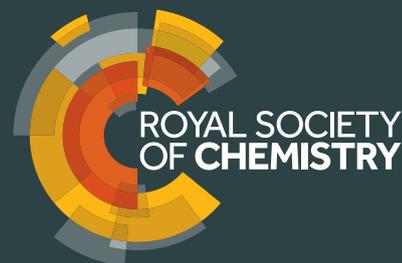
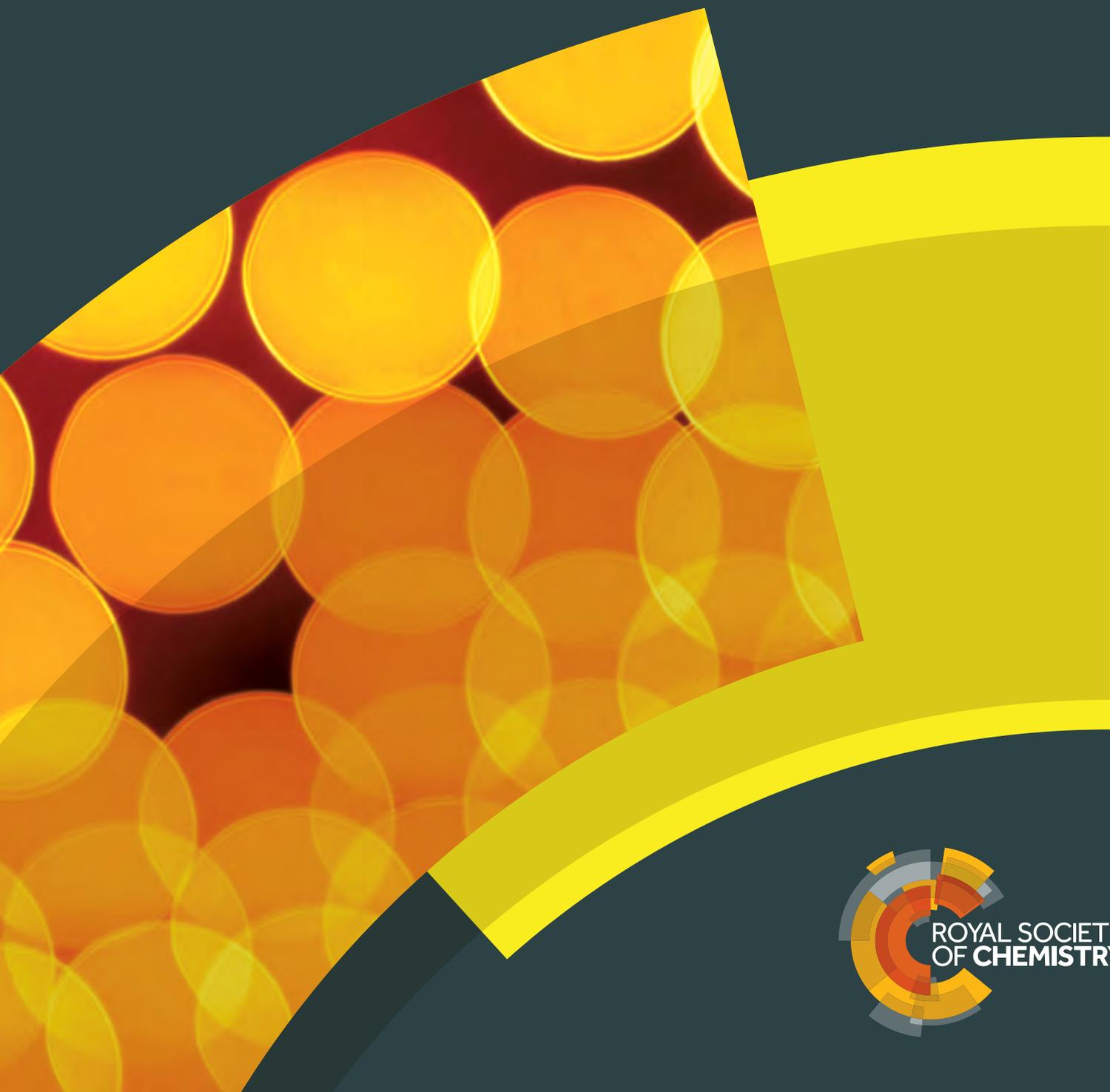


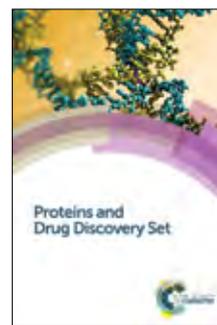
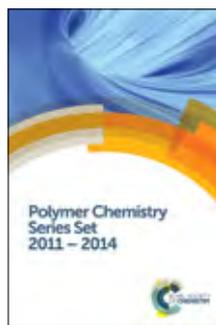
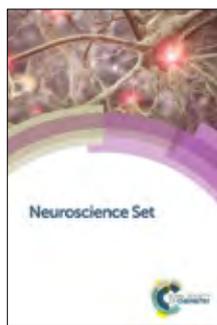
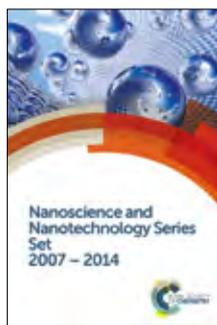
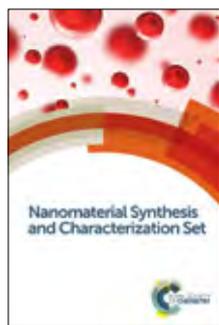
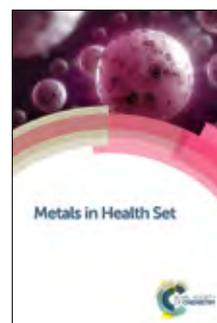
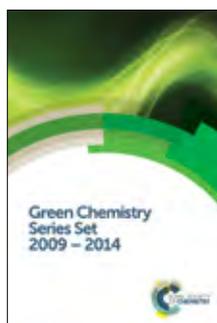
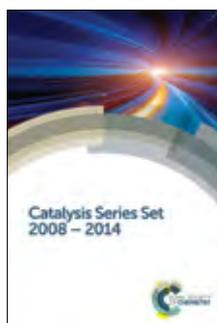
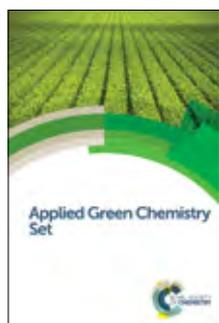
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Royal Society of Chemistry



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Introduction

Books from the Royal Society of Chemistry

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- The new **RSC Chemical Biology Series** (page 17) is a suite of reference books on cutting-edge research at the interface of chemistry and biology.
- We're adding more volumes to established series. **RSC Green Chemistry** (page 27) and **RSC Drug Discovery** (page 22) reach 50 titles this year, and **Issues in Toxicology** (page 5) will reach 30.
- Our **New Developments in NMR Series** (page 13) is diversifying to encompass the uses of this technique in medical applications, while **Monographs in Supramolecular Chemistry** (page 9) is expanding to reflect the interest in supramolecular systems.
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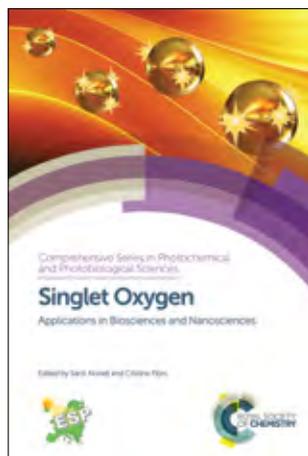
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Comprehensive Series in Photochemical & Photobiological Sciences



About the Series

ISSN: 2041-9716

Series Editor

Massimo Trotta Istituto per i Processi Chimico Fisici-CNR, Italy

Initiated by the European Society for Photobiology this Series provides comprehensive overviews on specific areas of photoscience, giving in-depth coverage of the very different fields related to light effects. It embraces both well-established and emerging fields and allows investigators, physicians, industrialists and postgraduate students to obtain an updated account in specific areas and a ready access to the recent literature. Importantly, books in this Series provide a critical evaluation of the directions that the field is taking.

Photodynamic Medicine

From Bench to Clinic

Giulio Jori University of Padova, Italy | **Tayyaba Hasan** Massachusetts General Hospital, USA | **Herwig Kostron** University of Innsbruck, Austria

Photodynamic therapy (PDT) is increasingly being used amongst health practitioners in combating a variety of diseases. This book reviews the current state of development of PDT, and also presents the foreseeable advancements of the field in the next decade. Practitioners in biological sciences, biotechnology and medicinal and pharmaceutical chemistry will find this book an invaluable source of information. Chapters are drawn from research discussed at the 10th International Symposium on Photodynamic Therapy and Photodiagnosis in Clinical Practice in Brixen and are written and edited by leaders in the field. Mirroring the philosophy of that meeting, this book contains an informative balance of the basic science and clinical applications of PDT. This book is dedicated to the memory of Professor Giulio Jori, an expert in this field, who sadly passed away in December 2014.

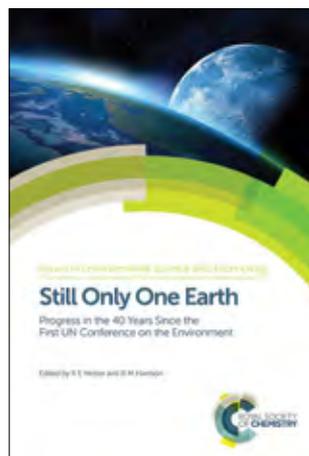
Hardback | 400 pages | 9781782624516 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-451-6



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Issues in Environmental Science and Technology



About the Series

ISSN: 1350-7583

Series Editors

R M Harrison University of Birmingham, UK | R E Hester University of York, UK

Written by world experts in their specialised fields, this Series tackles important environmental topics. It also focuses on broader issues, notably economic, legal and political considerations. Authors are drawn from industry, the public service and academic organisations. The books are invaluable for scientists and engineers in industry and public service, consultancy and academic institutions. They are also essential reading for students taking specialised courses in environmental chemistry, and provide supplementary reference material for general science courses.

Agricultural Chemicals

R E Hester University of York, UK | R M Harrison University of Birmingham, UK

Exploring the environmental impacts of agricultural chemicals, this book looks at their development and manufacture before examining the issues surrounding specific types of chemicals, including fertilisers, pesticides and herbicides. The book also discusses organic farming, GM crops and livestock farming, as well as aquaculture, arboriculture and horticulture. This is an important reference for researchers working in agricultural science.

Hardback | 250 pages | 9781782626909 | 2017 | £67.50 | \$108.00 

ISBN 978-1-78262-690-9



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Airborne Particulate Matter

Sources, Atmospheric Processes and Health

R M Harrison University of Birmingham, UK | R E Hester University of York, UK | Xavier Querol Consejo Superior de Investigaciones Científicas, Spain.

The estimated health impacts and associated economic costs resulting from airborne particulate matter are substantial. This book reviews the sources and atmospheric processes affecting airborne particulate matter and consequent impacts upon human health. Examining the latest information on the sources of particles in the atmosphere, the book features case studies from recent assessments in Europe, the USA, China and India. This comprehensive book is an important reference for policymakers and researchers working in pollution and human health.

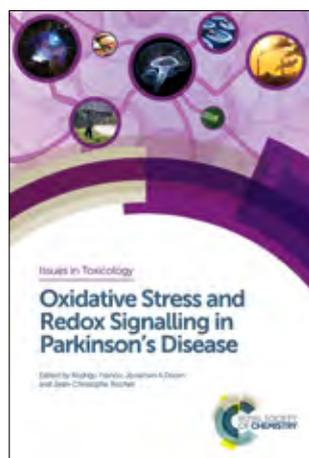
Hardback | 200 pages | 9781782624912 | 2016 | £67.50 | \$108.00 

ISBN 978-1-78262-491-2



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Issues in Toxicology



About the Series

ISSN: 1757-7179

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Diana Anderson University of Bradford, UK

Series Editors

Tim Marrs Edentox Associates, UK | **Mike Waters** Consultant, Integrated Laboratory Systems (ILS) Inc., USA

Editorial Advisor

Alok Dhawan Ahmedabad University, India

The field of toxicological research is continually expanding and diversifying, driven by the need to understand the human and ecological risks of exposure to chemicals and other toxicants. This Series is devoted to coverage of modern toxicology and assessment of risk. Written by expert scientists from academia, government and industry, each book will serve as a guide to investigations in toxicology, biomedicine, biochemistry, forensics and environmental and pollution sciences.

Aerobiology

The Toxicology of Airborne Pathogens and Toxins

Harry Salem US Army Edgewood Chemical Biological Center, USA | **Sidney A Katz** Rutgers University, USA

Aerobiology is the study of airborne organic particulates in the environment, such as bacteria or fungal spores. These can be either naturally occurring or artificially introduced into the air. This book focusses on the toxicological aspects of aerobiology, considering the adverse health effects associated with the inhalation of specific bioaerosols, such as anthrax and ricin. Additionally, mitigation of exposure and protection against exposure are described. Bringing together the contemporary status of information in the area, this book will be a valuable reference book for pulmonary specialists, general practitioners of medicine, public health and public safety officers, first responders, military personnel, and students studying toxicology and related disciplines.

Hardback | 432 pages | 9781849735940 | 2016 | £179.00 | \$300.00 



Big Data in Predictive Toxicology

Daniel Neagu University of Bradford, UK | **Andrea-Nicole Richarz** Liverpool John Moores University, UK

The rate and volume of toxicological data generation is continually growing due to novel techniques and software. The amplified pace and capacity of data generation has repercussions for organising and analysing data output. This book discusses these challenges as well as the nature, storage, analysis and interpretation of toxicological big data. It details how these data are applied in toxicity prediction, modelling and risk assessment. This title is relevant for researchers and postgraduates in the fields of computer methods, applied and physical chemistry, safety and hazard assessment, cell and molecular biology, medicinal and pharmaceutical toxicology, predictive toxicology, and data science.

Hardback | 300 pages | 9781782622987 | 2016 | £159.00 | \$260.00 



Issues in Toxicology

Chemical Warfare Toxicology

Franz Worek Bundeswehr Institute of Pharmacology and Toxicology, Germany | **John Jenner** DSTL, UK | **Horst Thiermann** Bundeswehr Institute of Pharmacology and Toxicology, Germany

Despite ongoing efforts to prohibit the production, storage and use of chemical warfare agents, recent world events highlight the enduring threat to the population from these agents. Providing an up-to-date treatise on the ongoing research into the toxicology of chemical warfare agents, this book will appeal to toxicologists, biochemists and weapons specialists working in industry and academia, and anyone with an interest in chemical warfare toxicology or exposure.

Hardback | 400 pages | 9781849739696 | 2016 | £179.00 | \$300.00 



Computational Systems Pharmacology and Toxicology

Dale E Johnson University of Michigan, USA | **Rudy J Richardson** University of Michigan, USA

This book presents systems pharmacology and toxicology approaches to computational toxicology, linking chemical exposures to genes, diseases and complex biological pathways. It discusses new methods to study chemical and biological target elucidation and computational models. These computational tools hold tremendous promise for advancing applied and basic science, streamlining drug efficacy and safety testing, reducing the use of animals in testing, and increasing the efficiency and effectiveness of risk assessment for environmental chemicals. This timely and modern book will be of interest to risk assessors as well as toxicologists and pharmacologists. The case study section will make it particularly useful for academic course work at graduate and undergraduate level.

