

Books Catalogue 2023 - Textbooks & Popular Science

How can your bookshelf help drive global progress?

Capture new research directions, explore scientific innovation and tackle international challenges with our new book collection



Expert reviewers. Leading authors. Discerning readers. Committed editorial teams.

Our journals, books, databases and literature updating services are home to world-class research.

That's down to the strength of our international publishing community.

Browse the portfolio at **rsc.li/journals-impact**

Registered charity number: 207890

Books to ignite curiosity and innovation

From the Royal Society of Chemistry

Contributions from international experts and the integrity of our trusted editorial standards means our 2023 books portfolio delivers the latest and most trusted source of cross-disciplinary research across the spectrum of the chemical sciences.

Looking to the future of online reading and providing a better experience for users, these new and upcoming titles will be available on our brand-new digital book platform, launching January 2023.

Accelerating innovation and discovery

Researchers are continually pushing boundaries and exploring new techniques to solve pressing global challenges.

Learn about new desalination methods in Capacitive Deionization and the achievements that have been made in recent years in this increasingly important research area. Agri-Food Waste Valorisation showcases how we can reduce the amount of waste ending up in landfills by converting current waste streams into useful resources. In Practical NMR for Oil and Gas Exploration, discover how new methodologies aid in petrophysics.

Functional Materials for Artificial Photosynthesis, launching in early 2023, will be the first book in our new Sustainable Energy series, which serves as a hub where state-of-the-art developments are critically analysed.

Delivering accessible reference works

We know how important it is to make knowledge accessible to everyone. Making chemical sciences terms, symbols and definitions clear for all

is integral to our collaborative work with the International Union of Pure and Applied Chemistry. As part of this work, we are publishing the new source of terms Compendium of Terminology in Analytical Chemistry and an abridged version of Quantities, Units and Symbols in Physical *Chemistry* to further the sharing of knowledge and best practice across the chemical sciences community.

The importance of chemistry in forensic science

Chemistry is a fundamental part of our daily lives. Our collection of forensic science books highlights the significance of the chemical sciences in supporting crucial industries, with diverse titles for a broad audience including Chemometric Methods in Forensic Science, Controlled Drug Analysis, Forensic Chemistry of Substance Misuse and Forensic Science and Poisonous Tales

Chemistry in our world and beyond

Did you know, the chemical processes taking place in space could be related to the origins of life? Aimed at chemistry students, Astrochemistry discusses this fascinating topic - and so much more

If you are looking for something more down to earth, relax with the chemistry of tea in Steeped or stimulate your mind with the puzzle book *Elementary!*. Our student readers will also enjoy new editions of Food: The Chemistry of its Components, Natural Product Biosynthesis and The Chemistry of Textile Fibres.

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

Happy reading

Serin Dabb Head of Books



Emanuela Trandafir Books Product and Sales Manager

Royal Society of Chemistry | Thomas Graham House Science Park | Milton Road | Cambridge | CB4 OWF | UK Tel +44 (0)1223 420066 | Fax +44 (0)1223 426017 www.rsc.org

Ways to buy

Digital options

The complete eBook collection is over 1,800 titles, and can be broken down as follows:

By year

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

By collection

With our new packages, the RSC eTextbook Collection and Popular Science Collection.

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 24 To find out about our eBook options please visit rsc.li/buy-ebooks or contact our sales team by emailing sales@rsc.org

Individuals

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

(2)

Publications order form

Membership number:

Title	ISBN	Quantity	Unit price	Total
	· · · ·			
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.		n	Total	
		on	Postage	
		Т	otal payable	

Payment details

Invoice address:

Name	Prices are subject to VAT which will be charged at the rele rate as appropriate. Orders within the EU will be zero rate	
Organisation	upon provision of a valid EU VAT number.	
Address	I am not registered for VAT/my VAT no. is	
Post/zip code	Royal Society of Chemistry members are entitled to a	
Email	35% discount on most of our publications. Please contact booksales@rsc.org for more information.	

Before submitting your Order Form and personal data, please confirm that you consent to The Royal Society of Chemistry collecting, processing and storing this information.

• The Royal Society of Chemistry will only collect, process, share and store your personal data in accordance with our Privacy Statement which can be found at www.rsc.org/help-legal/legal/privacy. From time to time, The Royal Society of Chemistry may also want to send you information about products and services that we think would be of interest to you, but we will only do this with your permission. Please tick the relevant boxes if you want to give us permission to contact you for this purpose by: Email Print mail Telephone

Delivery Address (if different):

Name ____ Organisation _____ Address _____ Post/zip code Email Date

Signature _____

VAT

Please tear out, complete and send this form to:

Books sales team

Royal Society of Chemistry Thomas Graham House Science Park, Milton Road, Cambridge CB4 OWF

Tel +44 (0) 1223 432496 Fax +44 (0) 1223 426017 Email booksales@rsc.org

You can also order online at www.rsc.li/books



Chemistry Student Guides

About the series

ISSN 2632-9867

Editor-in-chief Julie Macpherson University of Warwick, UK

Addressing a challenging concept in undergraduate chemistry, each book in the Chemistry Student Guides series aims for the reader to achieve a 'light bulb' moment. Once a concept is understood, the reader will no longer need to use rote memorisation techniques, but instead will have the confidence to see how the learning can be applied across a range of problems, in order to obtain the correct answers.

Each book receives student input so it targets exactly where students struggle. Essential student involvement, combined with high editorial engagement from the Board, means that each title is closely tuned to audience needs. The books can be used as a supplement or alternative to core textbooks, and will also work well as a revision tool during exam time.

