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Our books publishing programme supports scientists, researchers, students and teachers with high quality, internationally respected chemical science titles spanning the breadth of our subject.

The books we’re publishing in 2018 cover the core disciplines, related fields and emerging topics such as chemical biology and functional food. Contributions come from all over the world, from leading researchers including Emma Raven, Mark Vrakking, Jintao Zhang and Bill Price.

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The successful Soft Matter and New Developments in NMR series celebrate their fifth birthday in 2018. We’re adding new books to these series providing first rate resources for researchers.

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- Biomaterials Science
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- Advances in Chemistry Education

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Discover the science behind your favourite chocolate, and read about the horse who came to dinner in the latest books to join our popular science collection.

There’s much more to discover inside, including the chance to find out more about some of our authors. Look out for Q&As as you read.

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

For a list of books published prior to 2018, visit rsc.li/backlist

Happy reading

Roheena Anand Publisher, Books

Sara Bowler Senior Sales Executive, Books
A guide to our book types

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Five minutes with...

Name Andreas Manz
Affiliation University des Saarlandes, Germany
Author of Microfluidics and Lab on a Chip
Book publication date April 2018
ISBN 9781782628330

Tell me about yourself
I studied chemistry at ETH Zürich Switzerland, finishing with a PhD in analytical chemistry. Besides research in Japan (Hitachi), Basel (Ciba-Geigy, Novartis), London (Imperial College) and Germany (Dortmund, Freiburg and Saarbrücken), I helped to start the Royal Society of Chemistry’s journal Lab on a Chip. I also helped to establish the MicroTAS conference series and am involved in a Silicon Valley start-up company (Caliper Technologies – now part of Perkin Elmer).

What are you really excited about at the moment?
The Human Document Project. This is an attempt to store information about us and our culture for one million years into the future. My interest – is storage in of a microorganism competitive? Is storage in a monocrystal better?

In your opinion, what is the biggest unanswered question in chemistry?
I would be truly intrigued if somebody came up with a convincing reason why all biochemistry uses L amino acids and D glucose, and not its mirror images.

What question or challenge did you set out to address with your book?
Initially, it was an environmental monitoring project of a Swiss pharma industry: identify and quantify a given set of chemicals in water, which should not be in water on a manufacturing site. Conventional analytical chemistry was too slow, and sensors not available for those compounds. These days, the focus has changed to clinical diagnostics and also some aspects of drug discovery.

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An Introduction to Ionic Liquids 2nd Edition
Jason Hallett Imperial College London, UK
Written in a clear, concise and consistent way, this textbook is a valuable introduction to ionic liquids for advanced undergraduate and graduate courses. It explores their nomenclature, history, properties and their wide ranging applications, from catalysis to electrochemistry and clean technology. This second edition covers major developments in ionic liquids science and its applications in recent years, such as the use of ionic liquids for carbon dioxide capture; biomass processing; making biofuels such as ethanol; biomedical applications including drug delivery; and surface science studies and applications including lubrication.

Chemical Engineering Explained
Basic Concepts for Novices
David Shaliroc University of Melbourne, Australia
Written for those less comfortable with science and mathematics, this text introduces the major chemical engineering topics for non-chemical engineers. With a focus on the practical rather than the theoretical, the reader will obtain a foundation in chemical engineering that can be applied directly to the workplace. By the end of this book, the user will be aware of the major considerations required to safely and efficiently design and operate a chemical processing facility. Case studies are included throughout, building a real-world connection. This book is ideal for professionals working with chemical engineers, and decision makers in chemical engineering industries.

Complete Science Communication
A Guide to Connecting with Scientists, Journalists and the Public
Ryan C Fortenberry Georgia Southern University, USA
Written as a textbook to support advanced level undergraduate and postgraduate courses, the book brings together all aspects of science communication. Focus is on the four key areas of writing for non-technical audiences and science journalism; writing for technical audiences and peer-reviewed journals; public speaking of science; and public relations. This text will provide science students with an appreciative understanding of accepted human communication theories and practices. Potential assignments are also provided at the end of each chapter as additional resources.

Design of Experiments for Chemists
Introductory Statistical Methods
Matthew Linsley Newcastle University, UK
Design of Experiments (DoE) is recognised as an essential skill by many organisations. Its application ensures robust processes with quality output and is beneficial for improving the efficiency of lab-based academic research. In response to concerns over the lack of chemists with statistical and DoE skills, this book provides a very accessible and practical introduction to the topic written by a statistician with vast experience training chemists and relating to the needs of the chemical science community. It explores real life case studies and experiences to bring the theory to life and readers are given practical advice on applying the techniques presented within their own environments throughout.