Hardback | 450 pages | 9781782623328 | 2016 | £179.00 | \$300.00 



Drinking Water Safety and Contamination

Methods to Assess Health Risks

Margaret Whittaker ToxServices LLC, USA

This book highlights the ways in which risk assessment methods can be used to mitigate the impacts of emerging contaminants, unplanned chemical releases, and pathogens in drinking water supplies on human health. This book is useful primarily for academics and industrialists working in fields related to safety and hazards, toxicology, environmental science and sustainable industrial methods, but it is also a valuable resource for postgraduates and institutional libraries.

Hardback | 250 pages | 9781782621232 | 2016 | £149.00 | \$245.00 



Human Stem Cell Toxicology

James Sherley Asymmetrex, LLC, USA

This book presents the current state of scientific research, knowledge, and technology for detecting agents that induce cytotoxic effects in human tissue stem cells and addresses emerging new cell-based approaches and concepts for technical innovation. It will be particularly useful for university students, academics and industry practitioners working in toxicology, pharmaceutical sciences, tissue cell biology and stem cell biology.

Hardback | 350 pages | 9781782624219 | 2017 | £169.00 | \$275.00 



Issues in Toxicology

Nanotoxicology

Experimental and Computational Perspectives

Alok Dhawan Ahmedabad University, India | **Diana Anderson** University of Bradford, UK | **Rishi Shanker** Ahmedabad University, India and Michigan State University, USA

This book addresses the gaps relating to health and safety issues of this field and aims to bring together fragmented knowledge on nanosafety. The publication covers diverse topics including environmental impacts, safety guidelines and ethical issues surrounding the use of nanoparticles. The book presents a unique compilation of experimental and computational perspectives and is targeted for postgraduates, academics, and practicing industrialists. It also serves as an excellent foundation for students and researchers new to nanotechnology.

Hardback | 500 pages | 9781782621584 | 2016 | £179.00 | \$300.00 



Oxidative Stress and Redox Signalling in Parkinson's Disease

Rodrigo Franco University of Nebraska-Lincoln, USA | **Jonathan Doorn** University of Iowa, USA | **Jean-Christophe Rochet** Purdue University, USA

Parkinson's disease is the second most common neurodegenerative disorder affecting millions of people worldwide. In order to find neuroprotective strategies, the mechanisms of the disease need to be understood, and there have been links made between oxidative damage and Parkinson's disease. This book provides a thorough review of the latest research developments regarding the mechanisms by which oxidative stress and redox signalling mediate Parkinson's disease. It is designed to cover basic knowledge regarding oxidative stress and redox signalling, Parkinson's disease, and neurodegeneration, while also exploring in detail the latest advancement in the research field. Topics covered will include dopamine metabolism, metal homeostasis and DNA-damage. The text will also discuss the current advance in the identification of potential biomarkers for diagnosis and disease progression and the future of antioxidant based therapeutics. Written by recognised experts in the field this book will be a great source of information for postgraduate students and academics, clinicians, toxicologists and risk assessment groups.

Hardback | 500 pages | 9781782621881 | 2016 | £179.00 | \$300.00 



Regulatory Toxicology in the European Union

Tim Marrs Edentox Associates, UK | **Kevin Woodward** TSGE Consulting Limited, UK

Consumer and environmental protection depends on the careful regulation of all classes of chemicals. Toxicology is the key science used to evaluate safety and so underpins regulatory decisions on chemicals. This book is the first to cover regulatory toxicology in Europe and addresses the need for a wider understanding of the principles of regulatory toxicology and their application. It will be an essential reference to regulatory authorities, industry, and toxicologists working across the European Union and for those based in other countries trying to understand and comply with European Union regulations. The editors are regulatory toxicologists with wide experiences in UK government departments with first-hand experience of chemical regulation. Each chapter will cover the history of regulation in Europe, current regulation in Europe, the role of European agencies and institutions and the use of toxicology data for important classes of chemicals, including human and veterinary medicinal products, animal feed and food additives, biocides, pesticides and nanomaterials.

Hardback | 500 pages | 9781782620662 | 2016 | £179.00 | \$300.00 



Issues in Toxicology

The Comet Assay in Toxicology

2nd Edition

Diana Anderson University of Bradford, UK | **Alok Dhawan** Ahmedabad University, India

Simple, sensitive, rapid and visual, the Comet Assay allows quantitative and qualitative assessment of DNA damage in single cells. This updated and revised edition of The Comet Assay in Toxicology will provide the latest information on this modern toxicological method. The book will cover in detail different protocols, statistical analyses and applications being used worldwide. New chapters will provide information on the most contemporary approaches and applications, including in silico approaches, meta-analysis of data and the application of the Comet Assay in nanotoxicology. The book is aimed at students as well as scientists in the area of molecular epidemiology and genetic toxicology.

Hardback | 550 pages | 9781782622871 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-287-1



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Toxicogenomics in Predictive Carcinogenicity

Mike Waters Consultant, Integrated Laboratory Systems (ILS) Inc., USA | **Russell Thomas** US Environmental Protection Agency, USA

This book describes toxicogenomics methods in predictive carcinogenicity testing, mode of action and safety evaluation, and cancer risk assessment. This publication is an indispensable tool for postgraduates, academics and industrialists working in biochemistry, genomics, carcinogenesis, pathology, pharmaceuticals, food technology, bioinformatics, risk assessment and environmental toxicology.

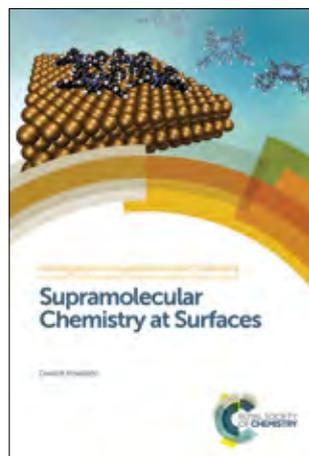
Hardback | 500 pages | 9781782621621 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-162-1



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Monographs in Supramolecular Chemistry



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ISSN: 1368-8642

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Supramolecular chemistry concerns the structure and function of molecular assemblies formed through weak interactions. These complexes have found diverse applications in materials chemistry, nanoscience, catalysis, food sciences, and medicine, and this has led to a rapid expansion in supramolecular chemistry research. With contributions from high profile international scientists working within the field, each book in the Series covers a key concept for graduate level students and above interested in supramolecular chemistry and its diverse applications. The books are ideal for reference and as state-of-the-art guides, and they aim to enable further developments of new applications through an understanding of the fundamentals and a comprehensive overview of the latest research.

Aromatic Interactions

Frontiers in Knowledge and Application

Darren W Johnson University of Oregon, USA | **Fraser Hof** University of Victoria, Canada

The field of aromatic interactions has generated significant new content and new controversy in recent years. This book provides a wide-ranging survey of the latest findings and advances surrounding aromatic interactions from the fundamentals to modern applications in synthesis, biology and materials chemistry. It targets postgraduates, academics, and industry practitioners working within the fields of aromatic interactions, supramolecular chemistry, computational chemistry, anion- π interactions, cation- π interactions and thermodynamics.

Hardback | 300 pages | 9781782624172 | 2017 | £159.00 | \$260.00 

ISBN 978-1-78262-417-2



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Naphthalenediimide and its Congeners

From Molecules to Materials

G Dan Pantos University of Bath, UK

Naphthalenediimide and its congeners have received a lot of attention in the past decade due to their use in many varied applications including organic photovoltaics, anion-slides, DNA binders and building blocks for complex molecular topologies. With each chapter written by one of the leading experts in the field, the book discusses the advances in naphthalenediimide and rylene diimide chemistry in the past 10 years and highlights potential and real applications for the molecules. This is the first book to cover this chemistry and provides a foundation for further development of the area and an invaluable resource for future generations of PhD students and postdoctoral researchers interested in supramolecular chemistry, materials science as well as the applications of the materials.

Hardback | 250 pages | 9781849739221 | 2017 | £149.00 | \$245.00 

ISBN 978-1-84973-922-1



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Monographs in Supramolecular Chemistry

Supramolecular Chemistry at Surfaces

David Amabilino University of Nottingham, UK

The book covers the methods of preparing and studying self-assembled structures at surfaces and interfaces, including small clusters, monolayers and thin films, and how supramolecular chemistry can influence structure and function on surfaces eg porous surface systems, modifiers of interface energy and sensor-based systems. This is the first book to give a multidisciplinary view of the supramolecular aspects of interfaces providing the reader with an objective summary of all the deposition methods and their characterisation. Written by a leading expert in the field, it will appeal to students and researchers in supramolecular chemistry, nanoscience, polymer chemistry and physics, surface science and materials science.

Hardback | 400 pages | 9781849739528 | 2016 | £179.00 | \$300.00 

ISBN 978-1-84973-952-8



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Supramolecular Chemistry in Biomedical Imaging

Stephen Faulkner University of Oxford, UK | Thorfinnur Gunnlaugsson Trinity College Dublin, Ireland

There have been great advances in biomedical imaging techniques in recent years and they are becoming prominent in supramolecular chemistry. This book will clarify the current understanding of these techniques. This publication targets academics coming to the field from mainstream supramolecular chemistry, research graduates and undergraduates interested in supramolecular chemistry, synthesis or imaging agents and imaging techniques for biomedical applications.

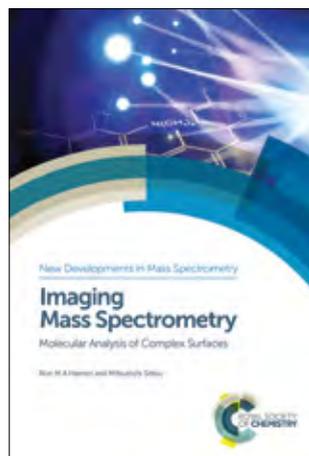
Hardback | 300 pages | 9781782622970 | 2017 | £159.00 | \$260.00 

ISBN 978-1-78262-297-0



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New Developments in Mass Spectrometry



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ISSN: 2045-7545

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Examining instrument and method development and new applications of mass spectrometry, this Series is an important resource for graduate students, researchers and analytical chemists interested in the respective instrumentation and techniques. The books present the key facts and concepts in a concise and readable manner to keep readers up-to-date with the latest information and to promote the practice of mass spectrometry techniques.

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Ron M.A. Heeren Maastricht University, The Netherlands | **Mitsutoshi Setou** Hamamatsu University, Japan

Describing the current state-of-the-art in analytical imaging mass spectrometry, the reader is provided with a solid understanding of the unique complex surface analysis capabilities of this molecular imaging method. Established and breakthrough imaging technologies will be discussed in terms of analytical performance, spatial resolution, image quality and throughput. Including a review of high-end case studies, in which imaging mass spectrometry has made a direct impact on clinical and pharmaceutical practice, makes this book essential reading for biomedical and forensic scientists, analytical chemists and molecular scientists.

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Proteome Informatics

Conrad Bessant Queen Mary University of London, UK

The field of proteomics has developed rapidly over the past decade, with many new instruments, protocols and biological applications appearing. The informatics aspects of proteomics have evolved at an equally rapid pace, with many new tools, new algorithms, and improvements to best practice being published. Providing a detailed introduction to the main informatics topics that underpin the various LC-MS/MS protocols used for protein identification and quantitation, this book brings together the key proteome informatics methodologies for researchers and practising analytical scientists.

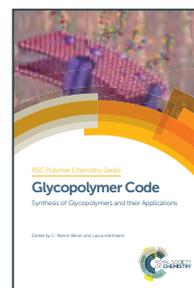
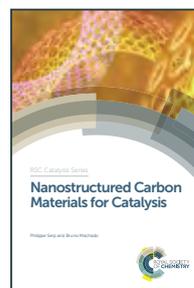
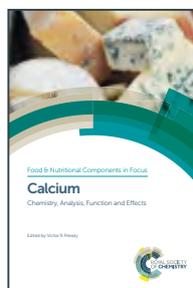
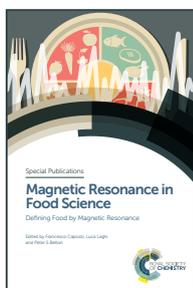
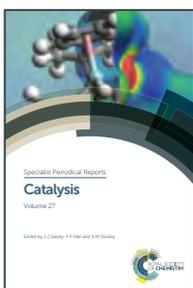
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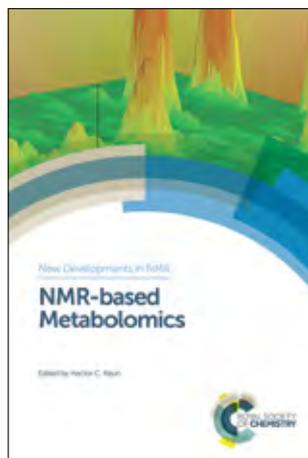
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New Developments in NMR



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Focusing on novel aspects of method and instrumentation development, applications in emerging fields and new techniques and technologies, this Series documents the important advances being made in this field. The books provide comprehensive introductions to the relevant theory to facilitate greater understanding and to encourage wider usage of NMR techniques, making them ideal for students, researchers and practising analytical scientists, as well as manufacturers with an interest in the instrumentation.

Biophysics and Biochemistry of Cartilage by NMR and MRI

Yang Xia Oakland University, USA | **Konstantin Momot** Queensland University of Technology, Australia

This unique book describes the latest information in the fundamental understanding of the biophysics and biochemistry of articular cartilage using the state-of-the-art practices in NMR and MRI. This is the first book of its kind, written by physicists and chemists on this important tissue, whose degradation contributes to osteoarthritis and related joint diseases. Connecting the fundamental science with the clinical imaging applications, the experts Editors provide an authoritative addition to the literature. Ideal for practising physical scientists and radiologists with an interest in the fundamental science as well as instrument manufacturers and clinical researchers working with articular cartilage.

Hardback | 300 pages | 9781782621331 | 2016 | £159.00 | \$254.00 

ISBN 978-1-78262-133-1



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Cross-relaxation and Cross-correlation Parameters in NMR

Molecular Approaches

Daniel Canet Universite de Lorraine, France

Spin relaxation parameters, although difficult to interpret, are attracting interest in NMR as these parameters are capable of yielding both structural and dynamic information. For example, contrast in MRI is obtained through spin relaxation of the water protons in biological tissues. Cross-relaxation and cross-correlation parameters afford a non-ambiguous approach to molecular structure and dynamics although they require some special skills for their experimental determination and for their exploitation. This work will provide a detailed account of cross-relaxation and cross-correlation which would be timely and fill a gap in the present NMR literature for the analytical scientist.

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ISBN 978-1-84973-913-9



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New Developments in NMR

Diffusion NMR of Confined Systems

Fluid Transport in Porous Solids and Heterogeneous Materials

Rustem Valiullin Leipzig University, Germany

With the increasing role of porous solids in conventional and newly emerging technologies, there is an urgent need for a deeper understanding of fluid behaviour confined to pore spaces of these materials especially with regard to their transport properties. From its early years, NMR has been recognized as a powerful experimental technique enabling direct access to this information. In the last two decades, the methodological development of different NMR techniques to assess dynamic properties of adsorbed ensembles has been progressed. This book will report on these recent advances. Aimed at being both academically and industrially relevant, this reference will be for specialists working in the related research areas and for advanced graduate and postgraduate studies.

