Can a sentence change the world?

Books to refine your knowledge, inspire your curiosity and show you new possibilities
The print and eBooks in our portfolio number in the hundreds, and all are full of relevant, expert insight from international authors and editors. The information required to take a vital next step – whether in study, research or teaching technique – could come from any one of them. So for 2021, we wanted to highlight recently published titles, as well as giving you advanced notice of the books coming in the next six months.

Refine your ideas
Specialist Periodical Reports can always be relied upon to provide an expertly reviewed, balanced perspective on specific fields in the chemical sciences. The 50th volume in the trusted Organophosphorus Chemistry collection will be published in 2021. An amazing achievement! You can also look forward to the 50th book in our professional reference series Issues in Environmental Science and Technology. Environmental Pollutant Exposures and Public Health will join many other popular titles.

Take on global challenges
The world saw rapid change in 2020, and the role of the chemical sciences in combating health challenges faced around the world has been made all the clearer. The COVID-19 Pandemic and the Future: Virology, Epidemiology, Translational Toxicology and Therapeutics chronicles the outbreak and worldwide spread of SARS-CoV-2 (COVID-19) and describes the role that several disciplines have to play in therapeutic and control measures.

Try something new
For those of you exploring fresh lines of enquiry, the first books in our Chemistry in the Environment and Drug Development and Pharmaceutical Science series are on the way in 2021. And created in partnership with the students who will use them, the Chemistry Student Guides series focuses on and tackles the most challenging aspects of key topics in the chemical sciences.

If you have any queries, contact books@rsc.org to talk to the team.

For a list of books published prior to 2020, visit rsc.li/backlist

Happy reading
Ways to buy

Digital options
The complete eBook collection is over 1,750 titles, and can be broken down as follows:

By year
Build on your existing collection by adding the eBooks published in a specific year.

Print options

Series sets
Build up your collection of specially curated book series.

By subject
These smaller sets focus on eight primary topic areas within the chemical sciences.

Pick and Choose
Select only the titles you need from the complete collection. Visit rsc.li/pickandchoose.

Subject sets
Smaller collections sorted by subject area or by theme.

Individual titles
Purchase any book from the collection on its own.

Placing your order

Librarians and organisations
To place an order for print books please contact your preferred library supplier or find our worldwide representatives and distributors on page 12.

Individuals
Please complete and send back the form on the next page or visit our online bookshop at rsc.li/books.

A guide to our book types

Book series
Professional reference collections providing ongoing, in-depth coverage of key fields of research.

Professional reference
Overviews of current and emerging trends in contributing authors’ respective fields.

Conference proceedings
Snapshots of the latest developments in a given field from international symposia.

Textbooks
Core and supplementary course material for undergraduate and postgraduate study in the chemical sciences.

Specialist Periodical Reports (SPRs)
The latest research in a particular field, expertly reviewed and curated for a balanced perspective.

Popular science
Lighter books offering entertaining reading for scientists and non-scientists alike.

Please add the postage and handling charge of £3.50 per item ordered up to a maximum postage charge of £14.00 for UK purchases. For non-UK residents postage is calculated on weight based on destination.

Payment details

Method of payment
☐ I enclose a cheque made payable to Royal Society of Chemistry.
All cheque payments should be in £ sterling drawn on a UK bank, or $ US drawn on a US Bank.
☐ Please send me a pre-payment invoice.
☐ Please charge my Visa/Mastercard/AmEx
Credit cards may be used for orders up to £8,000.
☐ Long number on card
☐ Security no. (last three digits on signature strip)
☐ Expiry date

VAT
Prices are subject to VAT which will be charged at the relevant rate as appropriate. Orders within the EU will be zero rated upon provision of a valid EU VAT number.
☐ I am not registered for VAT/my VAT no. is

Royal Society of Chemistry members are entitled to a 35% discount on most of our publications. Please contact booksales@rsc.org for more information.