Fundamentals of Smart Materials
Mohsen Shahinpoor University of Marie, USA | Hans-Jorg Schneider Universität des Saarlandes, Germany
A new textbook consisting of a workbook and solutions manual covering the fundamentals of different functional material systems aimed at advanced undergraduate and postgraduate students. Each chapter includes an introduction to the material, its applications and uses with example problems, fabrication and manufacturing techniques, conclusions, homework problems and a bibliography. Written by leading authors in smart materials, topics include piezoelectric materials, magnetoresistive materials, shape memory alloys, mechanochromic materials, thermochromic materials, chemomechanical polymers and self-healing materials.

Gas Chromatography-Mass Spectrometry
How Do I Get the Best Results?
Jason Creasey GlaxoSmithKline, UK | Anthony Gachanja Jomo Kenyatta University of Agriculture and Technology, Kenya | Imran JannMohamed | Steven Lancaster Domino Printing Sciences, UK | Mathias Schüler University of Cologne, Germany | Diane Turner Anthias Consulting Ltd, UK
Gas chromatography–mass spectrometry (GC-MS) can be used in everything from environmental monitoring and food safety to forensic science and medicine. This textbook introduces students and scientists who are new to GC-MS to all of the steps involved in using this technique as part of a research process. Throughout the book, case studies illustrate the process, the techniques used and any common challenges. Newcomers can easily search for answers to the "how do I…?" question they may have and find basic and clear advice on how to get started. The book draws on extensive experience teaching GC-MS courses in the developing world as part of the Royal Society of Chemistry’s Pan Africa Network supported by GlaxoSmithKline.

Genomics and Clinical Diagnostics
David Whitehouse University of Hertfordshire, UK | Ralph Rapley University of Hertfordshire, UK
With large genome initiatives being announced around the world, this book provides a timely graduate level introduction to molecular diagnostics technologies and applications to enable readers to embrace the subject and original literature. The first of four sections delivers readily accessible introductory information on the purposes, properties and drawbacks of diagnostic tests followed by chapters on the principal molecular technologies that underpin the information in the later sections. The following two sections provide more specialised examples of currently used diagnostic technologies and insights into selected key diagnostic challenges including specific examples, automation and point of care testing. The book concludes with a section on future prospects focusing on mutation detection for personalised medicine, for example in cancer.

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How Do I Get the Best Results?
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Textbooks

**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 NMR spectroscopy, this book will be useful for explaining and facilitating 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 | 2019 | £86.99 | $143.00

**Metals in Biology and Medicine**
A Chemical Approach
Peggy Carver University of New Mexico, USA | Vincenti Pecoraro University of Michigan, USA | Gianni Valentini University of Siena, Italy | Henryk Kazlowski University of Wroclaw, Poland

Metals in Biology and Medicine provides students of chemistry, biochemistry, molecular biology and pharmaceutical sciences who are learning bioinorganic chemistry as part of their degree with a comprehensive understanding of the subject. The book emphasises a molecular approach to understanding whilst highlighting clinical aspects through the logical presentation of metals in coordination chemistry, in biology, in homeostasis, in disease, and in medicine. The book contains teaching aids and cues for group learning discussions.

Hardback | 600 pages | 9781782626503 | 2018 | £86.99 | $143.00

**Microfluidics and Lab-on-a-chip**
Andreas Manz Universität des Saarlandes, Germany | Mark D Tarn University of Leeds, UK | Giuseppina Simone University of Naples "Federico II", Italy | Eric R Castro

Covering the fast and dynamic development of miniaturization, µTAS and microfluidics, this accessible text is unique in its approach. The chapters provide the tools for analysing phenomena from the scientific point of view and aids for implementing quantitative/qualitative models including applications in cell biology and bioanalytical chemistry. Providing a short, affordable text for students that includes sufficient information to open up this area to them, this book is useful to a wide audience, students that for the first time approach the field, as well as engineers, physicians, cell biologists, biochemists, microbiologists, geneticists, and medical researchers.

Paperback | 200 pages | 9781782628330 | 2018 | £35.99 | $59.99

**Principles of Modern Structural Analysis**
Applications in Crystalline and Non-crystalline Environments
Richard Cooper University of Oxford, UK | Andrew Goodwin University of Oxford, UK | Paul Raithby University of Bath, UK

Embracing crystal structure analysis and materials science, this textbook provides students with a broad view of diffraction and its applications. By using this book, the student will learn the key theories, techniques, analysis and modeling tools needed to build confidence in modern structural science. Highlights of the book include diffraction principles with underpinning theories emphasised, core techniques of single crystal, powder X-Ray and neutron diffraction and their applications, modelling methods and PDF analysis and emerging techniques and developments. With worked examples, this book offers advanced undergraduates and graduates a concise and thorough guide to the subject.

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Presenting four models of professional development for chemistry teachers, this book connects theory and practice regarding the teaching of chemistry. It also includes a large literature review on the research done on the professional development of chemistry teachers. The book enables researchers and graduate students in chemistry education to better understand teachers’ roles in chemistry education, and the importance of their professional development.

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