Hardback | 600 pages | 9781782621904 | 2017 | £179.00 | \$300.00 



Fast NMR Data Acquisition

Beyond the Fourier Transform

Mehdi Mobli University of Queensland, Australia | Jeffrey Hoch University of Connecticut, USA

This book will provide a definitive reference source on all modern signal processing methods applied in the field of NMR spectroscopy. The authors will provide a complete survey of the fundamentals supported by examples of modern applications of non-Fourier methods of spectrum analysis in NMR spectroscopy. Key material will include: an introduction to nD FT-NMR; spectroscopic methods of speeding up data acquisition; high resolution from short data records; and non-uniform sampling; deterministic sampling and non-deterministic sampling. The book will be essential reading for NMR spectroscopists and analytical chemists working in industry and academia.

Hardback | 304 pages | 9781849736190 | 2016 | £159.00 | \$260.00 



Gas Phase NMR

Karol Jackowski University of Warsaw, Poland | Michał Jaszuński Polish Academy of Sciences, Poland

This book covers the recent NMR studies with the application of gaseous molecules. It comprehensively covers all aspects of the area, with particular emphasis on new multinuclear experiments that deliver spectral parameters of isolated molecules and provides the most accurate values of nuclear magnetic shielding, isotropic spin-spin coupling and relaxation times, advanced, precise and correct theoretical descriptions of spectral parameters of molecules and the application of gas-phase NMR measurements to chemical analysis and medicine. Aimed at graduates and researchers in analytical chemistry and researching the applications of NMR in medicine, this book is presenting the connections of sophisticated experiments with the theory of magnetic parameters and the exploration of new methods in practice.

Hardback | 300 pages | 9781782621614 | 2016 | £159.00 | \$260.00 



Magnetic Resonance Imaging Technology

Andrew G Webb Leiden University Medical Center, The Netherlands

There is a sharply growing interest in researchers designing and improving different hardware aspects of their magnetic resonance systems. This book covers the hardware and engineering that constitutes a magnetic resonance system, whether that be a high-resolution liquid or solid state system for NMR spectroscopy, a preclinical system for imaging animals, or a clinical system used for human imaging. Written by a team of experts in the field, this book brings the literature up to date and looks at where future developments might be.

Hardback | 250 pages | 9781782623595 | 2016 | £149.00 | \$245.00 



New Developments in NMR

Non-conventional NMR Detection Methods

Xin Zhou Wuhan Institute of Physics and Mathematics (WIPM), China

NMR and MRI have been applied to various disciplines, but the sensitivity of NMR is intrinsically lower comparing to other analytical or imaging methods. This has caused many non-conventional developments looking at improving NMR sensitivity, such as SQUID (Superconducting QUantum Interference Device), atomic magnetometer, MRFM (Magnetic Resonance Force Microscopy) and remote detection. The NMR detection threshold has been largely boosted by these methods, resulting in the emergence of novel applications. This book will describe the recent advances in non-conventional NMR detection methods and their applications, and also summarise the challenges facing the next generation of users. Aimed at both academia and industry, readers should buy this publication to broaden their knowledge beyond conventional NMR.

Hardback | 480 pages | 9781849739061 | 2016 | £179.00 | \$300.00 



NMR in Glycoscience and Glycotechnology

Koichi Kato National Institutes of Natural Sciences, Japan | **Thomas Peters** University of Luebeck, Germany

Focusing on solution and solid-state NMR of carbohydrates, glycoproteins, glyco-technologies, biomass and related topics which will have significant impact on the development of therapeutic agents eg vaccines, this volume is timely and useful not only for NMR specialists but also for a broader scientific community. The precise analysis of glycosylation patterns in humans can be used in therapies of utmost importance. However, the complexity and heterogeneity of dynamic glycan structures often discouraged researchers from actively challenging and addressing this important issue. Written by leading experts in the field, this book is an important contribution to the literature in this area for a wide spectrum of readers.

Hardback | 300 pages | 9781782623106 | 2017 | £159.00 | \$260.00 



NMR-based Metabolomics

Hector C Keun Imperial College London, UK

In this rapidly growing field, a comprehensive book describing the state of the art in the application of NMR spectroscopy to metabolomics will easily find a home. Directed at the metabolomics community, this book will be unique in providing background knowledge, resources, instrumental platforms and software. It will introduce relevant theory to the researcher as well as serve as a practical guide detailing key experiments and data handling procedures. Information available on common sample types will be described together with reference to the latest web-based resources available. Application-specific considerations will be discussed for a wide range of research topics.

Hardback | 352 pages | 9781849736435 | 2016 | £169.00 | \$275.00 



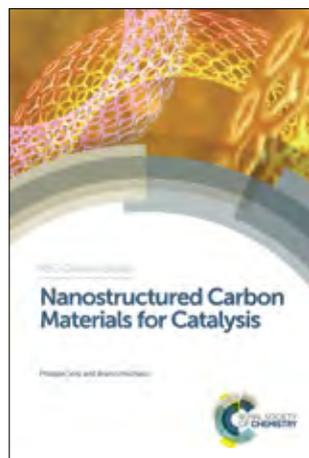
Practical NMR for Oil and Gas Exploration

Lizhi Xiao China University of Petroleum, Beijing, China

Describing comprehensively the development and applications of NMR to oil and gas exploration, this book will bring the literature up to date as it has developed very quickly in the last two decades. Outlining new methodologies, it will provide a thorough and comprehensive document enabling a better understanding of the basics of NMR physics, petrophysics, downhole tools and raw data. This book is designed to meet the needs of the community and encourage applications in low field NMR. The author has more than 30 years' experience in this hot and important topic.

Hardback | 600 pages | 9781849739160 | 2016 | £179.00 | \$300.00 





About the Series

ISSN: 1757-6725

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Catalysis is a major area of scientific research covering numerous fields of chemistry, and is a key factor in tackling many of the scientific challenges faced today, such as renewable energy systems and environmental protection. The books in this Series provide an accessible reference for postgraduates, academics and industrialists working in this exciting field. The books cover both the research developments and applications of catalysis, across academia and industry.

Dienamine-, Trienamine- and Aminoenyne-mediated Reactions in Organic Synthesis

Dhevalapally B Ramachary University of Hyderabad, India | **Indresh Kumar** Birla Institute of Technology & Sciences, India

Dienamine-, Trienamine- and Aminoenyne-mediated Reactions provide an efficient approach for the organic synthesis of bioactive molecules and natural products. The book covers the chemistry of the reactions from "preformed species" to "in situ species" and its applications in synthesis. The book will be suitable for graduate students as well as researchers in academia and industry interested in catalysis, organic synthesis, natural products and drug discovery.

Hardback | 250 pages | 9781782620907 | 2016 | £149.00 | \$245.00



ISBN 978-1-78262-090-7



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Enantioselective Nickel-catalysed Transformations

Helene Pellissier CNRS, France

Due to the lower costs of nickel catalysts and the high abundance of nickel complexes, enantioselective nickel-mediated transformations have received a continuous and growing attention in recent years. Discussing several different enantioselective transformations, this book demonstrates the impressive range of uses that have been found for novel and already known nickel chiral catalysts, from basic organic transformations to completely novel methodologies including fascinating one-pot domino and multicomponent reactions.

Hardback | 300 pages | 9781782624257 | 2016 | £149.00 | \$245.00



ISBN 978-1-78262-425-7



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N-Heterocyclic Carbenes

From Laboratory Curiosities to Efficient Synthetic Tools, 2nd Edition

Silvia Diez-Gonzalez Imperial College London, UK

Showing how N-heterocyclic carbenes (NHCs) can be useful in various fields of chemistry, this book covers a broad range of NHC topics, including the synthesis of NHC ligands and their corresponding metal complexes; organocatalysis; and novel reactivities. This Second Edition has been revised to incorporate the latest advances, and features a new chapter on NHC-Main Group element complexes. Chapters have been reordered provide a more logical distribution of the content. The book will be of interest to postgraduates and those working in industry.

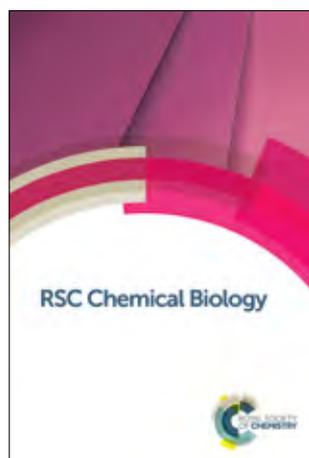
Hardback | 530 pages | 9781782624233 | 2016 | £179.00 | \$300.00



ISBN 978-1-78262-423-3



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About the Series

ISSN: 2055-1975

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The RSC Chemical Biology Series is a new venture that aims to provide a comprehensive suite of reference books on developing areas at the interface of chemistry and biology. Chapters written and edited by experts worldwide will introduce practical aspects and best methods, will explain the fundamental chemistry knowledge, and will provide forward-looking perspectives. Ultimately, the Series aims to aid postgraduate students and researchers apply chemical tools and understand current challenges in the field. The books will provide a valuable reference for scientists working outside their own area of current expertise or looking to engage in chemical biology research. Coverage will include topics such as analytical and computational tools, chemical probes, imaging, glycosciences, genomics and transcriptomics, chemical genetics and gene editing tools, and aspects of synthetic biology.

Chemical Biology of Glycoproteins

Zhongping Tan University of Colorado Boulder, USA | **Lai-Xi Wang** University of Maryland, USA

Glycans attached to proteins are known to act as both negative and positive regulators of protein function. Growing appreciation of protein glycosylation's importance has led to increasing amounts of research into understanding how this process works. Chemical biology tools and techniques are bridging the existing gaps in knowledge of the complex nature of glycosylated protein forms. This book describes the development and application of glycoprotein and glycan synthesis technologies as tools for understanding and manipulating protein glycosylation.

Hardback | 400 pages | 9781782623335 | 2017 | £179.00 | \$300.00 



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High Throughput Screening Methods

Evolution and Refinement

Joshua A Bittker Broad Institute, USA | **Nathan T Ross** Novartis Institutes for Biomedical Research, USA

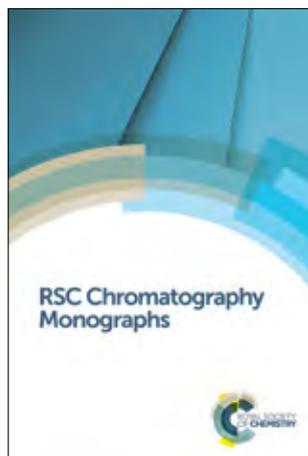
This book highlights the changing role of high-throughput screening as it has moved from mainly an industrial process to a discovery tool used by many scientists to understand and validate biological systems. The main focus is how screening methods for small molecule discovery have evolved over the past couple of decades since the concept of high-throughput screening became a major part of drug discovery. Expert authors address past shortcomings and how advances in the field have tried to fix problems. The newest techniques are presented with any existing caveats or pitfalls that are known to provide chemical biologists with guidance on the application of these techniques, as well as what additional improvements might be possible in future.

Hardback | 250 pages | 9781782624714 | 2017 | £149.00 | \$245.00 



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RSC Chromatography Monographs



About the Series

ISSN: 1757-7055

Series Editor

Roger Smith Loughborough University of Technology, UK

Covering all techniques and applications in topics such as supercritical fluid chromatography, affinity chromatography, counter-current chromatography, this informative Series is a collection of bench-top guides for the practising researcher. Each book provides an up-to-date review of a specific topic in chromatography, including details on established and developing techniques. Featuring all necessary practical information that researchers need, the books explain central facts and concepts clearly and simply, making them accessible to non-specialists.

Validation of Chromatography Data Systems

2nd Edition

Robert McDowall McDowall Consulting, UK

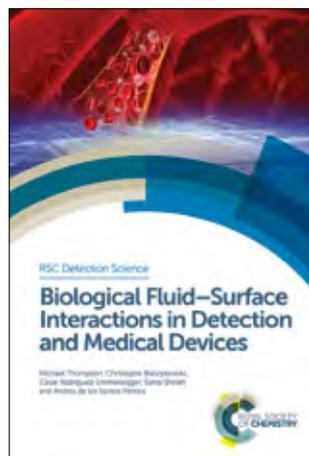
Guiding chromatographers working in regulated industries and helping to validate their chromatography data systems to meet both business and regulatory needs, this book will be a detailed look at the requirements to ensure a system is fit for purpose throughout the life cycle. The work is divided into four parts, initially providing a background to the regulatory requirements and documented evidence needed to support a claim that a system is validated. Development of the system, operation and finally retirement are then all discussed in detail with case studies and practical examples provided as appropriate.

Hardback | 400 pages | 9781849736626 | 2016 | £179.00 | \$300.00 

ISBN 978-1-84973-662-6



RSC Detection Science



About the Series

ISSN: 2052-3068

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Providing a comprehensive look at the state of the art in detection technologies and materials used in the development of diagnostics for clinical, medicinal, and environmental applications, the books in this Series are a valuable reference for graduate students and professional researchers across academia and industry. Emphasising the detection of chemicals and biochemical species in a quantitative fashion, the Series will also interest advisors, consultants and government agency staff, who will benefit from the detailed nature of these titles.

Advanced Environmental Analysis

Applications of Nanomaterials

Chaudhery M Hussain New Jersey Institute of Technology, USA | **Boris Kharisov** Universidad Autónoma de Nuevo León, Mexico

Bridging a gap in the literature, this book brings together state-of-the-art research in the applications of nanomaterials to each of the classical components of environmental analysis, namely sample preparation and extraction, separation and identification by spectroscopic techniques. Environmental analysis techniques have advanced due to the use of nanotechnologies and the approach in this reference book will be unique. Advanced undergraduates, graduates and researchers at the forefront of environmental science and engineering will find this book a good source of information.

Hardback | 400 pages | 9781782621447 | 2016 | £179.00 | \$286.00 

ISBN 978-1-78262-144-7



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Biological Fluid-Surface Interactions in Detection and Medical Devices

Michael Thompson University of Toronto, Canada | **Christophe Blaszykowski** University of Toronto, Canada | **Sonia Sheikh** University of Toronto, Canada | **Cesar Rodriguez-Emmenegger** | **Andres Santos Pereira** The Academy of Sciences of the Czech Republic

With development of implants and *in vivo* detection devices comes the complication of the interaction between the materials used in the devices and biological fluids. This book examines these interactions causing fouling in biosensors and the serious issue of thrombus formation. The chemistry of surface-protein and surface-cell interactions is of great importance and the expert contributors are providing a comprehensive look at the physical chemistry of the implant surface and the fouling problem. The aim is to provide an important addition to the literature suitable for professional researchers in academia and industry and postgraduate students.

Hardback | 300 pages | 9781782620976 | 2016 | £159.00 | \$260.00 

ISBN 978-1-78262-097-6



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RSC Detection Science

Early Detection of Biomarkers for Disease

Nicholas R Hoyle Roche Diagnostics, Germany | Richard Morgan University of Bradford, UK

Presenting the current knowledge on biomarkers for the early (i.e. sub-clinical) detection of disease and the methodologies used for detecting these biomarkers which are often present at very low concentrations in bodily fluids, this book makes an important contribution to the literature. Topics covered include biomarkers for the early detection of cancer, diabetes, and cardiac disease, as well as the emerging technologies and adaptation of existing technologies that make early detection possible, including mass spectrometry and metabolomic techniques. Although there have been many reviews and book chapters on the subject of biomarkers, none have focused purely on the early detection of disease in a way that combines our current knowledge of biomarkers with the key advances in technology required for their discovery and detection. This integrated approach will provide a key reference work for researchers, clinicians and students.