Please tear out, complete and send this form to:
Booksales team
Royal Society of Chemistry
Thomas Graham House
Science Park, Milton Road,
Cambridge
CB4 0WF
Tel +44 (0) 1223 432496
Fax +44 (0) 1223 426017
Email booksales@rsc.org
You can also order online at www.rsc.li/books
About the series

**ISSN 2052-3068**

**Editor-in-chief**
Michael Thompson University of Toronto, Canada

**Series editors**
Subrotoy Debroy University of Central Lancashire, UK | Damien Arrigan Curtin University, Australia | Mengsu (Michael) Yang City University of Hong Kong, Hong Kong

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. Emphasizing 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.

---

Analytical Strategies for Cultural Heritage Materials and their Degradation

**Juan Manuel Madariaga** University of the Basque Country, Spain

Reviewing the analytical strategies used in the study of cultural heritage assets ie movable - artworks and archaeological items - and immovable - eg mural paintings, archaeological sites, historical buildings, this book pays particular attention to the analytical methodology (spectroscopic and chromatographic analysis) and ensuring reliable results are obtained. It considers the influence of the environment on the conservation state and how modern analytical methods have improved the possibilities of analysing materials. The book emphasizes multi-method approaches on a range of materials, an approach that is of keen interest to those working in conservation practice. It is for final year undergraduate study and masters’ level and supplementary reading for postgraduates and academics who require analytical techniques to enhance their research.

---

Challenges in Detection Approaches for Forensic Science

**Lynn Dennany** University of Strathclyde, UK

This book will explore the specific challenges encountered by forensic scientists and the developments that are being made to address the requirement of law enforcement agencies within the framework of the legislative requirements. Currently there are many forensic science books, which focus on the underlying theory of chemical approaches, but there is a clear gap in the dissemination of the current state of the art approaches for forensic science. This gap includes current detection strategies and how legislation and changes to forensic practices has prompted these changes as well as how research in the field is seeking to address the current hurdles in a cohesive manner. For graduates and forensic professionals, it will also cover essential principles for students and illustrate how these relate to applications.

---

Confining Electrochemistry to Nanopores

**From Fundamentals to Applications**

**Yi-Tao Long** Nanjing University, China

Aimed at developing the concept of the electrochemical confined space in analysing single molecules, this book serves as a stepping stone to many exciting discoveries in nanopore-based analysis of biological processes and chemical reactions in confined space. There has been no newly published books on nanopore technology that provide a general overview of the research on nanopore-based sensing but the field of nanopore sensors is growing rapidly. The book provides a good source of nanopore studies for researchers interested in and working in the general areas of electrochemistry and nanobioengineering, especially on nanopore sensors.

---

Detection Methods in Precision Medicine

**Mengsu (Michael) Yang** City University of Hong Kong, Hong Kong | **Michael Thompson** University of Toronto, Canada

Precision Medicine is a medical model that proposes the customization of healthcare, with medical decisions, treatments, practices, or products being tailored to the individual patient. It has a particularly important role in the treatment of inherited diseases and cancer as physicians often screen for genetic markers in their patients, yet it is increasingly clear that clinicians are only tapping the surface of what it can offer. Developing new diagnostic tests and expanding the use of biomarkers enables the identification of the molecular cause of disease, and ultimately supports the development of novel, more precisely targeted treatments. This book will support the literature in the area from the bianalytical point of view. The scientific and medical community are interested in this area with detection methods covering topics for physicians, medical laboratory technologists and scientists/engineers.

---

Disposable Electrochemical Sensors for Healthcare Monitoring

**Material Properties and Design**

**A Pandikumar** CSIR-Central Electrochemical Research Institute, India | **K S Shalini** CSIR-Central Electrochemical Research Institute, India

This book focuses on the variety of emerging multi-functional materials and biomarkers involved in monitoring major disorders and diseases using disposable electrodes. The specificity of these sensors improves with incorporation of nanocomposites, hybrids or coating with conductive materials. These electrochemical sensors designed with disposable electrodes are modified with biomarkers involved in monitoring major disorders and diseases using disposable electrodes. The specificity of these sensors improves with incorporation of nanocomposites, hybrids or coating with conductive materials. These electrochemical sensors designed with disposable electrodes are modified with various biomarkers, aptamers or specific antibodies for the detection of various diseases. This book is aimed at academic and research institutes at both the graduate and postgraduate level, the book will be of interest to the medical health care industries.
Advance in Biomolecular Mass Spectrometry
Probing Primary and Higher Order Structure with Electrons, Photons and Surfaces
Frederik Lermyte University of Warwick, UK
Breaking down large biomolecules into fragments in a controlled manner is key to modern biomolecular mass spectrometry. This book is a high-level introduction— as well as a reference work for experienced users— to ECD, ETD, EDD, NETD, UVPD, SID, and other advanced fragmentation methods. It provides a comprehensive overview of their history, mechanisms, instrumentation, and key applications. With contributions from leading experts, this book will act as an authoritative guide to these methods.