Introduction to Kinetics

Beth Shallcross University of Manchester, UK | **Dudley Shallcross** University of Bristol, UK

Kinetics, the rate at which a chemical reaction takes place, underpins all areas of chemistry, from drug action in the human body to the formation of the stratospheric ozone hole. This book will enhance your understanding of kinetics in both the gas and liquid phase, beginning with the simple concept of collision theory and building up from there. By exploring and understanding the underlying concepts in chemical kinetics including order of reaction, rate constant, steady state approximation, collision and transition state theory, you will be able to tackle a range of problems in differing contexts and see strong similarities in approach. There is an emphasis on learning by working through examples and by the end of the book, you will have built confidence in your understanding and application of each concept discussed. We assume that the student has some understanding of pre-university chemistry but we will start by recapping ideas developed about kinetics that are typically derived at this pre-university stage.



Paperback | 175 pages 9781788012188 | 2023 £19.99 | \$27.99 €24.99 | CA\$37.99

ρ



Forthcoming title

Chemistry Student Guides

Introduction to Polymer Chemistry

David Haddleton University of Warwick, UK | **Sebastien Perrier** University of Warwick, UK | **C Remzi Becer** University of Warwick, UK | **Stefan A F Bon** University of Warwick, UK | **Lei Tao** Tsinghua University, China

For any student who has ever struggled to understand polymer chemistry, this book is for you. Polymers are an essential and growing aspect of chemistry research. Almost half of jobs in chemistry are polymer related from traditional industries such as plastics, films, inks and adhesives to less obvious applications such as cosmetics, agrochemistry and pharmaceutical delivery. Although polymers and plastics have transformed every aspect of our life, they have also made a negative impact on our environment and there are challenges that must be met. In this book we provide readers with a solid foundation in polymer chemistry, providing a detailed overview of different polymer types, a portfolio of synthesis routes to fabricate polymers and aid students in understanding the contribution of macromolecular structure to materials properties. With an eye on the scientific challenges that lie ahead for future chemists, we also consider the advantages and disadvantages of recyclability and degradability and instil a mindset into students to tackle the issues facing their generation. They will learn how to design materials with appropriate chemistry to meet required applications while dealing with environmental challenges. There are worked examples and problem sets to provide plenty of practise material to build proficiency. We also include insights from real students, which identify common problem areas and provide the prompts that helped them to overcome these. Chemistry Student Guides are written with current students involved at every stage, guiding the books towards the most challenging aspects of the topic.



Nick Brooks Imperial College London, UK | **Fernando Bresme** Imperial College London, UK | **Ian Gould** Imperial College London, UK

Thermodynamics can be used to understand everything from how a drug binds to its site of action through to the efficiency of jet engines. While it finds applications in all areas of science, technology and engineering, the breadth of thermodynamic applications can be one of the biggest challenges in grasping a solid understanding of its core concepts. In this book we explore how thermodynamics can help us predict how the properties of materials and mixtures change during chemical reactions and, alongside this, show how the underlying molecular structures, interactions and entropy determine the reactions. We have focussed on relating properties that we routinely measure during chemistry experiments (such as the heat adsorbed/ released, or the work extracted from a chemical process) to the behaviour of these systems at a molecular scale (for example the organisation of molecules), providing a practical approach to understanding the importance of thermodynamics in chemistry. These concepts will also be helpful to students in other areas such as physics and engineering. Throughout the book, real world examples taken from all areas of chemistry help to illustrate applications of the ideas that are explored. There are worked examples of how to solve chemical problems using thermodynamic concepts and chances to test your understanding. Chemistry Student Guides are written with current students involved at every stage, guiding you towards the most challenging aspects of the topic.



Paperback | 200 pages 9781788014137 | 2023 £19.99 | \$31.99 €23.99 | CA\$31.99





9781839166006 | 2023 £19.99 | \$27.99 €24.99 | CA\$37.99



Paperback | 200 pages

Coordination Chemistry Fundamentals

About the series

ISSN 2635-1498

Series editors

Makoto Fujita The University of Tokyo, Japan | Naohito Ishikawa Osaka University, Japan | Osamu Ishitani Tokyo Institute of Technology, Japan | Hiroshi Nakazawa Osaka Metropolitan University, Japan | Hiroki Oshio The University of Tsukuba, Japan | Toshio Yamaguchi Fukuoka University, Japan | Hideki Masuda The Nagoya Institute of Technology and Aichi Institute of Technology, Japan

In collaboration with the Japan Society of Coordination Chemistry (JSCC), this series provides a comprehensive pedagogic treatment of all the major coordination chemistry topics students will encounter during their undergraduate and graduate chemistry degrees. These are English translations of proven teaching tools written and delivered by JSCC.

Metal lons and Complexes in Solution

Toshio Yamaguchi Fukuoka University, Japan | Ingmar Persson Swedish Agriculture University, Sweden

Based on a translated Japanese title published in 2012, this book provides fundamental aspects of experimental and computational methods, the properties and structure of solvents, ion solvation and equilibria and reactions of metal complexes in solution. It includes the state-of-the-art details on metal complexes in newly developing sustainable liquids and applications in real life. Appealing to researchers working in coordination chemistry, including students and industrialists, it uses exercises, tables and figures to help the reader with their understanding of the topic.