Hardback | 500 pages | 9781849736138 | 2017 | £179.00 | \$300.00 

ISBN 978-1-84973-613-8



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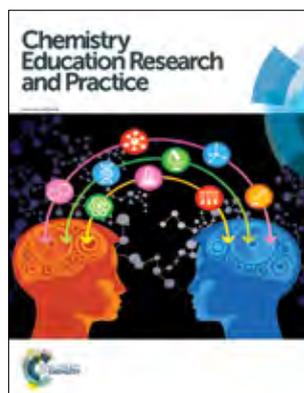
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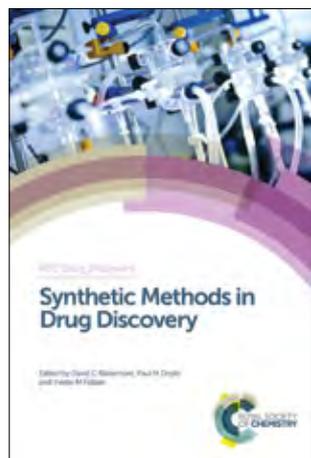
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ISSN: 2041-3203

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Series Advisor

Sarah Skerratt Pfizer, UK

The RSC Drug Discovery Series covers all aspects of drug discovery and medicinal chemistry and contains over forty books published since 2010. Providing comprehensive coverage of this important and far-reaching area, the books encourage learning in a range of different topics and provide valuable reference for scientists working outside their own areas of expertise. Books feature case studies to bring different aspects of the drug discovery process alive and they detail the fundamental science necessary for understanding through to the most up-to-date discoveries and cutting-edge technology. Chapters are written and edited by experienced researchers from both industry and academia. This Series will be of particular interest to postgraduate students and medicinal chemists and biochemists working in academia or industry.

Anti-aging Drugs

From Basic Research to Clinical Practice

Alexander M Vaiserman Institute of Gerontology, Kiev, Ukraine

This book provides an overview of current research aimed to search for life-extending remedies and describes pharmacological aspects of anti-aging medicine. Readers are introduced to the fascinating historical background of geroprotection in the first chapter. In-depth information on models for investigating geroprotective drugs precedes a section covering anti-aging properties of pharmaceutical compounds, such as HDAC inhibitors, phytochemicals and mitochondrial antioxidants. Finally, strategies to translate discoveries from aging research into drugs and healthcare policy perspectives on anti-aging medicine are provided to give a complete picture of the field. A timely and carefully edited collection of chapters by leading researchers in the field, this book is a fascinating and useful resource for pharmacologists, gerontologists and any scientifically interested person wishing to know more about the current status of research into anti-aging remedies, challenges and opportunities.

Hardback | 400 pages | 9781782624356 | 2017 | £179.00 | \$300.00 



Drug Transporters

Role and Importance in ADME and Drug Development

Glynis Nicholls | **Kuresh Youdim** F Hoffman-La Roche AG, Switzerland

Understanding and quantifying the effects of drug transporters within the human body is essential for modulating drug safety and efficacy. This book comprehensively reviews current knowledge and techniques in the transporter sciences and their relations to drug metabolism and pharmacokinetics. It will serve as an essential handbook of information for postgraduate students, academics, industrial scientists and regulators who wish to understand the role of transporters in absorption, distribution, metabolism, and excretion processes.

Hardback | 500 pages | 9781782620693 | 2016 | £179.00 | \$300.00 



RSC Drug Discovery

Mechanistic Enzymology and Drug Design**Clinically Used Enzyme Inhibitors**

John F Honek, Zhengding Su University of Waterloo, Canada

The book surveys enzyme targets that have successfully been used to develop clinically-utilised drugs and describes in detail how these drugs inhibit particular enzymes. It also presents the underlying principles that medicinal chemists can use to design other inhibitors for new targets, keeping in mind the mechanism of the enzyme. It is a systematic survey of the six classes of enzyme giving a fresh perspective on this area of medicinal chemistry and will appeal to medicinal chemists, pharmacy students, and postgraduate students.

Hardback | 250 pages | 9781849730150 | 2016 | £149.00 | \$245.00 **Small-Molecule Transcription Factor Inhibitors in Oncology**

Khondaker Miraz Rahman King's College London, UK | David Thurston King's College London, UK

This title highlights recent progress in the development of small-molecule inhibitors of oncogenic transcription factors. It also presents the evidence that this important protein class can be modulated in a number of ways to develop novel classes of therapeutic agents for anticancer treatments. This title is a unique reference book for postgraduates, academic researchers and practitioners working in the fields of biochemistry, biotechnology, cell and molecular biology and bio-inorganic chemistry.

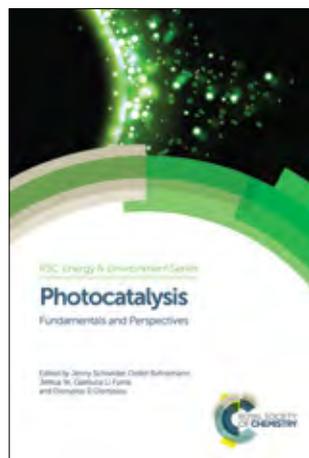
Hardback | 250 pages | 9781782621454 | 2016 | £149.00 | \$245.00 **Synthetic Methods in Drug Discovery**

David C Blakemore Pfizer, UK | Paul M Doyle Peakdale Molecular Ltd, UK | Yvette M Fobian Pfizer, USA

There are an overwhelming number of synthetic methods that can be used to create novel chemical motifs and templates with potentially valuable drug-like properties. This book will highlight key methods that have real impact in drug discovery and facilitate delivery of drug molecules. Uniquely, it will provide both academic and industrial perspectives on these key reactions giving the reader an excellent overview of the techniques used in modern synthesis. Reaction types will be conveniently framed in the context of their value to industry and the challenges and limitations of methodologies will be discussed with relevant illustrative examples. Moreover, the book will discuss key opportunities in expanding chemical space, including the important area of introducing three dimensional shape to the traditional flat molecules. Edited and authored by leading scientists from both academia and industry, this book will be a valuable reference for all chemists involved in drug discovery as well as postgraduate students in medicinal chemistry.

Hardback | 350 pages | 9781849738033 | 2016 | £169.00 | \$275.00 

RSC Energy and Environment Series



About the Series

ISSN: 2044-0774

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Energy lies at the heart of modern society, and it is critical that we make informed choices of the methods by which we convert and manage energy. This Series provides an up-to-date and critical perspectives on the various options that are available. Chemistry has a central role to play in the planning and development of sustainable energy scenarios, and the wide range of topics covered in the Series reflects the wealth of chemical ideas and concepts that have the potential to make an important impact in mankind's search for a sustainable energy future. Books in this Series form important references for chemical and material scientists, chemical and process engineers, energy researchers, bio-scientists and environmental scientists from across academia, industry and Government.

Electrochemical Reduction of Carbon Dioxide

Overcoming the Limitations of Photosynthesis

David J Fermin University of Bristol, UK | Frank Marken University of Bath, UK

One of the crucial challenges in the energy sector is the efficient capture and utilisation of CO₂ generated from fossil fuels. This book covers the most recent developments in the field of electrochemical reduction of CO₂, from first-principle mechanistic studies to technological perspectives. An introduction to basic concepts in electrochemistry and electrocatalysis is included to provide a background for newcomers to this field. This book provides a comprehensive overview for researchers and industrial chemists working in environmental science, electrochemistry and chemical engineering.

Hardback | 300 pages | 9781782620426 | 2016 | £159.00 | \$260.00 

Photocatalysis

Fundamentals and Perspectives

Jenny Schneider Leibniz University of Hannover, Germany | Detlef Bahnemann Leibniz University of Hannover, Germany | Jinhua Ye Hokkaido University, Japan | Gianluca Li Puma Loughborough University, UK | Dion Dionysiou University of Cincinnati, USA

Combining the basic concepts of photocatalysis with the synthesis of new catalysts, reactor and reaction engineering and practical applications, this book provides a comprehensive resource on the topic. As well as examining the current state-of-the-art in catalysis, the book also critically discusses concepts for the future of photocatalysis. Researchers new to this field can learn the first principles, whilst experienced researchers can gain further information about aspects in photocatalysis beyond their area of expertise.

Hardback | 500 pages | 9781782620419 | 2016 | £179.00 | \$300.00 

RSC Energy and Environment Series

Photocatalysis

Applications

Jenny Schneider Leibniz University of Hannover, Germany | **Detlef Bahnemann** Leibniz University of Hannover, Germany | **Jinhua Ye** Hokkaido University, Japan | **Gianluca Li Puma** Loughborough University, UK | **Dion Dionysiou** University of Cincinnati, USA

From environmental remediation to alternative fuels, this book explores the numerous important applications of photocatalysis. The book covers topics such as the treatment of water and air; solar photocatalysis; self-cleaning photocatalytic materials; hydrogen generation; and food packaging and biomedical and medical applications. The book also critically discusses concepts for the future of photocatalysis, providing a fascinating insight for researchers.

Hardback | 500 pages | 9781782620419 | 2016 | £179.00 | \$300.00 



Thermoelectric Materials and Devices

Iris Nandhakumar University of Southampton, UK | **Neil M White** University of Southampton, UK | **Stephen Beeby** University of Southampton, UK

Providing an authoritative account of recent developments in thermoelectric materials and devices for power energy harvesting applications, this book is ideal for researchers and industrialists in materials science. It highlights the potential of thermoelectrics in the context of a low carbon energy economy, and features in-depth coverage of a range of different fabrication methods for thermoelectric materials including electrodeposition.

Hardback | 300 pages | 9781782623236 | 2016 | £159.00 | \$260.00 



Unconventional Thin Film Photovoltaics

Enrico Da Como University of Bath, UK | **Filippo De Angelis** CNR Institute of Molecular Sciences and Technologies, Italy | **Henry Snaith** University of Oxford, UK | **Alison Walker** University of Bath, UK

Focusing on solar cells based on 'soft' materials, this book provides a balanced overview of both the experimental and theoretical aspects of organic materials and mixed halide perovskites. Emphasis is placed on understanding the fundamental physics of the devices. The book also discusses modelling over many length scales, from nano to macro. The first book to cover perovskites, this is an important reference for industrialists and researchers working in energy technologies and materials.

Hardback | 350 pages | 9781782622932 | 2016 | £169.00 | \$275.00 



X-ray Free Electron Lasers

Applications in Materials, Chemistry and Biology

Uwe Bergmann Stanford University, USA | **Vittal Yachandra** Lawrence Berkeley National Laboratory, USA | **Junko Yano** Lawrence Berkeley National Laboratory, USA

Introducing the principles and properties of the currently operating and future x-ray free electron lasers (XFELs) and their applications in the fields of materials, chemistry and biology, this book brings readers up to date with recent advances. Focusing on breakthroughs using the revolutionary properties of XFEL radiation, it is ideal for researchers.

Hardback | 300 pages | 9781849731003 | 2016 | £159.99 | \$260.00 



RSC Food Analysis Monographs



About the Series

ISSN: 1757-7098

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Peter Belton University of East Anglia, UK | **Roger Wood**

This Series provides practical guidance and advice to food analysts in the laboratory. Each monograph in the Series includes sufficient theory and practical detail to enable a new graduate or non-specialist to obtain an understanding of the fundamentals concerned. The books are a comprehensive set of day-to-day guides for the laboratory worker, providing the current state of the art on food analysis techniques. Each book averages about 200 pages and contains real examples of food analysis, concentrating on how to overcome problems arising during sample preparation, data collection and analysis. The Series includes books that address the particular problem of one analyte, and those that describe the applications of particular analytical techniques.

Food Biosensors

Minhaz Uddin Ahmed Universiti Brunei Darussalam | **Mohammed Zourob** Cranfield University, UK | **Eiichi Tamiya** Osaka University, Japan

Biosensors offer a new detection method for food monitoring. This book covers the development of biosensors as miniaturised devices as well as their commercial opportunities. Showcasing food biosensor development in a single resource, with contributions from a list of world renowned scientists, consideration is given to the very recent development of biosensor detectors for food analytes. Provides up to date information on the current issues facing food biosensor development and how important they can be in ensuring our food is safe. Will be a key resource for food biotechnologist, food chemists and biosensor related students and researchers all over the world.

Hardback | 400 pages | 9781782623618 | 2016 | £179.00 | \$300.00 



Quality in the Food Analysis Laboratory

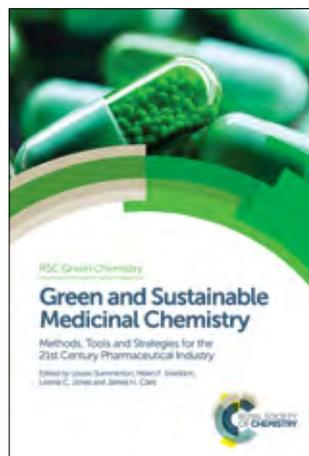
2nd Edition

Roger Wood | **Hilde Skår Norli** NMKL, Finland

Quality in the Food Analysis Laboratory describes the procedures that food analysts must follow in order to ensure that their data is both appropriate and of the required quality. Since the first edition was published in 1999, significant new legislation has been adopted in the food sector, most notably the Official Feed and Food Control Regulation. This second edition has been comprehensively updated to reflect changes to the law. New chapters on the roles of the EU and National Reference Laboratories, the criteria approach, modular validation, qualitative method validation, proprietary methods, method verification, and compliance issues have been introduced. Other chapters, including those on methods of analysis, the IUPAC single laboratory protocol, and the role of proficiency testing have been revised.

Hardback | 300 pages | 9781849734080 | 2016 | £159.00 | \$260.00 





About the Series

ISSN: 1757-7039

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Green chemistry is one of the most important and rapidly growing fields in modern chemistry, and is widely recognised as being important across the chemical sciences, and throughout industry, education and research. The RSC Green Chemistry Series provides high-level research books at the cutting-edge of green chemistry. The books are invaluable to industrialists, researchers and academics worldwide and anyone interested in the practical means that are being used to reduce the environmental impact of chemical processes and products.

Alternatives to Conventional Food Processing

2nd Edition

Andrew Proctor University of Arkansas, USA

Addressing alternatives to conventional food processing that have reduced energy requirements or solvent use, this second edition includes recent developments such as infrared food processing to improve food safety; pulsed electric field processing; and plasma processing. The book outlines current green technologies available to the food industry, their principles and applications, the degree to which they are already used commercially and the developments needed to further extend their use. This is an important book for researchers and industrialists working in green chemistry or food production.

Hardback | 650 pages | 9781782625186 | 2017 | £179.00 | \$300.00



ISBN 978-1-78262-518-6



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Alternative Energy Sources for Green Chemistry

Andrzej Stankiewicz Delft Technical University, The Netherlands | **Georgios Stefanidis** KU Leuven, Belgium

Discussing the broad impact of alternative energy transfer technologies on reactions, separations and materials synthesis, this book reports on recent breakthrough results in various application areas. Providing a comprehensive overview of the current developments in the field, the book is of interest to industrialists, academics and postgraduates in alternative-energy based processing.

Hardback | 300 pages | 9781782621409 | 2016 | £159.00 | \$260.00



ISBN 978-1-78262-140-9



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Continuous Flow Reactors

From an Emerging Tool to a Mainstream Technology

Charlotte Wiles Chemtrix BV, The Netherlands

From the perspective of a synthetic organic chemist, this book looks at the advantages and challenges associated with the development of continuous flow processes for both reactions and downstream processing. With rapid growth in interest within the field of continuous flow reactions, this book provides readers with a one-stop resource on new trends and techniques. Where possible, industrial examples of the technologies implementation is also given. This book is of interest to practising chemists and researchers as well as graduate students new to this field.