Advanced Mass Spectrometry-based Analytical Separation Techniques for Probing the Polar Metabolome
Rawi Ramautar Leiden University, The Netherlands
The efficient analysis of polar and charged metabolites in biological samples remains a huge challenge in the field of metabolomics. Novel mass spectrometry-based analytical tools have been developed to enable the sensitive and efficient profiling of polar ionogenic metabolites in various biological samples. This book gives the reader a comprehensive overview of these recent technological developments. Discussing the state-of-the-art of the proposed topics in one single book for probing the polar metabolome, using relevant examples, is unique and needed in the metabolomics field. This book has relevance and appeal to an international audience of analytical and biomedical researchers in industry and academia.

Ion Mobility–Mass Spectrometry
Fundamentals and Applications
Alison E Ashcroft University of Leeds, UK | Frank Sobott University of Leeds, UK
Over the last decade, the use of ion mobility separation in combination with mass spectrometry analysis has developed significantly. This technique adds a unique extra dimension enabling the in-depth analysis of a wide range of complex samples in the areas of the chemical and biological sciences. Providing a comprehensive guide to the technique, each chapter is written by an internationally recognised expert and with numerous different commercial platforms to choose from, this book will help the end users understand the practicalities of using different instruments for different ion mobility purposes. The book is primarily aimed at researchers appealing to practising chemists and biochemists as well as those in the pharmaceutical and medical fields.

Mass Spectrometry in Neonatal Screening and Metabolism
Current Practice and Future Perspectives
Donald H Chace Metabolic Screening Solutions, USA | Timothy Garrett University of Florida, USA
This book describes the largest use of mass spectrometry in clinical laboratories in terms of patient volumes— newborn screening. The newborn screening story is compelling— but rather than just a summary of what it has done, it is important to show where it is going and how it really is paving the way for new era metabolomics and genomics integration. The text focuses on the application setting. Appealing to a wider variety of readers, not just clinical chemists in the space, the book not only describes the literature but also answers the question whether mass spectrometry is the best choice as a primary test or rather as a secondary confirmatory test and approaches why mass spectrometry is important and how to implement it. Clinicians, students in laboratory medicine, laboratory managers and directors will all want to read this timely addition to the literature.
New Developments in NMR

About the series
ISSN 2044-253X
Editor-in-chief
William S Price Western Sydney University, Australia
Series editors
Bruce Balcom The University of New Brunswick, Canada | Istvan Furo KTH Royal Institute of Technology, Sweden | Haik Liu Chinese Academy of Sciences, China | Masatsune Kainosho Tokyo Metropolitan University, Japan

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.

Advanced Diffusion Encoding Methods in MRI
Daniel Topgaard Lund University, Sweden
The medical MRI community is by far the largest user of diffusion NMR techniques and this book captures the current surge of methods and provides a primary source to aid adoption in this field. Recently published papers indicate great potential for improved diagnosis of the numerous pathological conditions associated with changes of tissue microstructure that are invisible to conventional diffusion MRI. This book disseminates these recent developments to the wider community of MRI researchers and clinicians. The chapters cover the theoretical basis, hardware and pulse sequences, data analysis and validation, and recent applications aimed at promoting further growth in the field.