Hardback | 300 pages 9781839168093 | 2023 £70.00 | \$95.00 €88.00 | CA\$130.00





(6)



Chemistry Education Research and Practice

Supporting excellence in chemistry education

Trusted. Impactful. Community led

rsc.li/cerp

Fundamental questions Elemental answers

Registered charity number: 20789

Active Site-directed Enzyme Inhibitors

Design Concepts

Weiping Zheng

Natural enzyme inhibition is an important negative feedback control, particularly for managing intracellular concentrations of amino acids, vitamins, and other substances. This control can be effectively utilised and several clinically important interactions between pharmaceuticals result from enzyme inhibition and, as such, enzyme inhibitors are a valuable source of potential new antibiotics, chemotherapy agents and other pharmaceuticals. This handbook is an ideal introduction to up-to-date concepts in active site-directed enzyme inhibition, succinctly yet comprehensively covering currently known concepts in active site-directed enzyme inhibitor design. Each concept is discussed in turn with a delineation of its mode of working and its applications with different types of enzymatic reactions. **Active Site-directed Enzyme Inhibitors** will provide readers with a quick and

efficient reference for obtaining effective active site-directed inhibitors for any of the enzymatic reactions under study without a need to resort to costly library screeningand biostructure-based techniques. This handbook is ideal as an immediate resource for researchers to consult, or for students to supplement their study in molecular biology, pharmacology, and medicinal chemistry.

Active Site-directed Enzyme Inhibitors Design Concepts Weeks 2000





Hardback | 300 pages

9781839161971 | 2023



An Introduction to Polymeric Biomaterials

Stephen Rimmer University of Bradford, UK | **Maria Katsikogianni** University of Bradford, UK

Written for course use, this introductory textbook presents the field of polymers for biomedical applications, such as implants, drug delivery systems, dressings, diagnostics and biosensors amongst others. It explores natural and synthetic polymers, hydrogels, particles and fibres, bulk materials and surfaces, permanent or biodegradable, bioinert or bioactive and the polymers physicochemical properties that affect their interactions with proteins, cells and bacteria.

An Introduction to Sensory Evaluation

University of Agriculture and Natural Resources, Malawi

Koushik Adhikari University of Georgia, USA | Aggrey Pemba Gama Lilongwe



Hardback | 300 pages 9781788016902 | 2023 £70.00 | \$95.00 €88.00 | CA\$130.00

е



Hardback | 320 pages 9781839161421 | 2023 £70.00 | \$95.00 €88.00 | CA\$130.00





Sensory analysis is an interdisciplinary topic encompassing the description, measurement and interpretation of characteristics that can be perceived by human sensory organs. This comprehensive textbook covers the basic information of sensory analysis, removing the need for multiple reference books. Aimed primarily, but not exclusively, towards sensory courses in a food science curriculum, it equips readers with the skills to conduct scientifically sound and statistically valid evaluations including hands on experience with data collection, analysis and interpretation.





Astrochemistry

Chemistry in Interstellar and Circumstellar Space **David A Williams** University College London, UK | **Cesare Cecchi-Pestellini** Osservatorio Astronomico di Palermo, Italy

Have you ever wondered how the chemical processes taking place in space relate to the origins of life? The authors of this book, both experienced astrochemists, embark on a discussion to find the answers to this question and more. Prefaced with a general introduction to astrochemistry for chemistry students, the authors explore chemistry occurring in the universe from its very early beginnings until the present era. This book provides the tools to enable chemistry students to make their own computational investigations of astrochemistry and directs study across the chemical sciences and astronomy. Focussing on fundamental processes, this book is a useful teaching aid.



Paperback | 222 pages 9781839163968 | 2023 £42.99 | \$59.99 €53.99 | CA\$82.00



Paperback | 480 pages

9781839167874 | 2023

£45.00 | \$62.00 €55.00 | CA\$85.00

Basic Chemistry for Life Science Students and Professionals

Introduction to Organic Compounds and Drug Molecules **Solomon Habtemariam** University of Greenwich, UK

Organic chemistry plays a vital role in the pharmaceutical industry, knowledge of organic compounds is used to inform research and further the discovery and development of new medicines. Likewise, organic chemistry is fundamental to understanding biological reactions, mechanisms and all life sciences in general. **Basic Chemistry for Life Science Students and Professionals** is an ideal introduction to organic chemistry in the context of the life sciences and pharmacy related disciplines; utilising drug molecules to illustrate the chemical basis of their efficacy and interaction with biological targets. This book builds upon the basic concepts of organic chemistry to develop the reader's understanding of the importance of organic chemistry to the life sciences from natural product sources, their synthesis, and approaches to drug discovery. Ideal for undergraduate students in the natural sciences this book is also an excellent primer for postgraduates in a variety of disciplines including forensic science and allied-health programmes as well as professionals working in related fields seeking a comprehensive introduction to organic chemistry in the context of pharmaceuticals.



Chemical, Physical and Biological Analysis

Ashok Ganguli IIT Delhi, India | Jiban Jyoti Panda Institure of Nano Science and Technology, India | Menaka Jha Institute of Nano Science and Technology, India | Neha Sardana IIT Jodphur, India

Written with an interdisciplinary audience in mind, this textbook provides a broad overview of characterisation techniques applied to nanomaterials. Suitable for advanced undergraduate and graduate courses, the authors bring a holistic approach to the subject, balancing physics and materials science perspectives with chemical and biological aspects, ensuring it appeals to a diverse classroom readership. Based on a successful course by the authors, students will form a clear understanding between fundamentals and applications across a broad range of tools, encompassing chemical characterisation, surface characterisation, biomolecular characterisation and non-invasive testing of materials inside living and non-living systems.



