics and device properties of the relevant applications - photovoltaic solar cells.

The text contains many high-quality colorful illustrations and examples, as well as thousands of up-to-date references to peer-reviewed articles, reports and further reading.

**Readership:** Physicists, chemists, materials scientists, advanced graduate students, and professional scientists.

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| **860pp** | **Mar 2022** | |
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## WORLD SCIENTIFIC HANDBOOK OF ORGANIC OPTOELECTRONIC DEVICES

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Volume 4: Flexible Bioelectronics
edited by **Dongge Ma** *(South China University of Technology, China)* & **Tae-Woo Lee** *(Seoul National University, South Korea)*
Editor-in-chief: **Franky So** *(North Carolina State University, USA)*

Organic (opto)electronic materials have received considerable attention due to their applications in perovskite and flexible electronics, OPVs and OLEDs and many others. This book provides a comprehensive coverage of the state-of-the-art in an accessible format. It presents the most widely recognized fundamentals, principles, and mechanisms along with representative examples, key experimental data, and over 200 illustrative figures.

**Readership:** Advanced graduate students and researchers in polymers, semiconductors and related areas.

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| **1144pp** | **Jul 2022** | |
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## BIOCHEMICAL SENSORS

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Fundament and Development
Nanomaterial-Based Biosensing and Application
edited by **Huangxian Ju** *(Nanjing University, China)* & **Jinghong Li** *(Tsinghua University, China)*


This book covers the full scope of biochemical sensors and offers a survey of the principles, design and applications of the most popular types of biosensing devices. It is presented in 19 chapters, written by 20 distinguished scientists as well as their co-workers. The topics include the design of signal transducers, signal tags and signal amplification strategies, the structure of biosensing interfaces with new biorecognition elements such as aptamers and DNAzymes, and different newly emerging nanomaterials such as Au nanoclusters, carbon nitride, silicon, upconversion nanoparticles and two-dimensional materials, and the applications in wearable detections, biofuel cells, biomarker analyses, bioimaging, single cell analysis and *in vivo* sensing.

By discussing recent advances, it is hoped this book will bridge the common gap between research literature and standard textbooks. Research into biochemical sensors and their biomedical applications is proceeding in a number of exciting directions, as reflected by the content.

**Readership:** Scientists and engineers in developing and using biochemical sensors; students studying analytical chemistry, biochemistry, material science, micro- and nanotechnology, biomedicine, and clinical diagnostics.

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Advances in Atmospheric Chemistry - Vol 3

## CHEMISTRY IN THE CRYOSPHERE

(In 2 Parts)
edited by **Paul B Shepson** *(Stony Brook University, USA)* & **Florent Domine** *(University Laval, Canada & CNRS, France)*


Climate change is drastically impacting Nature and extent of the cryosphere, with attendant feedbacks on atmospheric composition and climate. These changes are happening at a rate that outpaces the development of fundamental knowledge of processes that occur within/on the surfaces of ice and snow, confounding our ability to develop a predictive capability for future states of the Earth environment.

This set, comprising 17 chapters, written by world experts on these topics, intended to document the current state of understanding of the structure, physical properties, abundance, and chemical and microbiological processes that occur within/on ice and snow in all Earth environments in which it exists, and to express needs for improvement of that understanding. This comprehensive treatise/collection that covers environmentally relevant chemistry and related physical aspects of snow and ice in the Earth system, and the connections to climate change, will be accessible to those with introductory college-level understanding of chemistry and physics.

**Readership:** Undergraduate and graduate students, researchers in environmental chemistry, atmospheric chemistry, environmental science and climate change.

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| **924pp** | **Jan 2022** | |
| **978-981-123-012-7(Set)** | **US$298** | **£260** |
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**Impact Factor:** 1.5

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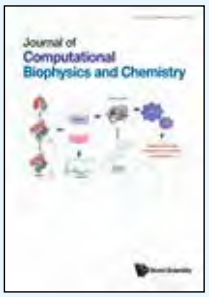


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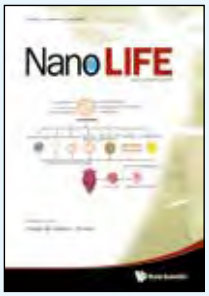


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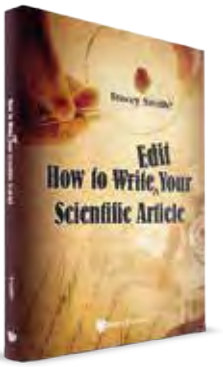


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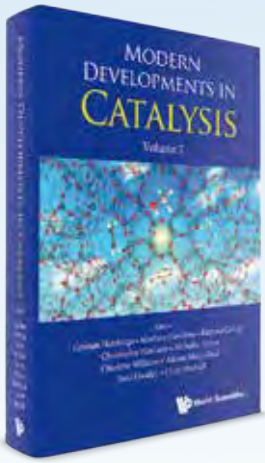




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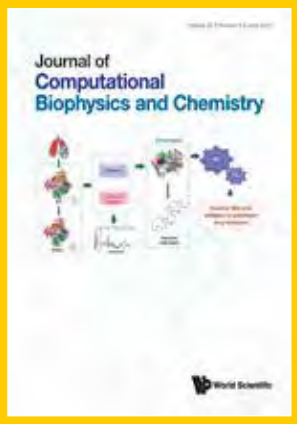
page 15


page 15

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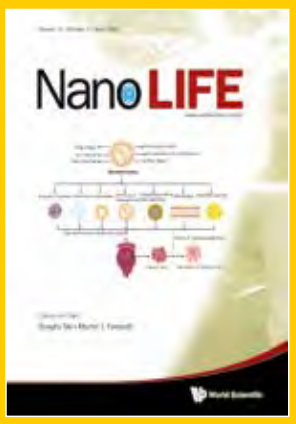


page 15


page 15


page 15


page 15


page 15


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