Hardback | 436 pages
9781788017268 | 2020
£179.00 | $250.00

Magnetic Resonance and its Applications in Drug Formulation and Delivery
Michael D Mantle University of Cambridge, UK | Leslie P Hughes AstraZeneca, UK
This book details the latest research and development in the use of magnetic resonance imaging and spectroscopy as tools to give quantitative insights/information concerning late stage pharmaceutical formulation, tablet manufacturing and drug dissolution behaviour. The book combines different facets of magnetic resonance and highlights the use of spatial resolution (MRI) and how this adds to the knowledge base to further our understanding of the microscopic physicochemical processes occurring during drug release from solid dosage forms. Focusing on late stage development rather than molecular drug discovery provides a unique approach and the book will appeal to a diversity of disciplines using spectroscopy for study.

Hardback | 400 pages
9781788017404 | 2021
£179.00 | $250.00

NMR and MRI of Electrochemical Energy Storage Materials and Devices
Yong Yang Xiamen University, China | Riqiang Fu Florida State University, USA | Hua Huo Harbin Institute of Technology, China
This book introduces NMR and MRI methods for investigating electrochemical storage materials and devices including the theory of paramagnetic interactions and relevant calculation methods, a number of specific NMR approaches developed for battery materials and case studies of a variety of related materials. Energy storage material is a hot topic and NMR has emerged as a powerful tool to enable an understanding of the working/failing mechanisms of these materials and devices. Due to the complexity of the topic, the book will be written for academics - postgraduate and above - and industrial readers requiring an overview of new methodologies being developed in the electrochemical arena. Each chapter includes some basic level information aimed at readers less familiar with the topics, including undergraduates.

Hardback | 350 pages
9781788018487 | 2021
£169.00 | $235.00

NMR and MRI of Gels
Yves De Deene Macquarie University, Australia
Gels are used in a large variety of commercial and scientific products from drug delivery and food science to biomedical sensors. This book has been developed to discuss the state-of-the-art of NMR and MRI techniques in studying the physics and chemistry of gel systems. The first part of the book will cover the fundamental physical concepts of gels and the NMR techniques to study gel systems. The second part of the book will be dedicated to the application of gels in life sciences and in the medical practice to validate radiotherapy and new MRI techniques.

Hardback | 440 pages
9781788011525 | 2020
£179.00 | $250.00
Specialist Periodical Reports

Electrochemistry
Volume 16
Craig Banks Manchester Metropolitan University, UK | Steven McIntosh Lehigh University, USA

Providing the reader with an up to date digest of the most important research currently carried out in the field, Electrochemistry Volume 16 is compiled and written by leading experts from across the globe. This volume is a key reference for researchers providing a timely overview of this exciting and developing area.

Hardback | 250 pages
9781788014626 | 2021
£314.95 | $440.00

Electron Paramagnetic Resonance
Volume 27
Victor Chechik University of York, UK | Damien M Murphy University of Cardiff, UK | Bela E Bode University of St Andrews, UK

The topics covered in this volume describe contrasting types of electron paramagnetic resonance (EPR) application, which remain very significant in modern science. This volume compiles critical coverage of developments in the recent literature by a hand-picked group of researchers at the cutting-edge of the field. Providing a snapshot of the area, this book is a useful addition to any library supporting this research.

Hardback | 200 pages
9781839161711 | 2021
£314.95 | $440.00

Nuclear Magnetic Resonance
Volume 46
Paul Hodgkinson Durham University, UK

Nuclear magnetic resonance has proved a uniquely versatile and powerful spectroscopic technique, with applications across chemistry, physics and medicine. The success of NMR and its constant redevelopment means that the literature is vast and wide-ranging. Each chapter in this volume is a distillation of the key recent literature in different areas covering the spectrum of NMR theory and practice, and including solution-state, solid-state and in-vivo NMR. These reports will be invaluable both for new researchers wishing to engage with literature for the first time, and for seasoned practitioners, particularly service managers, wishing to keep in touch with the ever-expanding ways in which NMR is used.