Hardback | 375 pages 9781788011853 | 2023 £60.00 | \$85.00 €72.00 | CA\$115.00





Chemical Information for Chemists

A Primer

2nd Edition

Judith N Currano University of Pennsylvania, USA | Dana Roth California Institute of Technology, USA

This is a chemical information book aimed specifically at practicing chemists. Written and edited by experts in the field, this edition has been completely updated with new information sources and new methods of searching have been introduced reflecting the advances in the field. It is an ideal book for chemists who lack a chemical information professional able to teach basic and intermediate techniques of retrieving and evaluating information. Aimed at students on undergraduate and graduate courses, it could also be a useful guide to new information specialists who are facing the challenging diversity of chemical literature.



Paperback | 400 pages 9781839161919 | 2023 £28.99 | \$40.00 €36.00 | CA\$55.00



Controlled Drug Analysis

Michael D Cole Anglia Ruskin University, UK | **Lata Gautam** Anglia Ruskin University, UK | **Agatha Grela** Anglia Ruskin University, UK

This book is the first of its kind to bring together a number of areas around the analysis of controlled substances. Aimed at undergraduate and postgraduate taught programmes, it includes methods for drug analysis and comparison using physical, biologically based, comparative and numerical techniques. It introduces statistical methods for drug sample comparison and the appropriateness of some of the statistical techniques, which have been applied to drug analysis, and examines their use. It also considers analytical methods that have been developed, and significant legislative changes. Aimed at academics delivering forensic science courses in particular, it could also be used by chemistry, biochemistry, criminalistics, criminology and law and policing students on MSc forensic science courses and postgraduate research candidates.

Core Concepts for a Course on Materials Chemistry

T P Radhakrishnan University of Hyderabad, India

Anyone who has taught materials chemistry will be aware that it is an expansive topic. Whilst this makes it exciting, it can also overwhelm students who end up lost in the detail. This book provides the antidote. Aimed at advanced undergraduate and graduate students, **Core Concepts for a Course on Materials Chemistry** is a distillation of the fundamental topics born out of the author's 30 years of experience teaching the subject.



Hardback | 350 pages 9781788015349 | 2023 £60.00 | \$85.00 €75.00 | CA\$115.00



ρ







10

Electrolytes, Interfaces and Interphases

Fundamentals and Applications in Batteries Kang Xu CCDC US Army Research Laboratory, USA

Research in electrochemical energy storage has witnessed exponential growth in recent years, with rapid development in new electrolyte systems. Authored by a leader in the field, this authoritative textbook is for those who are entering the area of electrochemical energy storage research. Chapters will first cover the fundamental knowledge before moving onto recent important findings in the field. Suitable for advanced undergraduates and postgraduate students studying electrochemical energy storage, electrochemistry, materials science and engineering, as well as researchers new to the subject.



Carmen Enid Martínez Cornell University, USA | Murray B McBride

Environmental Chemistry of Soils provides an understanding of soil chemical properties and processes at a fundamental scientific level. Soil chemical processes are described using chemical principles and laws that permit an appreciation and prediction of chemical behaviour. Within each topic, the book stresses concepts that build from current knowledge of inorganic, organic and physical chemistry, as well as surface science. By explaining the fundamental role of these soil chemical properties and processes to terrestrial systems, both agricultural and natural ecosystems, this book provides a great resource for anyone studying environmental science with an interest in soils.



Environmental Chemistry of Soils Hardback | 545 pages 9781839163104 | 2023 £90.00 | \$125.00 €110.00 | CA\$170.00



Hardback | 400 pages 9781788017923 | 2023 £85.00 | \$115.00 €105.00 | CA\$160.00



Food

The Chemistry of its Components 7th Edition

Tom Coultate

This new edition of the highly successful textbook provides a source of detailed information on the chemistry of food. The book investigates food components which are present in large amounts (carbohydrates, fats, proteins, minerals and water) and also those that occur in smaller amounts (colours, flavours, vitamins and preservatives). Food borne toxins, allergens, pesticide residues and other undesirables are also given detailed consideration. Attention is drawn to the nutritional and health significance of food components. A go-to text for students and teachers of food science and nutrition and for those interested in food composition.



Paperback | 630 pages 9781839168147 | 2023 £42.99 | \$59.99 €53.99 | CA\$82.00



ρ

(11)

Fundamentals of Inorganic and Organometallic Polymer Science

Christian Agatemor University of Miami, USA | **Kajal Ghosal** Dr. B. C. Roy College of Pharmacy and Allied Health Sciences, India | **Prashanth Poddutoori** University of Minnesota, USA | **Peter J S Foot** Kingston University, London, UK

Inorganic and organometallic polymers feature many attractive properties that are useful for the design of diverse functional materials. Emphasising concepts that inform polymer design, synthesis and applications, readers of this book will gain a complete understanding of the introduction to inorganic and organometallic polymer science that will further their studies in materials science, chemistry and engineering.



Hardback | 500 pages 9781788015905 | 2023 £90.00 | \$126.00 €101.00 | CA\$154.00





The Handbook of Medicinal Chemistry

Principles and Practice

2nd Edition

Simon E Ward Cardiff University, UK | Andrew Davis AstraZeneca, UK

Completely revised and updated, the second edition of **The Handbook of Medicinal Chemistry** draws together contributions from autorotative practitioners to provide a comprehensive overview of the field as well as insight into the latest trends and research. While communicating core principles, the book also places the discipline within the context of the burgeoning platform of new modalities now available to drug discovery. It also highlights the role chemistry has to play in wider target validation and translational technologies. An ideal companion for students in medicinal chemistry and drug discovery and development, this is a carefully curated compilation of writing from global experts using their broad experience of medicinal chemistry, project leadership and drug discovery and development from an industry, academic and charity perspective to provide unparalleled insight into the field.