Hardback | 250 pages | 9781849739245 | 2017 | £149.00 | \$245.00



ISBN 978-1-84973-924-5



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Green and Sustainable Medicinal Chemistry

Methods, Tools and Strategies for the 21st Century Pharmaceutical Industry

Louise Summerton University of York, UK | Helen F Sneddon GlaxoSmithKline, UK | Leonie C Jones University of York, UK | James H Clark University of York, UK

Addressing current challenges with the best in modern green chemical technologies and sustainability thinking in pharmaceutical manufacturing, this book is an invaluable reference for chemists across academia and industry wanting to further their knowledge and understanding of this important topic. Divided into two sections, the book first gives an overview of the key green chemistry tools, guidance and considerations aimed at developing greener processes, before moving on to looking at cutting-edge synthetic methodologies.

Hardback | 200 pages | 9781782624677 | 2016 | £149.00 | \$245.00 



Hazardous Reagent Substitution

A Pharmaceutical Perspective

Rakesh Kumar Sharma University of Delhi, India | Rakeshwar Bandichhor Dr Reddy's Laboratories Ltd, India

Presenting examples of drugs and their synthesis via green chemistry routes, this book shows how the pharmaceutical industry has adopted green chemistry. Chapters focus on drug design, engineering, process development, calculations to account for waste and the challenges related to use of non-hazardous reagents. The book will inspire industrialists and researchers in developing green chemistry synthetic routes to other drugs.

Hardback | 300 pages | 9781782620501 | 2016 | £159.00 | \$260.00 



High Pressure Technologies in Biomass Conversion

Rafal Bogel-Lukasik National Laboratory of Energy and Geology IP, Portugal

Carbon dioxide plays an increasingly important role in biomass processing. This book presents the current state of the art of the diverse approaches for CO₂ use in biomass valorisation. It demonstrates the interdisciplinary aspects of high-pressure technologies across biology, chemistry and biochemical engineering areas. It brings researchers and industrialists up to date with the latest advances in this field, including novel technologies for energy; biochemicals and materials production; and green chemical engineering processes.

Hardback | 400 pages | 9781782624851 | 2017 | £179.00 | \$300.00 



Soy Protein Based Blends and Composites

P M Visakh Mahatma Gandhi University, India | Lucia Helena Innocentini Mei State University of Campinas, Brazil

Natural polymers derived from soy based proteins are attractive materials for different applications including healthcare products and drug delivery due to their renewable availability and unique properties. This book covers the preparation, characterisation and applications of soy protein-based composites, blends and nanocomposites, including recent developments. The book is suitable for researchers working in natural polymers, and is a valuable resource for those new to the area and interested in the materials applications.

Hardback | 400 pages | 9781782628408 | 2016 | £179.00 | \$300.00 



Sustainable Solvents

Perspectives from Research, Business and International Policy

James H Clark University of York, UK | **Andrew Hunt** University of York, UK | **Corrado Topi** University of York, UK | **Giulia Paggiola** University of York, UK | **James Sherwood** University of York, UK

Covering the life cycle of a solvent, from production through supply-chain and to downstream use and end-of-life treatment, this book highlights the challenges faced during each phase and the potential benefits that a green chemistry and bio-based economy approach could bring. Featuring case studies and perspectives from different sectors, the book is of interest to industrialists and researchers wanting to gain a broader understanding of solvent use.

Hardback | 300 pages | 9781782623359 | 2017 | £149.00 | \$245.00 



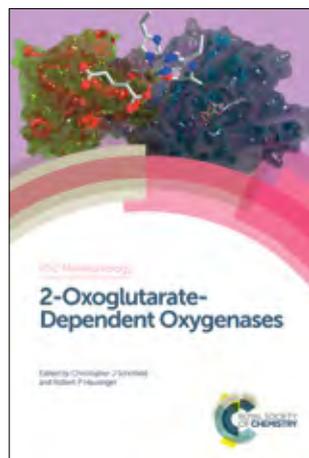
Sustainable Utilization of Biomass

Anton Huber Karl-Franzens Universität Graz, Austria | **Andrew Proctor** University of Arkansas, USA

Exploring the ways in which biomass as a renewable resource can be efficiently and economically transformed into useful products and fuels, this book addresses topics such as identifying, measuring and managing agricultural sustainability; the controversy over crops for food or fuel; and life cycle analysis will be highlighted. It also addresses important logistical problems and the challenges of biomass processing using the principles of green chemistry. This book is of interest to postgraduate students, green chemists, chemical engineers and environmental, materials, agricultural and food scientists.

Hardback | 300 pages | 9781849739382 | 2016 | £76.99 | \$138.00 





About the Series

ISSN: 2045-547X

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The RSC Metallobiology Series is a collection of professional reference books covering all aspects of the roles of metals in biological systems. The scope includes metalloenzymes, metalloproteins, storage and transport of metal ions, bio-organometallic chemistry and interaction of metal ions with biomolecules. Books in this Series provide authoritative perspectives from international experts and will be of interest to both academics and those working in industry in a wide range of disciplines, including medicinal chemistry, pharmaceutical science, biochemistry, metallomics and inorganic biochemistry.

Metalloenzymes in Denitrification

Applications and Environmental Impacts

Isabel Moura Universidade Nova de Lisboa, Portugal | **José Moura** Universidade Nova de Lisboa, Portugal | **Sofia Pauleta** FCT-UNL, Portugal | **Luisa Maia** FCT-UNL, Portugal

A comprehensive and unified picture of the denitrification process is presented and discussed by recognised specialists in the field in this book. An important topic in many biological, environmental and agricultural contexts, this book will aid teaching and help bioinorganic chemists and biotechnologists gain an up-to-date picture of the science behind the denitrification process. The book covers the key metalloenzymes, including their structures, functions and mechanisms. It also explains novel methodologies for monitoring denitrification in vivo, biotechnological methods for water treatment, and modelling and mitigating negative environmental impacts of denitrification.

Hardback | 400 pages | 9781782623342 | 2017 | £179.00 | \$300.00 

ISBN 978-1-78262-334-2



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Metal Chelation in Medicine

Robert Crichton Catholique University of Louvain, Belgium | **Roberta Ward** Catholique University of Louvain, Belgium | **Robert Hider** King's College London, UK

This book provides a clear and timely perspective on the role of chelating agents in the management of metal intoxications and storage diseases. It will be a useful text for researchers, industry professionals and university students with a specific interest in medicinal chemistry, chelation, metal ions, imaging and non-invasive techniques, and will also be a valuable resource for clinicians treating metal poisonings and metal storage diseases.

Hardback | 300 pages | 9781782620648 | 2016 | £149.00 | \$245.00 

ISBN 978-1-78262-064-8



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RSC Metallobiology

Molybdenum and Tungsten Enzymes

Russ Hille University of California, USA | **Carola Schulzke** University of Greifswald, Germany |
Martin L Kirk University of New Mexico, USA

Given the enormous progress in the last twenty years, this book provides a timely and comprehensive overview of the field and documents the latest research. Both the bioinorganic chemistry relevant to molybdenum and tungsten enzymes and the full range of physicochemical methods that are used to investigate their physical and electronic structure and function are covered. This text will be a valuable reference to workers both inside and outside the field, including graduate students and young investigators interested in developing new research programmes in this area.

Hardback | 600 pages | 9781782620891 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-089-1



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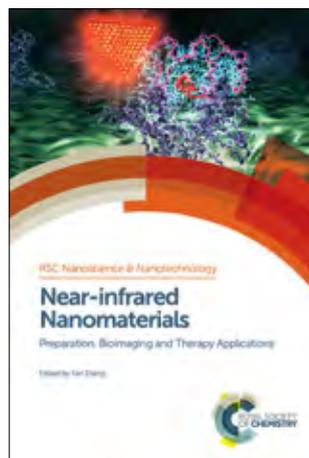
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RSC Nanoscience & Nanotechnology



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The possible uses of nanotechnology span many fields from energy to health; as a result there is a wealth of scientific nanoscience research taking place all over the world. When there is so much information available on the topic, it can be difficult to get a complete overview of the latest developments. The RSC Nanoscience and Nanotechnology Series provides a comprehensive resource of books covering key topics in nanoscience including the characterisation, performance and properties of nanostructured materials and technologies and their applications. With contributions from leading experts in nanoscale research, the books are suitable for graduate student level and above in chemistry, materials science, engineering, biology and physics wanting to know more about nanoscience.

Nanofluidics

2nd Edition

Joshua Edel Imperial College London, UK | MinJun Kim Drexel University, USA

This fully updated and revised second edition covers nanofluidics with a focus on bioanalytical applications. Each chapter now features methodology and "tips and tricks" sections and two new chapters examine new applications of nanotechnology. The prominent editors draw on an international authorship and with 20% more illustrations than the first edition, the book, written at a level accessible to experts and non-experts alike, is essential reading for all advanced nanobiotechnology courses in academic institutions.

Hardback | 270 pages | 9781849734042 | 2017 | £159.00 | \$260.00 



Nanostructured Materials for Type III Photovoltaics

Peter Skabara University of Strathclyde, UK | Mohammad Malik University of Manchester, UK

Materials for Type III solar cells have branched into a series of generic groups, including organic 'small molecule' and polymer conjugated structures, fullerenes, quantum dots, hybrid organic/inorganic composites and perovskites. This book will give a collective insight into the different roles that nanostructured materials play in Type III solar cells. This will be an essential text for those working in materials science and technology, providing a fundamental understanding and appreciation of the potential and challenges associated with each of these technologies.

Hardback | 300 pages | 9781782624585 | 2017 | £159.00 | \$260.00 



RSC Nanoscience & Nanotechnology

Nanotechnologies in Food

2nd Edition

Qasim Chaudhry DEFRA Central Science Laboratory, UK | Laurence Castle DEFRA Central Science Laboratory, UK | Richard Watkins DEFRA, UK

Nanotechnologies in Food provides an overview of the products and applications of nanotechnologies in agri-food and related sectors. Following on from the success of the first edition, this new edition has been revised and updated to bring the reader fully up to date on the emerging technological, societal, and policy and regulatory aspects in relation to nanotechnologies in food. This book provides a source of much needed and up-to-date information on the products and applications of nanotechnology for the food sector - for scientists, regulators, and consumers alike.

Hardback | 325 pages | 9781782621713 | 2016 | £159.00 | \$260.00 

ISBN 978-1-78262-171-3



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Near-infrared Nanomaterials

Preparation, Bioimaging and Therapy Applications

Fan Zhang Fudan University, China

There is great interest in near-infrared (NIR) nanomaterials for bioimaging and therapy applications due to their advantages of deeper penetration depth, low detection threshold concentration and better targeted performance over traditional imaging probes. Following an introduction, the first part of the book will look at different nanomaterial systems that can be used for NIR applications (Organic dye, lanthanide, carbon, quantum dots (QDs) and noble metal based nanomaterials) and the second part of the book will look at different biomedical applications (photodynamic therapy, photothermal therapy, drug delivery). Edited by a leading expert, this is the first book to give a holistic, up-to-date account of NIR nanomaterials for biomedical applications.

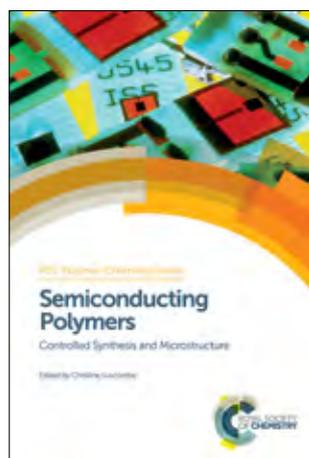
Hardback | 400 pages | 9781782623199 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-319-9



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RSC Polymer Chemistry Series



About the Series

ISSN: 2044-0790

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Polymer chemistry is a vast research area and with so many papers published on the topic, it's hard to know where to start and what papers to read. With contributions from leading experts across the world, each book in the Series covers key themes in polymer chemistry research for graduate level students and above. The perfect introduction to key topics giving the reader the knowledge to continue their work.

Bio-inspired Polymers

Nico Bruns University of Fribourg, Switzerland | **Andreas F M Kilbinger** University of Fribourg, Switzerland

This book will provide a comprehensive review of all aspects of bio-inspired polymers, ranging from the synthesis of novel polymers, to structure-property relationships, materials with advanced properties and application of bio-inspired polymers in such diverse fields as drug delivery, tissue engineering, optical materials and lightweight structural materials. *Bio-inspired Polymers* will provide an essential text to biochemists, materials scientists and polymer chemists working in both industry and academia, from post graduate level upwards.

Hardback | 500 pages | 9781782624134 | 2016 | £179.00 | \$300.00 

Fluorinated Polymers

From Fundamental to Practical Synthesis and Applications

Bruno Ameduri Institut Charles Gerhardt, France | **Hideo Sawada** Hirosaki University, Japan

This book provides detailed coverage of fluorinated polymers, ranging from fundamentals, such as kinetics of homopolymerisation and copolymerisation, to process chemistry, and polymerisation techniques including the controlled radical co-polymerisation to applied materials. Written by internationally recognised academic and industrial contributors, this title will be of interest to those working in the fields of materials science and technology, polymer chemistry and energy applications of polymers in industry and academia.

Hardback | 450 pages | 9781782624158 | 2017 | £179.00 | \$300.00 

Mechanochemistry in Materials

Yoan Simon University of Fribourg, Switzerland | **Stephen Craig** Duke University, USA

Mechanochemistry in materials science has experienced tremendous growth in the last five years and has developed to become one of the most important topics in polymer science today. With a particular focus on polymers and soft materials the book discusses experimental and theoretical considerations. Appealing to a broad range of materials scientists, working in industry and academia, this well presented and comprehensive title will be essential reading for postgraduate researchers upwards.

Hardback | 350 pages | 9781782621461 | 2016 | £169.00 | \$275.00 

RSC Polymer Chemistry Series

Polymers for Personal Care Products and Cosmetics

Xian Jun Loh Institute of Materials Research & Engineering, Singapore

Materials play a key role in the development of new personal care products. The book will look at the polymers used in personal care products (hair care, skin care, nail care) including those used for surfactants, rheological modifiers, antibacterial polymers, encapsulating agents (including concepts of delivery, barrier properties). The book will be suitable for graduate level students and academics working with industry to develop polymers for personal care products as well as those in industry producing such products.

Hardback | 400 pages | 9781782622956 | 2016 | £179.00 | \$300.00 



Polymers from Renewable Resources

Synthesis and Applications

Sigbritt Karlsson KTH Royal Institute of Technology, Sweden | Emma Strömberg KTH Royal Institute of Technology, Sweden

The book brings together up-to-date research in the synthesis of polymers from renewable resources with new insights into the environmental impact and consequences for a sustainable society (ecology, environmental aspects). It provides a critical analysis of the pros and cons of using renewable resources by Life Cycle Assessment/Life Cycle Inventory on available large-scale processes including ethical dilemmas such as using crops for the production of materials. The future trends and necessary steps to develop sustainable polymeric materials using renewable resources are also discussed.