Hardback | 300 pages
9781786292996 | 2021
£314.95 | $440.00

Professional Reference

Advances in Portable X-ray Fluorescence Spectrometry
Instrumentation, Application and Interpretation
B Lee Drake University of New Mexico, USA | Brandi L MacDonald University of Missouri Research Reactor, USA

This book provides a comprehensive assessment of the state of the art in nondestructive and destructive XRF analysis. With authors from both academia and industry, the coverage is wide ranging including details on applications and how specific analysis are done. The general introductory chapters are very important for informing worldwide users of this technology and how powerful it is. Chapters on mapping and core analysis will go beyond the species of XRF and venture into analytics. Aimed at graduates and postgraduates using this instrumentation who require accessible background information in order to develop quality analysis. It will go beyond appealing to traditional uses (art conservation and archaeology) of this technique to new fields where adoption is moving quickly.

Hardback | 350 pages
9781839162107 | 2021
£169.00 | $235.00

Analytical Applications of Functionalized Magnetic Nanoparticles
Chaudhery Mustansar Hussain New Jersey Institute of Technology, USA

This book will provide quality research and practical guidance to analytical scientists, researchers, engineers, quality control experts and laboratory specialists. It covers applications of functionalized MNPs in all stages of analytical procedures. Their incorporation has opened new possibilities for sensing, extraction and detection enabling an increase in sensitivity, magnifying precision and improvement in the detection limit of modern analysis. Toxicity, safety, risk, and legal aspects of functionalized MNPs and the future of analytical chemistry with respect to their use is covered. The book provides an integrated approach for advanced analytical methods and techniques for postgraduates and researchers looking for a reference outlining new and advanced techniques surrounding the applications of functionalized nanomaterials in analytical chemistry.

Hardback | 380 pages
9781788014229 | 2020
£169.00 | $235.00
Agents and representatives

China, Taiwan & Hong Kong
Wayne Tian | Royal Society of Chemistry
5th Floor, South Block, Tower C,
Raycom Infotech Park,
2 Kenyueyuan South Road,
Haidian District,
Beijing 100190, China
Tel 00 86 1391 091 3625
Email tianw@rsc.org

Eastern Europe
Radek Janousek | Publishers’ Representative
Vratenska 38/18 | Prague 9 – 19600 | Czech Republic
Mobile +420 602 294 014 | Fax +48 22 6714819
Email radek@radekjanousek.com
Website www.radekjanousek.com

India
Ravindra Saxena | Sara Books Pvt Ltd
302 A, Vardaan House,
7/28, Ansari Road, Daryaganj,
New Delhi - 110002.
India
Email ravindr.saxena@sarabooksindia.com

Middle East, North Africa & South East Europe
Bill Kennedy | Claire de Gruchy | Publishers’ Representatives
Avicenna Partnership Ltd
PO Box 501 | Witney | Oxfordshire | OX28 4BJ | United Kingdom
Bill Kennedy: Egypt, Lebanon, UAE, Bahrain, Oman, Qatar, Iraq, Libya, Saudi Arabia, Sudan, Yemen & Kuwait
Tel +44 (0) 7802 244457
Email avicennaBK@gmail.com
Claire de Gruchy: Greece, Cyprus, Malta, Turkey, Morocco, Tunisia, Algeria, Jordan, Palestine & Israel
Tel +44 (0) 7711 887943
Email claire_degruchy@yahoo.co.uk

Pakistan
Tahir Lodhi | Publishers’ Representative
14-G Canalberg H.S. | Multan Road
Lahore 53700 | Pakistan
Tel +92 342 3534218
Mobile +0300 8419436
Fax +92 35882651
Email tahirlodhi@gmail.com

Singapore, Indonesia, Philippines, Thailand, Vietnam, Cambodia, Laos, Malaysia & Brunei
Ian Pringle | Publishers’ Representative
APD Singapore Pte Ltd
52 Genting Lane #06-05 | Ruby Land Complex Block 1
Singapore 349560
Tel +65 6749 3551
Fax +65 6749 3552
Email ian@apdsing.com
Email iancy@apdsing.com

South Korea
Ms Sunny Cheong
Wise Book Solutions
143 Dongji-Ro (Sungdong-DaGa)
Sungdong Ku | Seoul | 04799 | Korea
Tel +82 2 499 4301 | Fax +82 2 499 4301
Email sunnycheong88@naver.com

US & Canada
Bob Meehan | Princeton Selling Group, Inc.
175 Strafford Avenue
Wayne, PA, 19087
Tel (610) 975-4595 | Fax (610) 975-4593
Email psg@firstclassweb.com
Website www.princetonettngroup.com

Ordering information

Books sales enquiries
For sales enquiries please contact your regional sales representative.
For translation requests and inspection copy information, please contact
Book Sales Support
Tel +44(0) 1223 432485
Email booksales@rsc.org

Postage
Postage charges are applicable - there is a postage and handling charge of £3.50 per item ordered up to a maximum postage charge of £14.00 for UK purchases. For non-UK residents postage is calculated on weight based on destination.
All trade partners should provide details of a UK based freight forwarder.