<section-header>

Hardback | 1173 pages 9781788018982 | 2023 £95.00 | \$130.00 €115.00 | CA\$180.00

ρ



Hands on NMR

A Practical Guide

James Hook University of New South Wales, Australia | Allan Torres Western Sydney University, Australia | William S Price Western Sydney University, Australia Presenting important practical aspects of nuclear magnetic resonance (NMR) spectroscopy, this book explains and helps facilitate the successful set up of a wide variety of NMR experiments. It will enlighten readers with the relevant information on the basic concepts in NMR, how it works and how to trouble shoot artefacts that may be encountered. Bringing books that present practical NMR up to date, this book fills the gap in the literature and provides a new comprehensive practical NMR book for teaching and research at all levels – graduates, postgraduates, industry and research.



Hardback | 500 pages 9781788010887 | 2023 £86.99 | \$122.00 €108.00 | CA\$165.00



9 781788 010887 >

Macromolecules at the Interface

Concepts to Applications

Gil Garnier Monash University, Australia | **Vikram Singh Raghuwanshi** Monash University, Australia

This book portrays, clearly and simply, how and why macromolecules adsorb at the interface, the basic mechanisms and forces involved, what systems of macromolecules there are at the interface, how polymer conformations vary with environment and how control of macromolecules at the interface is used in traditional and emerging fields. Written for advanced level students and researchers in academia and industry, the effect of macromolecules at the interface is presented and linked to applications. Following a descriptive approach, the authors bring the literature up-to-date and more accessible.



Paperback | 250 pages 9781788012256 | 2023 £40.00 | \$56.00 €50.00 | CA\$76.00



Natural Product Biosynthesis

Chemical Logic and Enzymatic Machinery

2nd Edition

Christopher T Walsh Stanford University, USA | Yi Tang University of California Los Angeles, USA

Authored by leading experts in the enzymology of natural product biosynthesis, this completely revised and updated edition provides a description of the types of natural products, the biosynthetic pathways that enable the production of these molecules and an update on the discovery of novel products in the post-genomic era. The approach of this book is to codify the chemical logic that underlies each natural product structural class as they are assembled from the building blocks of primary metabolism. This second edition integrates many new findings into the sets of principles of the first edition that parsed categories of natural product chemistries into the underlying enzymatic mechanisms and the catalytic machinery for building the varied and complex end product metabolites. New chapters include evaluation of a core set of thermodynamically activated but kinetically stable metabolites that power both primary and secondary metabolic pathways. Also, after decades of uncertainty about the existence of various pericyclase classes, a series of genome mining, heterologous expression and enzymatic activity characterisation have validated a plethora of pericyclases over the past decade. This text serves as a reference point for chemists of every subdiscipline, including synthetic organic chemists and medicinal chemists.

Principles and Applications of Artificial Photosynthesis

Shunichi Fukuzumi Osaka University, Japan

Harnessing light energy from the sun is already possible and widely used to produce electricity via photovoltaic cells. However, there is a fundamental issue in finding a suitable way of storing electricity. Photosynthesis in green plants locks energy from the sun within the chemical bonds of glucose molecules, not only producing energy but storing it. Molecular mimicry of the fundamental processes occurring in photosynthesis has thus attracted much attention. Penned by a single expert in the field, this book provides a comprehensive review of the molecular-based artificial photosynthesis systems and offers a unified view and future perspective of real artificial photosynthesis.



Hardback | 773 pages 9781839165641 | 2023 £99.99 | \$135.00 €125.00 | CA\$190.00





Paperback | 350 pages 9781788014311 | 2023 £80.00 | \$110.00 €100.00 | CA\$150.00



13

Process Intensification

Principles and Practice

Kamelia Boodhoo Newcastle University, UK | Fernando Russo Abegão University of Newcastle, UK | Adam Harvey University of Newcastle, UK | Jonathan Lee University of Newcastle, UK | Vladimir Zivkovic University of Newcastle, UK | Richard Law University of Newcastle, UK

Beginning with basic chemical engineering principles for chemists and those who need a refresher, this textbook aims to teach process intensification to newcomers in green chemistry, as well as chemical engineering students. Based on the authors' own courses and teaching experience, with worked examples, end-of-chapter learning outcomes and problem sets with solutions, plus real-world case studies scattered throughout, this text is ideal for advanced undergraduate and graduate course use.



Hardback | 420 pages 9781788015400 | 2023 | £60.00 | \$85.00 €75.00 | CA\$115.00



Quantities, Units and Symbols in Physical Chemistry

Abridged Version 2021

4th Edition

Christopher M A Brett Universidade de Coimbra, Portugal | Jeremy G Frey University of Southampton, UK | Robert Hinde The University of Tennessee, USA | Yutaka Kuroda Tokyo University of Agriculture and Technology, Japan | Roberto Marquardt University Louis Pasteur, France | Franco Pavese Instituto Nazionale di Ricerca Metrologica, Italy | Martin Quack Laboratorium fur Physikalische Chemie der ETH Zurich, Switzerland | Juergen Stohner Zurich University of Applied Sciences, Switzerland | Anders J Thor SIS Swedish Standards Institute, Sweden

Prepared by the IUPAC Physical Chemistry Division this abridged version of the definitive manual is designed to improve the exchange of scientific information among the readers in different disciplines and across different nations. This book has been systematically brought up to date to reflect the increasing volume of scientific literature and terminology and serves as a helpful guide to the widely used terms and symbols together with understandable definitions and explanations of best practice. It echoes the experience of the contributors with the previous editions and the comments and feedback have been integrated into this essential resource.