Hardback | 400 pages | 9781849738002 | 2016 | £169.00 | \$275.00 



Semiconducting Polymers

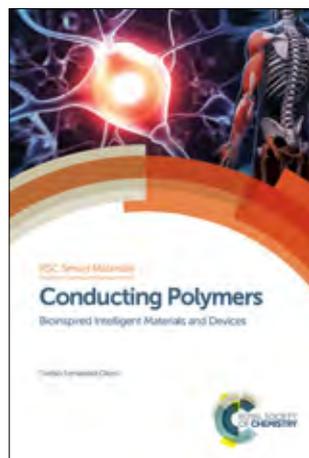
Controlled Synthesis and Microstructure

Christine Luscombe University of Washington, USA

Semiconducting polymers are of great interest for applications in electroluminescent devices, solar cells, batteries and diodes. In recent years vast advances have been made in the area of controlled synthesis of semiconducting polymers, specifically polythiophenes. Edited by one of the leaders in the area of polythiophene synthesis, this new book will bring the field up to date with more recent models for understanding semiconducting polymers. The book is separated into two main sections, the first will introduce the advances made in polymer synthesis, and the second chapter will focus on the microstructure and property analysis that has been enabled because of the recent advances in synthetic strategies.

Hardback | 250 pages | 9781782620341 | 2016 | £159.00 | \$260.00 





About the Series

ISSN: 2046-0066

Series Editors

Hans-Jorg Schneider Universität des Saarlandes, Germany | **Mohsen Shahinpoor** University of Maine, USA

The progress of new functional materials plays a vital role in solving many of today's global challenges, from energy and sustainability to medicine and healthcare. With a wealth of information available it's hard to find a resource providing a complete overview of the different types of smart materials available. Each book in the Series covers the fundamentals and applications of different material system from renowned international experts. Stay in the know with the RSC Smart Materials Series - the intelligent way to find your materials solution.

Bioactive Glasses

Fundamentals, Technology and Applications

Leena Hupa Åbo Akademi University, Finland | **Aldo Boccaccini** University of Erlangen-Nuremberg, Germany | **Delia Brauer** Friedrich Schiller University Jena, Germany

The global ageing society has significantly increased the need for implant materials, which not only replace damaged or lost tissue but are able to regenerate it. Bioactive glasses have been shown over several decades to bond with hard and soft tissue, release therapeutically active ions, and be capable of enhancing bone formation and regeneration. This book aims to give the material's scientist an up-to-date reference and guide for education, studies and research.

Hardback | 300 pages | 9781782621690 | 2016 | £159.00 | \$260.00 

ISBN 978-1-78262-169-0



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Conducting Polymers

Bioinspired Intelligent Materials and Devices

Toribio Fernandez Otero Universidad Politecnica de Cartagena, Spain

Conducting polymers are organic, conjugated materials that offer high electrical conductivity through doping by oxidation and a wide range of unique electromechanical and electrochromic characteristics. Written and edited by expert researchers working within the field, this title will have broad appeal to materials scientists in industry and academia, from postgraduate level upwards.

Hardback | 304 pages | 9781782623151 | 2016 | £149.00 | \$245.00 

ISBN 978-1-78262-315-1



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Functional Polymer Composites with Nanoclays

Yuri Lvov Louisiana Tech University, USA | **Baochun Guo** South China University of Technology, China | **Rawil F Fakhrullin** Kazan Federal University, Russia

Polymer-clay nanocomposites have flame-retardant, antimicrobial, anticorrosion and self-healing properties, they are biocompatible and environmentally benign. Edited by pioneers in the field, this book will explain the great potential of these materials and will bring together the combined physico-chemical, materials science and biological expertise to introduce the reader to the vibrant field of nanoclay materials. This book will provide an essential text for materials and polymers scientists in industry and academia.

Hardback | 600 pages | 9781782624226 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-422-6



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RSC Smart Materials

Fundamental Principles of Smart Materials for Tissue Engineering

Qun Wang Iowa State University, USA

This book focuses on the fundamental principles and recent advances in the materials science developed for tissue engineering purposes. Smart materials for tissue engineering are produced by modifying the physicochemical and biological properties of the scaffolds with response to external stimuli to enhance the tissue regeneration. This book comprehensively documents the recent advancements in smart materials for tissue engineering and will appeal to those working materials science and materials engineering, in academia and industry.

Hardback | 600 pages | 9781782624646 | 2017 | £179.00 | \$300.00 



Laser Processing of Materials for Medical Applications

Roger Narayan University of North Carolina, USA

The use of lasers to process materials for medical applications has steadily grown over the past decade. Lasers are finding significant academic and industrial use for coating, machining, melting, polymerising, sintering, and welding materials that are used to restore normal physiologic activity. This book provides the first overview of laser materials for medical applications and will be beneficial to materials and manufacturing engineers, biological, computer and physical scientists looking for an overview of the developments in this area.

Hardback | 300 pages | 9781782624868 | 2017 | £149.00 | \$245.00 



OLED Displays and Lighting

Materials, Processing and Production

Poopathy Kathirgamanathan Brunel University, UK | Arokia Nathan University of Cambridge, UK

Organic light-emitting diodes (OLEDs) are devices which emit light in response to an electric current and used to produce digital displays. They have gained great attention due to their uses in television screens, computer/laptop monitors and mobile phones. This book is written by eminent scientists who have a direct knowledge of all the issues involved in OLEDs and therefore gives a complete picture of the subject for the advanced undergraduate/post graduate level. The book covers from the choice of materials, fabrication and characterisation, to display manufacture, patents and future directions/applications.

Hardback | 400 pages | 9781849739238 | 2016 | £175.00 | \$290.00 



Self-Cleaning Coatings

Structure, Fabrication and Application

Junhui He Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China

Recent years have seen fast development in the field of self-cleaning coatings towards varied applications, such as solar cells, flat display panels, smart cellular phones, building windows, oil pipelines, vehicle coatings and optical devices. This book will bring together the latest research in this area, including self-cleaning functions, theoretical aspects of self-cleaning phenomena, fabrication strategies and methods, applications and industrial impacts. The book will be of interest to materials and polymer scientists working in industry and academia.

Hardback | 300 pages | 9781782622864 | 2016 | £159.00 | \$260.00 



RSC Smart Materials

Smart Materials for Advanced Environmental Applications

Peng Wang King Abdullah University of Science and Technology, Saudi Arabia

This book is dedicated to the innovative and emerging applications of intelligent materials in solving environmental issues. It provides an introduction to smart materials and their design for environmental applications and focuses on the recent development of their applications. Topics covered include: omniphobic slippery coatings; responsive and catalytic block copolymer membrane for water treatment; smart surfaces for controllable oil-water separation; and bio-inspired surfaces with patterned wettability for water harvesting.

Hardback | 350 pages | 9781782621089 | 2016 | £159.00 | \$260.00 

ISBN 978-1-78262-108-9



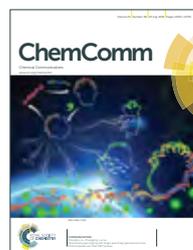
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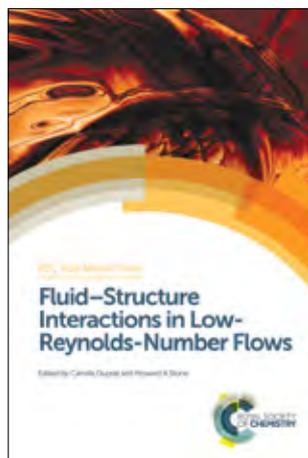
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RSC Soft Matter Series



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ISSN: 2048-7681

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Hans-Jürgen Butt Max Planck Institute for Polymer Research, Germany | **Ian W Hamley** University of Reading, UK | **Howard A Stone** Princeton University, USA | **Chi Wu** The Chinese University of Hong Kong, China

Get up to speed on the latest research in soft matter with this new, authoritative Series from the Royal Society of Chemistry. With contributions from experts in the field, the books in this Series provide an essential overview of the latest developments in soft matter research. Each title covers a specific aspect of soft matter science, from the fundamental concepts of soft matter systems to the diverse applications across different disciplines. The books are suitable for advanced undergraduate students, postgraduate students and professional researchers working in soft matter science and related fields.

Non-wettable Surfaces

Theory, Preparation and Applications

Abraham Marmur Technion - Israel Institute of Technology, Israel | **Robin H A Ras** Aalto University, Finland

The objective of this book is to integrate information about the theory, preparation and applications of non-wettable surfaces in one volume. By combining the discussion of all three aspects together the editors will show how theory assists the development of preparations methods and how these surfaces can be applied to different situations. Edited by two of the most innovative developers of the theory underlying superhydrophobicity, this book will be essential reading for materials scientists interested in any aspect of surface and colloid and polymer science, thermodynamics, superhydrophobic and superhydrophobic surfaces.

Hardback | 250 pages | 9781782621546 | 2016 | £149.00 | \$245.00



ISBN 978-1-78262-154-6



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Wormlike Micelles

New Systems, Advances in Characterisation and Applications

Cecile A Dreiss King's College London, UK | **Yujun Feng** Sichuan University, China

Wormlike Micelles will focus on new wormlike micellar systems reported in the last few years, in particular micellar gels, reverse micelles, polymer-based micelles, smart micelles, micelles from unusual surfactants, as well as technical advances which have brought new perspectives on wormlike micelles structure, formation and flow. Concluding with a review of recent trends in the applications on wormlike micelles dedicated to oil and gas production, this text will be essential reading to anyone working with polymer or soft matter research.

Hardback | 350 pages | 9781782625162 | 2017 | £169.00 | \$275.00

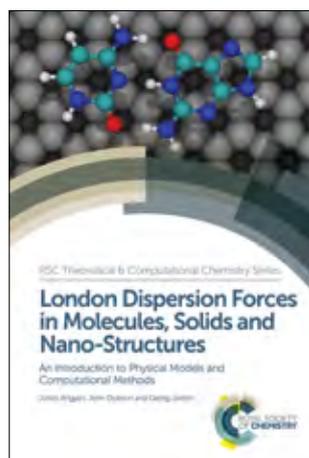


ISBN 978-1-78262-516-2



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RSC Theoretical and Computational Chemistry Series



About the Series

ISSN: 2041-3181

Editor-in-Chief

Jonathan Hirst University of Nottingham, UK

Covering all aspects of theoretical and computational chemistry, based on both classical mechanics and on quantum theory, this Series comprises up-to-date and comprehensive references for postgraduate students and practising computational and theoretical chemists. The books cover current theoretical methods and techniques, including "dos" and "don'ts"; and where standard techniques are not applicable and why. Each book gives an in-depth treatment of a specific aspect of theory or applications of theoretical chemistry.

Computational Biophysics of Membrane Proteins

Carmen Domene King's College London, UK

Exploring current themes in modern computational and membrane protein biophysics, this book presents a comprehensive account of the fundamental principles underlying different methods and techniques used to describe the intriguing mechanisms by which membrane proteins function. In particular, the book focuses on three key families of membrane proteins: ion channels, transporters and receptors. With chapters written by leading researchers in this field, this book is ideal for researchers in computational chemistry and computational biophysics.

Hardback | 400 pages | 9781782624905 | 2017 | £179.00 | \$300.00 

ISBN 978-1-78262-490-5



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London Dispersion Forces in Molecules, Solids and Nano-Structures

An Introduction to Physical Models and Computational Methods

Janos Angyan University of Lorraine, France | **John Dobson** Griffith University, Australia | **Georg Jansen** University of Duisburg-Essen, Germany

Providing an overview of current understanding of the physical origin and modelling of London dispersion forces manifested at an atomic level, this book provides theoretical, physical and synthetic chemists, as well as solid-state physicists, with a systematic understanding of the origins and consequences of these ubiquitous interactions. It covers a wide range of system, from small intermolecular complexes, to organic molecules and crystalline solids, through to biological macromolecules and nanostructures.

Hardback | 450 pages | 9781782620457 | 2016 | £179.00 | \$300.00 

ISBN 978-1-78262-045-7



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RSC Theoretical and Computational Chemistry Series

Low Energy and Low Temperature Molecular Scattering

An Introduction

Andreas Osterwalder Ecole Polytechnique Federale de Lausanne, Switzerland

In recent years there has been tremendous progress in research on cold and controlled molecular collisions. The advent of techniques in the preparation, storage and use of cold and ultracold molecules and ions has opened many new possibilities to study the most fundamental aspects of molecular interactions. At the same time, theoretical work has made progress in accurately describing quantum effect in complex systems. Exploring both theoretical and experimental aspects, this book provides a much-needed introduction to this fascinating subject for advanced undergraduate and graduate students.

Hardback | 500 pages | 9781782625971 | 2017 | £179.00 | \$300.00 



Simulating Enzyme Reactivity

Computational Methods in Enzyme Catalysis

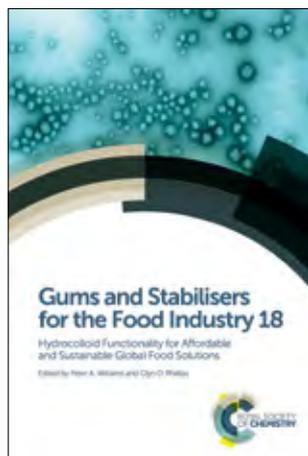
Inaki Tunon Universidad de Valencia, Spain | **Vicent Moliner** Universitat Jaume I, Spain

The simulation of enzymatic reactions is attracting an increasing amount of attention because of the potential applications in the development of new drugs or new environmental-friendly catalysts and the understanding of complex biological process at the molecular level. This book covers the theories, methodologies and applications of simulations of enzyme reactions. It provides the basic knowledge to for postgraduate students and researchers interested in this field.

Hardback | 500 pages | 9781782624295 | 2017 | £179.00 | \$300.00 



Special Publications



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The Special Publications Series is a collection of books produced from the proceedings of international symposia. Editors bring together contributions from authorities in the field and the books provide snapshots of the latest developments of that field.

Gums and Stabilisers for the Food Industry 18

Hydrocolloid Functionality for Affordable and Sustainable Global Food Solutions

Peter A Williams Glyndwr University, UK | **Glyn Phillips** Phillips Hydrocolloids Research Ltd, UK

Describing the latest research advances in the science and technology of hydrocolloids which are used in food and related systems, this book captures the presentations of leading scientists from the Gums and Stabilisers for the Food Industry Conference: Hydrocolloid Functionality for Affordable and Sustainable Global Food Solutions held in June 2015. Topics covered include sustainable and secure foods, healthy food products, innovative manufacture and formulation design as well as active packaging and edible films. Providing a fresh glance on food quality, it is a useful information source for researchers and other professionals in industry and academia and a reference for students of food science.