Credit cards
Customers may purchase Royal Society of Chemistry publications using credit card facilities for purchases up to £8,000.

Royal Society of Chemistry members
Non-member prices quoted. Royal Society of Chemistry members are entitled to 35% discount on most of our publications. Details are available from our website or for more information please contact
Royal Society of Chemistry | Thomas Graham House
Science Park | Milton Road | Cambridge
CB4 0WF | UK
Tel +44 (0)1223 420066
Fax +44 (0)1223 420247
Email books@rsc.org
Website www.rsc.org

Ordering enquiries
Customers in USA and Canada should order from our distributor:
Ingram Publisher Services
Customer Service, Box 631 | 14 Ingram Blvd
La Vergne, TN 37086 | USA
ipage.ingramcontent.com
Tel +1 (866) 400 5351
Fax +1 (800) 838 1149
Email ips@ingramcontent.com
The customer service hours of operation are Monday - Friday, 8.00 am. - 5.00 pm. CST
ACCESS (automated stock check and ordering line)
+1 (800) 961 8031
Royal Society of Chemistry assigned Toll Free number +1 (888) 790 0428
All other customers should send their orders to:
Marston Book Services Ltd
160 Eastern Avenue | Milton Park | Abingdon
Oxfordshire | OX14 4B | UK
Trade
Tel +44 (0) 1235 465576
Fax +44 (0) 1235 465555
Email for UK traders: trade.orders@marston.co.uk
Email for Export traders: export.orders@marston.co.uk
Email for Trade Customers with no account: direct.orders@marston.co.uk

Ordering enquiries
For sales enquiries please contact your regional sales representative.
For translation requests and inspection copy information, please contact
Book Sales Support
Tel +44(0) 1223 432485
Email booksales@rsc.org

Postage
Postage charges are applicable - there is a postage and handling charge of £3.50 per item ordered up to a maximum postage charge of £14.00 for UK purchases. For non-UK residents postage is calculated on weight based on destination.
All trade partners should provide details of a UK based freight forwarder.

Credit cards
Customers may purchase Royal Society of Chemistry publications using credit card facilities for purchases up to £8,000.

Royal Society of Chemistry members
Non-member prices quoted. Royal Society of Chemistry members are entitled to 35% discount on most of our publications. Details are available from our website or for more information please contact
Royal Society of Chemistry | Thomas Graham House
Science Park | Milton Road | Cambridge
CB4 0WF | UK
Tel +44 (0)1223 420066
Fax +44 (0)1223 420247
Email books@rsc.org
Website www.rsc.org

Ordering enquiries
Customers in USA and Canada should order from
Ingram Publisher Services
Customer Service, Box 631 | 14 Ingram Blvd
La Vergne, TN 37086 | USA
ipage.ingramcontent.com
Tel +1 (866) 400 5351
Fax +1 (800) 838 1149
Email ips@ingramcontent.com
The customer service hours of operation are Monday - Friday, 8.00 am. - 5.00 pm. CST
ACCESS (automated stock check and ordering line) +1 (800) 961 8031
Royal Society of Chemistry assigned Toll Free number +1 (888) 790 0428
All other customers should send their orders to:
Marston Book Services Ltd
160 Eastern Avenue | Milton Park | Abingdon
Oxfordshire | OX14 4B | UK
Trade
Tel +44 (0) 1235 465576
Fax +44 (0) 1235 465555
Email for UK traders: trade.orders@marston.co.uk
Email for Export traders: export.orders@marston.co.uk
Email for Trade Customers with no account: direct.orders@marston.co.uk