Paperback | 120 pages 9781839161506 | 2023 | £30.99 | \$42.99 €38.99 | CA\$60.00



Reactivity and Mechanism in Organic Chemistry

2nd Edition

Hendrik Zipse Ludwig-Maximilians-Universität München, Germany

Completely revised and updated, this second edition is an ideal introduction to the quantitative description of organic reactivity for students in undergraduate and master's chemistry programmes. The book proceeds logically from qualitative molecular orbital theory as a tool for the description of bonding phenomena to combining this with thermochemical data to rationalise concepts such as molecular strain and hyperconjugation. Next, transition state theory, for examining organic reactivity phenomena, is introduced and its relation to energy surfaces and simple rate equations is discussed. On this basis, more specific reactivity concepts commonly used in organic chemistry are explored such as the Bell–Evans–Polanyi principle, Marcus theory, hard and soft acids and bases (HSAB) principle, Hammett correlations, the Mayr–Patz equation and frontier molecular orbital (FMO) theory. How these reactivity models are applied is demonstrated for pericyclic reactions and selected rearrangement reactions involving transient intermediates such as radicals, diradicals or carbocations, and for reactions involving classical electrophile/nucleophile combinations.



Paperback | 196 pages 9781839167430 | 2023 | £35.00 | \$49.00 €45.00 | CA\$65.00

ρ



The Chemistry of Textile Fibres

3rd Edition

Robert R Mather Power Textiles Limited, UK | **Roger H Wardman** Formerly Heriot-Watt University, UK | **Sohel Rana** University of Huddersfield, UK

Textiles are ubiquitous materials that many of us take for granted in our everyday lives. We rely on our clothes to protect us from the environment, for modesty, to enhance our appearance and to reflect our personality. Previous revised editions have highlighted the trend towards the synthesis of monomers to make synthetic fibres from renewable sources. This third edition continues to drive towards sustainability, introducing the strategic importance of fibre chemistry which has increased significantly in recent years. Providing a comprehensive overview of this field aimed at a level appropriate for A-level students and first-year undergraduates, this book is a must for textile science and technology courses.



Hardback | 500 pages 9781839162800 | 2023 £55.00 | \$77.00 €68.75 | CA\$104.50



ρ



Advances in Chemistry Education Series

About the series

ISSN 2056-9335

Editor-in-chief Keith S Taber University of Cambridge, UK

Series editors

Avi Hofstein The Weizmann Institute of Science, Israel | **Vicente Talanquer** University of Arizona, USA | **David Treagust** Curtin University, Australia

Books in this series review developments in areas of international chemistry education or report on a single educational context where the work has clear international significance; examine formal education, informal education, teacher education/development or public understanding of chemistry; and explore innovations in chemical education practice where suitable evidence of researchbased evaluation is included. Topics covered include approaches to teaching chemistry and chemistry topics; the use of technology in chemistry teaching and learning; assessment of learning in chemistry education; chemistry in the curriculum; chemistry teacher preparation and development; initiatives to improve public understanding of chemistry; and developments in research methodology as applied in chemistry education. The series provides researchers and postgraduates with volumes of high quality and significance in the field of chemistry education research.

Chemical Pedagogy

Instructional Approaches and Techniques in Chemistry **Keith S. Taber** University of Cambridge, UK

Chemical Pedagogy introduces core principles – from research into human cognition and learning – to provide a theoretical perspective on how to best teach for engagement and understanding. An examination of some of the more contentious debates about pedagogy leads to the advice to seek 'optimally guided instruction' which balances the challenge offered to learners with the level of support provided. This provides a framework for discussing a wide range of teaching approaches and techniques that have been recommended to those teaching chemistry across educational levels: including both those intended to replace 'from the front' and others that can be built into traditional lecture courses to enhance the learning experience.



Hardback | 300 pages 9781788015615 | 2023 | £99.99 | \$140.00 €125.00 | CA\$190.00

ee



Advances in Chemistry Education Series

Digital Learning and Teaching in Chemistry

Yehudit Dori Technion – Israel Institute of Technology, Israel | Courtney Ngai Colorado State University, USA | Gabriela Szteinberg Washington University in St. Louis, USA

Education is always evolving, and most recently has shifted to increased online or remote learning. **Digital Learning and Teaching in Chemistry** compiles the established and emerging trends in this field, specifically within the context of learning and teaching in chemistry. This book shares insights across four major themes: Best practices of teaching and learning digitally, digital learning platforms, virtual visualisation and laboratory to promote learning in science, digital assessment and building communities of learners and educators. The authors are chemistry instructors and researchers from nine countries, contributing an international perspective on digital learning and teaching in chemistry.



Hardback | 275 pages 9781839165238 | 2023 £99.99 | \$140.00 €125.00 | CA\$190.00



Student Reasoning in Organic Chemistry

Research Advances and Evidence-based Instructional Practices

Nicole Graulich Justus-Liebig-University Gießen, Germany | **Ginger Shultz** University of Michigan, USA

Reasoning about structure-reactivity and chemical processes is a key competence in chemistry. But students of organic chemistry in particular experience difficulty appropriately interpreting organic representations and reasoning about the underlying causality of organic mechanisms. This book brings together leading research groups to highlight recent advances in chemistry education research with a focus on the characterisation of students' reasoning and their representational competencies, as well as the impact of instructional and assessment practices in organic chemistry.