Hardback | 350 pages | 9781782623274 | 2016 | £125.00 | \$200.00 

ISBN 978-1-78262-327-4



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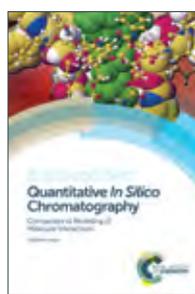
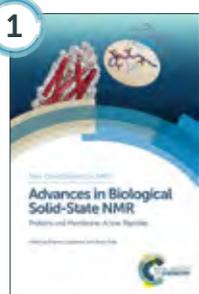
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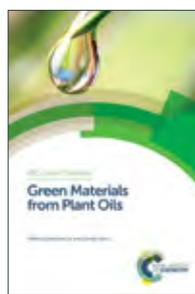
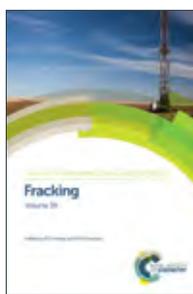
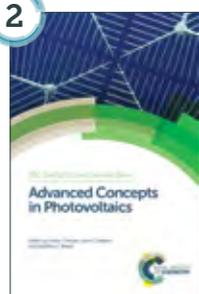
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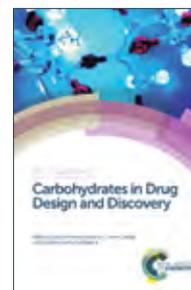
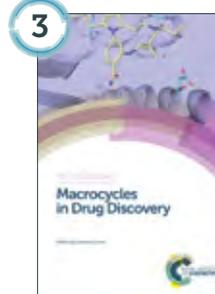
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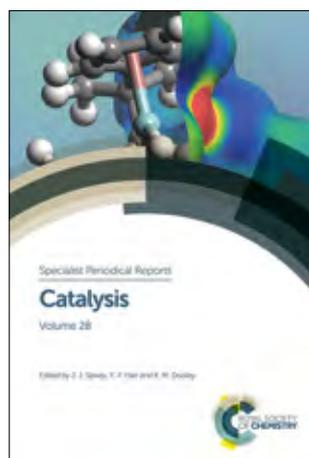


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Amino Acids, Peptides and Proteins

Volume 41

Maxim Ryadnov National Physical Laboratory, UK | **Ferenc Hudecz** Eötvös Lorá University, Hungary

Amino Acids, Peptides and Proteins comprises a comprehensive and critical review of significant developments at this biology/chemistry interface. Compiled by leading researchers in their subject, this volume incorporates current trends and emerging areas. Appealing broadly to researchers in academia and industry, it would be of great benefit to any researcher wanting a succinct reference for the field.

Hardback | 250 pages | 9781782625377 | 2016 | £314.95 | \$505.00 



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Carbohydrate Chemistry

Volume 42

Amelia Pilar Rauter University of Lisbon, Portugal | **Thisbe Lindhorst** Kiel University, Germany | **Yves Queneau** INSA Lyon, France

The synthesis of novel carbohydrates and carbohydrate mimetics continues to be a major challenge for organic chemists, not least because of the increasingly interdisciplinary nature of carbohydrate science. Covering both chemical and biological science related to the particular volume topic, this series demonstrates the interdisciplinary nature of modern carbohydrate research, and will be of great benefit to any researcher who wishes to learn about the latest developments in the carbohydrate field.

Hardback | 300 pages | 9781782625384 | 2016 | £314.95 | \$505.00 



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Catalysis

Volume 28

James J Spivey Louisiana State University, USA | **Yi-Fan Han** East China University of Science and Technology, China | **K Dooley** Louisiana State University, USA

Industrial and academic scientists face increasing challenges to find cost-effective and environmentally sound catalysts for a variety of applications. This volume provides a balanced and in-depth review of the modern approaches to some of these challenges covering major areas such as research and development of hydrocracking catalysts, using nanoclusters and preparation of foams.

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Specialist Periodical Reports

Chemical Modelling

Volume 13

Michael Springborg University of Saarland, Germany | **Jan-Ole Joswig** Dresden University of Technology, Germany

Chemical Modelling covers a wide range of disciplines and this book is the first stop for any materials scientist, biochemist, chemist or molecular physicist wishing to acquaint themselves with major developments in the applications and theory of chemical modelling.

Hardback | 300 pages | 9781782625414 | 2016 | £314.95 | \$505.00 



Electrochemistry

Volume 13

Craig Banks Manchester Metropolitan University, UK | **Roger Mortimer** Loughborough University, UK | **Steven McIntosh** Lehigh University, USA

Re-launching in 2015 with a new editorial team, Volume 13 returns to its roots and provides a wide range of topics written by leading experts researching at the forefront and heart of electrochemistry. The book covers topics such as control and structural analysis, and combines different approaches on utilizing light as a source for materials science. This volume is a key reference in the field of electrochemistry, allowing readers to become easily acquainted with the latest research trends.

Hardback | 300 pages | 9781849739801 | 2016 | £314.95 | \$505.00 



Nanoscience

Volume 4

Paul O'Brien University of Manchester, UK | **P John Thomas** Bangor University, UK

The field of nanoscience continues to grow at an impressive rate and, with such a vast landscape of material, careful distillation of the most important discoveries will help researchers find the key information they require. *Nanoscience* provides a critical and comprehensive assessment of the most recent research and opinion from across the globe. Anyone practising in a nano-allied field, or wishing to enter the nano-world will benefit from this comprehensive resource, presenting the current thought and applications of nanoscience.

Hardback | 250 pages | 9781782621591 | 2016 | £314.95 | \$505.00 



Nuclear Magnetic Resonance

Volume 45

Vasudevan Ramesh University of Manchester, UK

Application of nuclear magnetic resonance span a wide range of scientific disciplines and for the first time this volume will concentrate on a theme – NMR applications in industry. Providing a comprehensive yet critical review of the current literature from various industries including materials, food science, paints and coatings, nuclear chemistry and drug discovery, this volume will be an invaluable source of current methods and applications. Essential reading for those wanting to become rapidly acquainted with NMR and for the seasoned practitioner keeping up to date with the literature.

Hardback | 450 pages | 9781782620532 | 2016 | £314.95 | \$505.00 



Specialist Periodical Reports

Organometallic Chemistry

Volume 40

Ian Fairlamb University of York, UK | Jason Lynam University of York, UK

In this celebratory volume, the editors have approached leading researchers to review the field of organometallic chemistry through the years. This interdisciplinary field has the potential to provide answers to problems and challenges faced in catalysis, synthetic organic chemistry and the development of new materials. Providing a timely addition to the literature, this volume will reflect current interests, look at how these have developed over the years and will also explore future applications.

Hardback | 300 pages | 9781849739849 | 2016 | £314.95 | \$505.00 



Organophosphorus Chemistry

Volume 45

David W Allen Sheffield Hallam University, UK | David Loakes University of Cambridge, UK | John C Tebby Staffordshire University, UK

Coverage in this annual review of the literature presents a comprehensive and critical survey of the vast field of study involving organophosphorus compounds, from phosphines and phosphonium salts through to phosphorus acids, nucleotides, ylides and phosphazenes. Physical methods in organophosphorous chemistry are also considered. The Editors have added to the usual content with a timely chapter on the recent developments in green synthetic approaches in organophosphorus chemistry to reflect the current interests in the area.

Hardback | 325 pages | 9781782624332 | 2016 | £314.95 | \$505.00 



Photochemistry

Volume 44

Angelo Albini University of Pavia, Italy | Elisa Fasani University of Pavia, Italy

Reviewing photo-induced processes that have relevance to a wide range of academic and commercial disciplines and interests, this volume reflects the current interests in chemistry, physics, biology and technology. Essential reading for postgraduates, academics and industrialists working in the field of photochemistry, enabling them to keep on top of the literature.

Hardback | 300 pages | 9781782625438 | 2016 | £314.95 | \$505.00 



Synthetic Biology

Volume 2

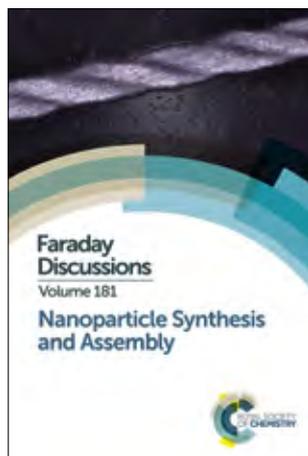
Maxim Ryadnov National Physical Laboratory, UK | Luc Brunsveld Eindhoven University of Technology, The Netherlands | Hiroaki Suga University of Tokyo, Japan

Synthetic biology is a new area of biological research that will enable the design of biological systems in a rational and systematic way. This volume captures the expanding primary literature in the form of critical and comprehensive reviews, providing the reader with an authoritative digest of the latest developments in this emerging field. Leading researchers draw on the recent literature, from both dedicated journals and broader sources, making this an essential reference to any library supporting this research.

Hardback | 300 pages | 9781782621201 | 2016 | £314.95 | \$505.00 



Faraday Discussions



ISSN: 1359-6640

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Faraday Discussions document a long-established series of Faraday Discussion meetings which provide a unique international forum for the exchange of views and newly acquired results in developing areas of physical chemistry, biophysical chemistry and chemical physics. The original research papers presented are published in the Faraday Discussion volume, together with a record of the discussion contributions made at the meeting. Faraday Discussions therefore provide an important record of current international knowledge and views in the field concerned. Faraday Discussions are highly cited and well respected accounts by world-class experts.

Advanced Vibrational Spectroscopy for Biomedical Applications

Vibrational biomedical spectroscopy, near field methods and many aspects of associated biophotonics have advanced significantly in recent years. Diagnostic and prognostic tools based on these new technologies have the potential to revolutionise our clinical systems leading to improved patient outcome, more efficient public services and significant economic savings for healthcare providers and society. This meeting brings together scientists researching vibrational spectroscopy and the development of clinically relevant diagnostic tools to discuss the current challenges and emerging opportunities in this field.

Hardback | 450 pages | 9781782624820 | 2016 | £170.00 | \$270.00



Carbon Capture and Storage

Global power generation depends heavily on coal-fired power plants. As fossil fuels will remain part of the global energy mix for some time, developing carbon capture and storage technology is crucial for reducing carbon emissions. This Faraday Discussion brings together those working on new potential carbon capture materials and processes, physical properties of CO₂ and gas mixtures, carbon dioxide utilisation, and energy and process engineering.

Hardback | 450 pages | 9781782624783 | 2016 | £170.00 | \$270.00



Carbon Dioxide Utilisation

Carbon dioxide (CO₂) utilisation processes convert CO₂ into commercially viable products and can contribute to the reduction of greenhouse gas emissions. While generally unreactive, CO₂ can be activated through catalysis to yield a vast array of chemical feedstocks, intermediates and value-added products. This discussion presents CO₂ utilisation from a holistic approach, identifying where it predicts yield viable profits that can be used alongside process efficiencies to off-set the cost of the carbon capture technologies required to mitigate against climate change.

Hardback | 450 pages | 9781782624691 | 2016 | £170.00 | \$270.00



Faraday Discussions

Chemistry in the Urban Atmosphere

Urban atmospheres are clearly distinguishable from most rural and all remote atmospheres by their high primary pollutant loadings and relatively fast reaction times. However these rapid reactions are currently poorly captured by numerical models. Recent research on urban air pollution has focused upon cities as a source of air pollutants to the regional and global atmosphere. This neglects the impact of urban air pollution upon human health. With the increasing urbanisation of human populations, this topic is of great importance.

Hardback | 450 pages | 9781782624769 | 2016 | £170.00 | \$270.00



Designing New Heterogeneous Catalysts

Catalysis is a core area of contemporary science posing major fundamental and conceptual challenges, while being at the heart of the chemical industry. At this discussion, we bring the catalysis community together to explore the modern methods used to design new catalysts and how these approaches can bridge across the disciplines of physical sciences and chemical engineering.

Hardback | 450 pages | 9781782624752 | 2016 | £170.00 | \$270.00



Nanoparticles with Morphological and Functional Anisotropy

Anisotropy at the nanoscale is a critical factor in the mechanical, optical, electronic, and magnetic properties of nanoparticles. As the field of nanoparticle synthesis and application matures, there is an increasing need for the design of novel and more complex nanosized objects. This Faraday Discussion presents the use of anisotropy as a tool to design, organize and provide special functions to varied nanoparticles.

Hardback | 450 pages | 9781782624776 | 2016 | £170.00 | \$270.00



Nanoparticle Assembly: From Fundamentals to Applications

This meeting emphasises the importance of considering both ordered and disordered assemblies, and the translation of fundamental science to applications. The scope of the Discussion will include chemically distinct classes of nanoparticle assemblies - polymer nanocomposites, patchy colloids, ligand-passivated inorganic nanocrystals. The meeting will also be an opportunity to consider the implications of these ideas for the broader field of soft matter.

Hardback | 450 pages | 9781782624707 | 2016 | £170.00 | \$270.00



Single Entity Electrochemistry

Electrochemistry is at the centre of energy technologies such as batteries, fuel cells and solar cells, and it plays a key role in widely used and emerging sensing and diagnostic platforms. This Faraday Discussion presents the key challenges in the design, execution, analysis, theory and interpretation of single entity electrochemistry experiments, and assesses the implications of such measurements for electrochemistry and broader interfacial science.

Hardback | 450 pages | 9781782624813 | 2016 | £170.00 | \$270.00



Single-Molecule Microscopy and Spectroscopy

Discussing recent advances in this field and mapping out future avenues in the field, this book explores a range of topics, such as quantum optics and plasmonics; probes and sensors for molecular biophysics; super-resolution and imaging of soft and biological matter; and nonlinear optics and coherence in biophysics.

Hardback | 450 pages | 9781782624615 | 2016 | £170.00 | \$270.00



Faraday Discussions

Supramolecular Photochemistry

Examining new instrumentation and advances in synthesis, this book examines the current state of research in this field and considers its future. It discusses new information derived from the study of natural systems, explores multi-component systems where illumination induces controlled mechanical movements (machines), and considers the effect of supramolecular assembly on the photoactivation of nanostructures.

Hardback | 450 pages | 9781782624639 | 2016 | £170.00 | \$270.00



Ultrafast Imaging of Photochemical Dynamics

Photochemical reactions range from photosynthesis to atmospheric reactions, and technologies such as sensors or displays. Due to their complexity, they remain the least understood type of chemical process. However, new experimental techniques capable of monitoring photochemical processes in unprecedented detail are appearing. This Faraday Discussion brings together experimentalists and theoreticians working from different perspectives in the field. It provides the opportunity to identify how new techniques can complement each other, to address contention and controversy, and to propose future research.

Hardback | 450 pages | 9781782624790 | 2016 | £170.00 | \$270.00



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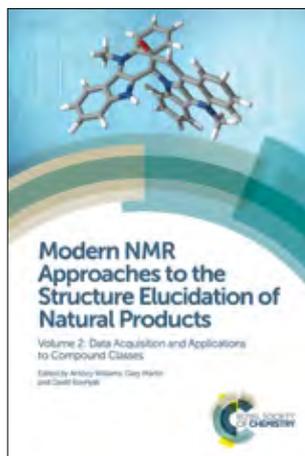
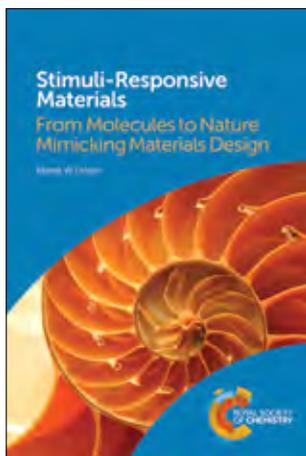
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Actively Moving Polymers

Shape-Memory and Shape-Changing Effects

Andreas Lendlein Helmholtz-Zentrum Geesthacht, Germany | Marc Behl Helmholtz-Zentrum Geesthacht, Germany

In recent years there has been a surge of interest in actively moving polymers, materials which can change shape in response to specific stimuli, but there is currently no resource covering the full array of these interesting materials. This new book covers both shape-memory polymers (materials which can be deformed into a new temporary shape and recover their original shape) and shape-changing polymers (materials which change their shape as long as they are exposed to a stimulus, such as expansion or shrinking), exploring both the fundamental mechanisms and applications of the different systems. Readers will gain a comprehensive overview of actively moving polymers from leading scientists in the field and through example applications inspiration for new product ideas.