Hardback | 358 pages 9781839164910 | 2023 £99.99 | \$140.00 €125.00 | CA\$190.00







Chemical Science

Home to exceptional research and thought-provoking ideas Open and free, for authors and readers

DIAMOND

rsc.li/chemical-science

Fundamental questions Elemental answers

Popular Science

Elementary!

Puzzles for the Chemically Curious and the Periodically Perplexed

Paul Board Freelance Writer, UK

Whether tritium or trivium, this periodically puzzling collection of over 400 different quiz questions, word games and brain teasers will challenge the chemist in you. **Elementary!** is compiled by the Royal Society of Chemistry's puzzler Paul Board, with each chapter concentrating on a particular branch of science or facet of life. Explore scientists and superpowers, particles, places, plants, planets, poisons and more.



The Science Behind the Truth

Ian Shaw University of Canterbury, New Zealand | **Anna Sandiford** The Forensic Science Group Ltd., New Zealand

Succinctly presented, this book covers all the facets of forensic science for students who are hoping to become police officers, lawyers or other members of the criminal justice system. As forensic investigations have advanced, eg in DNA profiling, computer modelling and behavioural sciences, so has the need for an increase in the level of scientific knowledge. Considering the challenges this brings, the author explains complex information in an accessible and undemanding style. Using international case studies, this book brings forensic science to life and include aspects of the author's personal journey.



Paperback | 200 pages 9781839169458 | 2023 £19.99 | \$27.99 €24.99 | CA\$37.99



Δ

Paperback | 300 pages 9781839166747 | 2023 £34.99 | \$48.99 €44.00 | CA\$66.50

Lo-Fi Photography

Art from Do-It-Yourself Chemistry and Physics

John Beaver

Of all the arts, photography has perhaps the closest association with science and technology: the physics of light and colour combined with chemistry to capture images. **Lo-Fi Photography** is an ideal introduction to the science that lies behind photography and the array of simple methods that can be used to capture light and create images. From making homemade cameras to accessible techniques, the goal of this book is to provide all readers with access to this interesting form of creative photography via how-to guides, plans and some tips and tricks. In addition to the theory and hands-on guidance, this book also explores Lo-Fi photography as a distinct art form and provides further reading and excellent sources for diving even deeper into the world of experimental photography. **Lo-Fi Photography** is both a superb introduction to anyone curious about the science of photography and a first-rate guide to the world of experimental photography for inquisitive photographers.



Hardback | 250 pages 9781839165115 | 2023 £29.99 | \$39.99 €38.00 | CA\$57.00



Popular Science

Poisonous Tales

A Forensic Examination of Poisons in Fiction Hilary Hamnett University of Lincoln, UK

Dangerous, dark and difficult to detect, poisons have been a common character in literature from ancient times to the modern day. Their ability to perform deadly deeds at a distance is a common device for creating dramatic tension and playing on our real life fears. But what is fact and what is pure fiction? From Shakespeare and Dickens to Hugo and Poe, the macabre world of literary poisonings is as large as it is fascinating. Utilising real forensic science **Poisonous Tales** explores the real science inspiring the toxins and tinctures in our favourite works. Could a poison really mimic death in Romeo & Juliet? What is the cause of the Mad Hatter's malady in Alice in Wonderland? And could a stone from the stomach of a goat really have been used as an antidote in Harry Potter & The Half-Blood Prince? Through these and many more 'cases' we discover the captivating truth in the texts and how real-life tragedies can replicate themselves in fiction.



Paperback | 250 pages 9781839161438 | 2023 £24.00 | \$34.00 €30.00 | CA\$46.00





Steeped

The Chemistry of Tea

Michelle Francl Bryn Mawr College & Vatican Observatory, USA

Tea is the world's most popular beverage. Brewed from the leaves of the *Camelia sinensis* plant, tea is drunk in countries all over the world and the chemistry of both the plant and its preparation is fascinating. Beginning with a leaf to cup introduction, this book looks at the molecular makeup of different types of tea, discusses brewing and steeping and the age-old question of when, or even whether, to add milk.

The Science of Ice Cream

3rd Edition

Chris Clarke ex-Unilever, UK | Andrew Cox Unilever Research and Development, UK

Ice cream as we recognise it today has been in existence for at least 300 years, though its origins probably go much further back in time. The updated version of this established text begins with the history of ice cream. Subsequent chapters explore the link between the microscopic and macroscopic properties and how these relate to the ultimate texture of the product. Information on nutritional aspects and developments in new products and processes for making ice cream are covered. The chapter on making ice cream better for you has been expanded and a new section on non-dairy (eg vegan or plant-based) ice cream is included. One or two additional experiments have also been added. Written by active industrial practitioners, the book is accessible, has authenticity and immediacy. It is ideal for undergraduate food science students as well as those working in the food industry.



Paperback | 200 pages 9781839165917 | 2023 £24.99 | \$34.99 €30.99 | CA\$47.99

ρ





Hardback | 250 pages 9781839164866 | 2023 £29.99 | \$42.00 €37.00 | CA\$57.00





Popular Science

The Science of Running a Consultancy

William P Edwards Bardfield Consultants, UK

Aimed at chemical consultancy, although the principles can be applied more broadly, this book shows the reader how to set themselves up as an independent consultant. Focussing not only on the essential business functions, from being a sole trader, accounting and marketing, the book also pays attention to the necessary mind set needed, with particular respect to those making the move from employee to consultant. Various other activities are explored, such as those which raise your international profile like writing, to running training courses and acting as an expert witness.



Hardback | 300 pages 9781788017787 | 2023 £45.00 | \$60.00 €52.00 | CA\$77.00

ρ

ρ



Informing Food Preferences

Sorting Fact from Fiction

Martin Rose University of Manchester, UK | Jane Parker University of Reading, UK | Peter Wilde Quadram Institute Bioscience, UK | Robert Cordina

This book explores common insights relating to food choice. Consumers make rapid choices on purported health claims as well as ethical grounds, often without the full facts. The book provides an opportunity to think deeper about food choices and to examine whether choices are always as straightforward as they first seem to be. Widening the arguments from different points of view and removing the bias in terms of message, the authors examine preconceived assumptions and notions and try to dispel common assumptions about what is best for you. Whilst aimed at a general readership, the content is based on scientific arguments exploring pros and cons behind popular choices and perceptions.



Paperback | 240 pages 9781839164316 | 2023 £24.99 | \$35.00 €31.00 | CA\$47.50





Other products

Molymod MMS-003

Organic Teacher 111 atom set

These popular molecular modelling sets can be used to make many different molecules. Designed for teachers, this set contains 111 colour-coded atoms and 140 links. The medium links can be used for single bonds, while the longer, flexible links can be used for double or triple bonds. Short links can be used to create compact models.

Using molecular models can help students to visualise concepts such as isomerism through hands-on learning. The models can also be used to learn about balancing equations and molecular geometry.

Molymod is a registered trade mark of the EU (and other places) and is owned by Spiring Enterprises Limited who are the inventors and exclusive manufactureres of the molymod system. Made In England.

NOT AVAILABLE IN NORTH AMERICA AND CANADA

Molymod MMS-072

Molecular Set for Inorganic & Organic Chemistry, 72 atoms

These popular molecular modelling sets can be used to make many different molecules. This makes them ideal for student use and also for educators and researchers. The set contains 72 colour-coded atoms, 105 links and five lone pair electron clouds. The shorter links can be used for single bonds, while the longer, flexible links can be used for double or triple bonds. Using molecular models can help students to visualise concepts such as isomerism through hands-on learning. The models can also be used to learn about balancing equations and molecular geometry.

NOT AVAILABLE IN NORTH AMERICA AND CANADA

Top Trumps[™]

Single pack / Pack of six Royal Society of Chemistry

Elements Top Trumps is an entertaining, fast-paced chemistry card game. With eyecatching imagery and fascinating facts about the elements, it's a great way to have fun and learn about the elements. Recommended for children aged 7-14, the game can be played by two or more players. Each of the 30 cards represents an element. Players compare numerical properties of the elements (melting point, density, price, discovery date and the size of the atom) and choose the category they think will win. Elements Top Trumps is created by the Royal Society of Chemistry in partnership with Winning Moves Ltd, the makers of Top Trumps[™]. Non Book / Merchandise 9781782624301 | 2015 £33.95



Non Book / Merchandise 9781782624318 | 2015 £19.95



Single pack 9781782620747 | 2014 £6.00 | \$8.50 Pack of six 9781782620754 | 2014 £36.00 | \$50.00



Other products

RSC Periodic Table

Wallchart, AO - 2AO Murray Robertson Visual Elements, UK

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, the wallchart measures A0. Information for each element includes the name, chemical symbol, atomic number, and relative atomic mass.

The groups are readily identifiable by colour. 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.

A0 Poster 9781788011938 | 2014 £10.95 | \$16.00

2A0 Poster 9781788011921 | 2014 £33.00 | \$49.50



Visual Elements Jigsaw

Murray Robertson Visual Elements, UK

With 550 pieces and a stunning full-colour design, this jigsaw puzzle beautifully illustrates the periodic table in all its glory. The jigsaw would be an attractive gift for any puzzle-loving friends or relatives, and might even spark an interest in chemistry. Price shown does not include VAT in the EU.



Non Book / Merchandise 9780854048434 | 2006 £12.08 | \$24.00





Agents and representatives

China, Taiwan & Hong Kong

Wayne Tian | Royal Society of Chemistry Room 606, 6/F, Tower A, Raycom InfoTech Park No. 2 Kexueyuan South Road, Zhongguancun, Haidian District, 100190, Beijing, China

Tel: + 86 10 6093 6988 Email tianw@rsc.org

Eastern Europe

Radek Janousek | Publishers' Representative

Vratenska 384/18 | Praha 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** ravindrasaxena@sarabooksindia.com

Middle East, North Africa & South East Europe

Bill Kennedy | Publishers' Representatives

Avicenna Partnership Ltd PO Box 501 | Witney | Oxfordshire | OX28 9JL | United Kingdom Tel +44 (0) 7802 244457 Email AvicennaBK@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 stacy@apdsing.com

South Korea

Ms Sunny Cheong Wise Book Solutions #1607 Daewoo Freshia 143 Dongil-Ro (Sungsoo-Dong2Ga) 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.princetonsellinggroup.com

Anywhere else in the world

Books Sales Support Tel +44(0)1223 432485 Email booksales@rsc.org

Royal Society of Chemistry contacts

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

Ordering information

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 North and South America 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 4SB | 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



Thomas Graham House Science Park, Milton Road Cambridge CB4 OWF, UK T +44 (0)1223 420066

Burlington House Piccadilly, London W1J OBA, UK T +44 (0)20 7437 8656

International offices

Beijing, China Shanghai, China Berlin, Germany Bangalore, India Tokyo, Japan Philadelphia, USA Washington, USA

www.rsc.org

f @RoyalSocietyofChemistry

- ♥ @RoySocChem
- @ @roysocchem
- ▶ @wwwRSCorg
- in linkedin.com/company/roysocchem

Registered charity number: 207890 © Royal Society of Chemistry 2022