Hardback | 300 pages | 9781849735544 | 2017 | £155.00 | \$255.00 

ISBN 978-1-84973-554-4



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Antibiotic Resistance

Laura Bowater University of East Anglia, UK

Although scientists continue to play a crucial role in the continuing battle against antibiotic resistance, a return to a pre-antibiotic era is a distinct possibility. This book draws much-needed attention to current levels of antibiotic resistance and the lack of new antibiotic drugs coming to market. The fascinating history of antibiotic discovery, how antibiotics are made now, and how bacteria manage to mutate and develop resistance to our medicines are explained in terms non-specialists can follow. The book also describes the alarming ease with which antibiotic resistance spreads within bacterial communities. How have human activities contributed to antibiotic resistance? What will a future where resistance continues to increase look like and how will we cope with the 'superbugs'? Laura Bowater engages readers with these questions, raising awareness of an important global challenge for humanity.

Hardback | 250 pages | 9781782621676 | 2016 | £24.99 | \$32.00

ISBN 978-1-78262-167-6



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Textbooks, popular science and standalone titles

Archaeological Chemistry

3rd Edition

A Mark Pollard University of Oxford, UK | Carl Heron University of Bradford, UK | Ruth Armitage Eastern Michigan University, USA

The application of chemistry within archaeology allows archaeologists to answer such questions as "what is this artefact made of?" and "where did it come from?" This textbook examines the most widely used analytical techniques in archaeology and discusses specific archaeological investigations in which chemistry has been employed in tracing the origins of or in preserving artefacts. As well as updates throughout the textbook, this third edition now includes a new chapter on proteins and proteomics. This is an essential companion for students in archaeological science and chemistry.

Hardback | 500 pages | 9781782624264 | 2016 | £44.99 | \$70.99 



Arsenic Exposure

Are You at Risk?

William R Cullen University of British Columbia, Canada | Kenneth J Reimer The Royal Military College of Canada, Canada

Following on from the popular book *Is Arsenic an Aphrodisiac?: The Sociochemistry of an Element*, this book continues the authors work in addressing the issues surrounding arsenic. It explores arsenic in food and water, the need to clarify toxicity, and scientific and public misconceptions about arsenic. It also looks at the use of arsenic in medicine, from cancer treatments to alternative therapies such as homeopathy. This book will fascinate students and researchers alike.

Hardback | 400 pages | 9781782623144 | 2016 | £66.99 | \$110.00 



Atmospheric Chemistry

2nd Edition

Ann M Holloway | John Burrows Universität Bremen, Germany | Richard Wayne University of Oxford, UK

Ideal for undergraduates in chemistry and environmental science, this book provides students with a basic knowledge of the chemistry of Earth's atmosphere, and an understanding of the role that chemical transformations play in this vital part of our environment. Restructured and updated, this second edition now includes tutorial sections providing scientific background to key concepts. Students are guided through the atmosphere, beginning at high altitudes and working down, to help them better understand how the atmosphere works.

Hardback | 320 pages | 9781782625148 | 2017 | £31.99 | \$51.99 



Biocatalysis in Organic Synthesis

The Retrosynthesis Approach

Nick Turner University of Manchester, UK | Luke Humphreys GlaxoSmithKline, UK

This unique textbook provides new guidelines for "biocatalytic retrosynthesis" in which molecules are disconnected with consideration for applying biocatalysts in the forward synthesis direction. It aims to enable students to make the connection between biocatalysis and synthesis earlier in their studies and to equip students for the modern world of organic synthesis where biocatalysts play an increasingly important role. Tutorials enable the reader to practise disconnecting target molecules to find the 'hidden' biocatalytic reactions which can be applied in the synthetic direction. It also contains a complete description of the current biocatalyst classes that are available. This textbook is an essential resource for lecturers and students studying synthetic chemistry. It also serves as a handy reference for practising chemists wishing to embed biocatalysis into their synthetic toolbox.

Paperback | 200 pages | 9781782625308 | 2016 | £31.99 | \$59.99 



Textbooks, popular science and standalone titles

Chemistry in Your Kitchen

Matthew Hartings American University, USA

Focusing on how and why we cook different dishes the way we do, this book introduces basic chemistry through everyday foods and meal preparations. Through its unique meal-by-meal organisation, the book explores the chemistry that makes up our food. Topics covered range from roasting coffee beans to scrambling eggs, and each chapter ends in experiments that you can try in your own kitchen. As well as molecular chemistry, the author also uses biology, neuroscience, physics and agriculture to discuss various aspects of cooking and food preparation.

Paperback | 250 pages | 9781782623137 | 2017 | £19.99 | \$39.99



Coffee

Chemistry, Quality and Health Implications

Adriana Farah Universidade Federal do Rio de Janeiro, Brazil

Coffee is one of the most popular drinks in the world but how does the chemistry influence the quality and what are the health advantages or disadvantages from consuming it? This book is unique in covering coffee production, quality, chemistry, and the health implications from its consumption in one volume. Written by an international collection of contributors in the field who concentrate on coffee research, it is expertly edited so the coverage is cross-referenced to ensure consistency and organisation across the chapters. Aimed at advanced undergraduates, postgraduates and researchers, it will be an accessible reference to the current research in the field and provide information on the health aspects for nutritionists and other health professionals.

Hardback | 300 pages | 9781782620044 | 2016 | £59.99 | \$95.00 



Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences

Recommendations 2015

Georges Féraud Formerly University of Strasbourg, France | René Dybkaer Frederiksberg Hospital, Denmark | Xavier Fuentes-Arderiu Clinical Laboratory Sciences Consulting, Spain

There has been significant expansion and development in clinical laboratory sciences since the previous edition of this book was published in 1995. Some new disciplines have appeared and the interrelationships between different disciplines within clinical laboratory sciences demand a common structure and language for data exchange in the laboratory and with the clinicians. It is of prime importance to standardise laboratory reports for reliable exchange of patient examination data without loss of meaning or accuracy. For that, it is important to promote the unified format developed by IUPAC and IFCC. This book groups and updates the recommendations and will be appropriate for laboratory scientists, medical professionals and students in this area.

Hardback | 200 pages | 9781782621072 | 2016 | £99.99 | \$160.00 



Comprehensive Glossary of Terms Used in Toxicology

John Duffus The Edinburgh Centre for Toxicology, UK | Douglas Templeton University of Toronto, Canada | Michael Schwenk Federal Public Health Department, Germany

This glossary updates and expands on previous glossaries of toxicological terms provided by IUPAC. Toxicology has become crucial to global trade in chemicals as legislation has become harmonised around the world and is based on the classification of toxicity. This glossary addresses the need for harmonised terminology, especially as toxicology uses terminology from chemistry, medicine, geology, botany, zoology, ecology, and veterinary medicine, as well as some legal terms. This will be a valuable reference for students and researchers in toxicology, those involved in chemicals legislation and regulation and risk assessment.

Hardback | 150 pages | 9781782621379 | 2017 | £66.99 | \$118.00 



Textbooks, popular science and standalone titles

Comprehensive Organic Chemistry Experiments for the Laboratory Classroom

Carlos A M Afonso Universidade de Lisboa, Portugal | Nuno Candeias Tampere University of Technology, Finland | Dulce Simão Universidade de Lisboa, Portugal | Alexandre Trindade University of Lisbon, Portugal | Jaime Coelho University of Lisbon, Portugal | Bin Tan SUSTC University, China | Robert Franzén Tampere University of Technology, Finland

Based on a well-received book published in Portuguese, this expanded and practical textbook contains organic chemistry experiments for teaching in the laboratory at the undergraduate level. The editorial team have collected contributions from around the world and standardised them for publication. Targeted at professors and lecturers in chemistry, this useful text will provide up-to-date experiments in modern chemistry scenarios putting the science into context for the students.

Hardback | 500 pages | 9781849739634 | 2016 | £59.99 | \$96.00 



Concepts of Chemical Engineering for Chemists

2nd Edition

Stefaan Simons Brunel University London, UK

Based on a former popular course of the same title, *Concepts of Chemical Engineering for Chemists* outlines the basic aspects of chemical engineering for chemistry professionals. It clarifies the terminology used and explains the systems methodology approach to process design and operation for chemists with limited chemical engineering knowledge. The book provides practical insights into all areas of chemical engineering with well explained worked examples and case studies. The new edition contains a revised chapter on Process Analysis and two new chapters "Process and Personal Safety" and "Systems Integration and Experimental Design", the latter drawing together material covered in the previous chapters so that readers can design and test their own pilot process systems.

Hardback | 400 pages | 9781782623588 | 2016 | £49.95 | \$80.00 



Contemporary Catalysis

Science, Technology, and Applications

Paul C J Kamer University of St Andrews, UK | Dieter Vogt University of Edinburgh, UK | Joris Thybaut Ghent University, Belgium

All researchers in catalysis, engineering and most involved in organic synthesis and transition metal chemistry will benefit from this book. A general knowledge of all aspects related to catalytic processes is presented including underpinning sciences. This book will be at an advanced level and be essential for all people involved in development and optimization of catalytic processes, both in industry and academia.

Hardback | 600 pages | 9781849739900 | 2016 | £86.99 | \$143.00 



Crime Scene to Court

The Essentials of Forensic Science, 4th Edition

Peter C White

Covering all three main areas of an investigation where forensic science is practised: the scene of the crime, the forensic laboratory and the court, this book is essential for anyone with a role in an investigation, including members of the police and crime scene investigators. Coverage includes details of how crime scene and forensic examinations are conducted in the United Kingdom, the principles of crime scene investigations and the importance of this work in an investigation, and courtroom procedures and the role of the expert witness.

Paperback | 580 pages | 9781782624462 | 2016 | £37.99 | \$60.99 



Textbooks, popular science and standalone titles

Detection of Drug Misuse

Biomarkers, Analytical Advances and Interpretation

Kim Wolff King's College London, UK

This text describes the current state-of-the-art techniques used for identifying and confirming drug misuse as well as recent advances in biomarkers, instrumentation and analysis methodology. The title discusses both recreational and designer drugs, including non-addictive and addictive drugs. This book is a useful and fascinating resource for healthcare professionals working in the field of drug misuse as well as academics and postgraduates researching within analytical, chromatography, medicinal and pharmaceutical chemistry; drug metabolism; addiction science; and forensic toxicology, science and medicine.

Hardback | 500 pages | 9781782621577 | 2016 | £86.99 | \$143.00 



Discovering Cosmetic Science

Stephen Barton Skin Thinking Ltd., UK | Brigitte West Beauty by the Geeks Ltd, Newcastle University, UK

Cosmetic science and the personal care industry are often misrepresented. This book will educate and inform the public and the wider science community about the sound science they are based on. In the process many positive aspects of cosmetic chemistry can be revealed, from creating colours, fragrances and sensorial formulations to understanding the important interactions of UV light with organic and inorganic absorbers and blending these for effective SPF sunscreens. Providing background material for education and as an accessible scientific title for the interested lay reader, this book shows chemistry in an everyday context based on the real world and dispelling the many myths.

Paperback | 360 pages | 9781782624721 | 2016 | £19.99 | \$32.00



Forensic Toxicology

Drug Use and Misuse

Susannah Davies LTG - formerly the London Toxicology Group | Atholl Johnston Queen Mary University of London, UK | David Holt St George's - University of London, UK

New designer drugs, access to databases, and the changing availability of samples for analysis have changed the face of modern forensic toxicology in recent years. From use of pharmaceutical drugs in a clinical setting, through smart and counterfeit drugs, this book documents the wide range in which drugs today are abused. Diverse case examples from industry experts enable readers to understand how drugs impact on each other and how the interpretative outcomes of a case are dependent on many aspects. It is an essential resource for postgraduate students in forensic toxicology, and for researchers in forensic toxicology laboratories who need the latest data and knowledge.

Hardback | 500 pages | 9781782621560 | 2016 | £86.99 | \$143.00 



Green Chemistry

An Introductory Text, 3rd Edition

Mike Lancaster

Aimed at undergraduate and postgraduate students, this textbook encourages new ways of thinking about how products and processes are developed, from methods of waste minimisation to the use of renewable feed stocks and the role of catalysis in reducing raw material use. This third edition has been thoroughly revised and updated, particularly in discussions on renewable resources, measurement, legislation, and with new case studies and real examples from industry to demonstrate how the techniques work in practice.

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Intermolecular Interactions in Crystals

Fundamentals of Crystal Engineering

Juan J Novoa University of Barcelona, Italy

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Yoshio Nosaka Nagaoka University of Technology, Japan | Atsuko Nosaka Nagaoka University of Technology, Japan

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Matija Strlič University College London, UK | Tom Fearn University College London, UK

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Raymond Hill Imperial College London, UK | Terry Kenakin University of North Carolina, USA | Tom Blackburn TPBioventures LLC, USA

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Science and Technology Challenges

Haridwar Singh Defense Research & Development Organisation, India | Himanshu Shekhar Defense Research & Development Organisation, India

Presenting up-to-date practical and theoretical aspects of rocket propellants and propulsion, this book is a much needed addition to the post graduate level literature. Covering all relevant information including formulation, processing and evaluation, it will be vital for students and researchers working in the area of solid rocket propellants in all sectors namely academics, the propellant industry, propellant production, quality control and associated agencies such as the armed forces, defence and space organisations. The authors bring together a wealth of accumulated knowledge into one book aiding future generations to meet the challenges in this area.

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Marek W Urban Clemson University, USA

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Tom Husband

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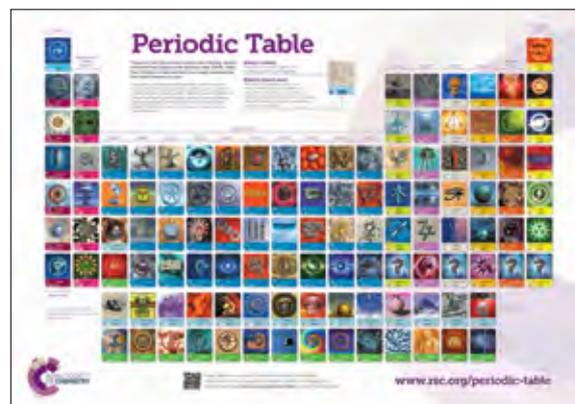
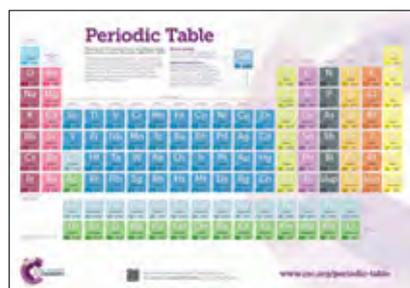
A bold and clear new representation of the periodic table from the Royal Society of Chemistry. The poster is two-sided: on one side, a Visual Elements version, with fascinating element artwork by Murray Robertson based on scientific data provided by the chemist and science writer John Emsley; on the other, a bold colour-coded version, emphasising readability and clarity. Printed in full colour, there are two sizes of the wallchart available: A0 (1189 x 841 mm) and 2A0 (1682 x 1189 mm). Information for each element includes the name, chemical symbol, atomic number, and relative atomic mass. The groups are readily identifiable by colour, and the wallchart has been updated to include elements 110, 111, 112, 114, and 116. We've designed the wallchart to be readable, visually engaging, and an excellent addition to any classroom, laboratory, or office. Price shown does not include VAT in the EU.

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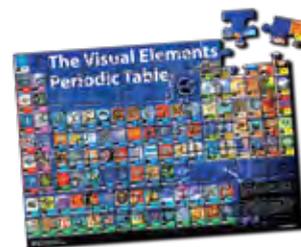
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