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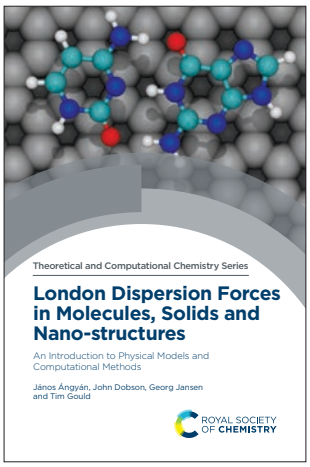


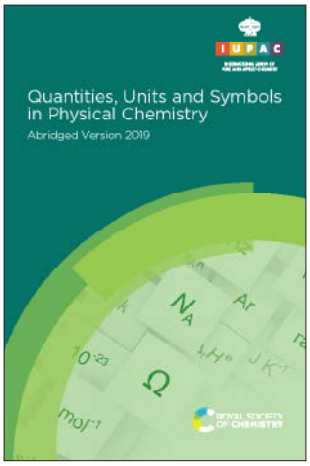
London Dispersion Forces in Molecules, Solids and Nano-structures

An Introduction to Physical Models and Computational Methods

János Ángyán University of Lorraine, France John Dobson Griffith University, Australia
Georg Jansen University of Duisburg-Essen, Germany
Tim Gould Griffith University, Australia

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

Hardback | 426 pages | ISBN 9781782620457 | £169.00 | $235.00 | 08/04/2020

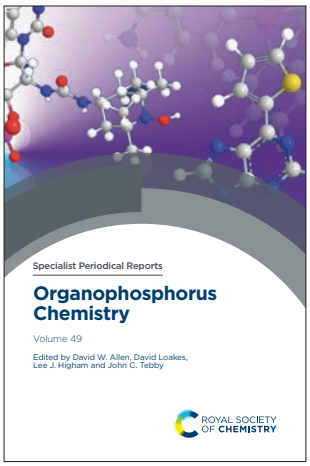


Quantities, Units and Symbols in Physical Chemistry

Abridged Version 2019

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 aims to provide 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 | ISBN 9781839161506 | £30.99 | $42.99 | 14/04/2020



Organophosphorus Chemistry

Volume 49

David W Allen Sheffield Hallam University, UK David Loakes University of Cambridge, UK
Lee J Higham Newcastle University, UK John C Tebby Sheffield Hallam University, UK

This annual review of the literature presents a comprehensive and critical survey of the vast field of study involving organophosphorus compounds, from phosphines and related P-C bonded compounds to phosphorus acids, phosphine chalcogenides and nucleotides. The Editors have added to the content with a timely chapter on the recent developments in green synthetic approaches in organophosphorus chemistry to reflect current interests in the area.

Hardback | 390 pages | ISBN 9781788018647 | £314.95 | $440.00 | 16/04/2020

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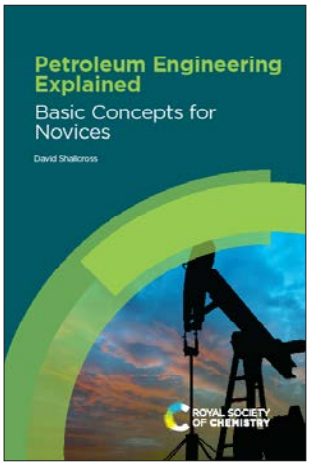


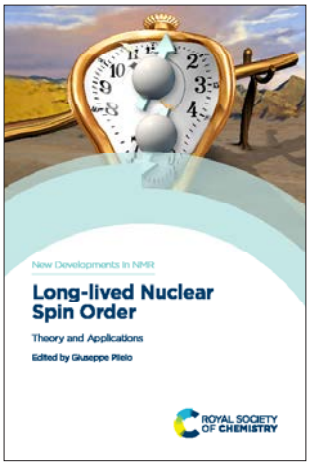
Petroleum Engineering Explained

Basic Concepts for Novices

David Shallcross University of Melbourne, Australia

Featuring the same non-mathematical, informal style of Chemical Engineering Explained: Basic Concepts for Novices by D. Shallcross, this book will introduces basic petroleum engineering concepts to chemists and engineers, exemplified with pertinent real-life case studies. It is intended to be used as the main textbook on specialised courses introducing petroleum engineering to non-petroleum engineers working in the petroleum, oil and gas, and chemical process industries. It can also be used as a supplementary text for mainstream introductory petroleum engineering courses and more traditional chemical engineering courses.

Hardback | 436 pages | ISBN 9781788016681 | £80.00 | $110.00 | 21/04/2020



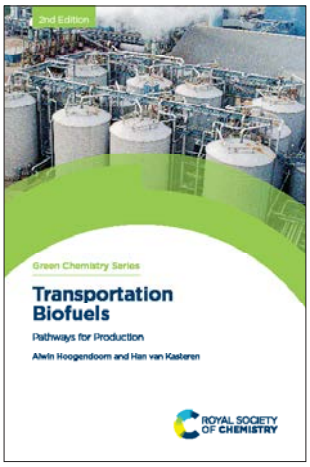
Long-lived Nuclear Spin Order

Theory and Applications

Giuseppe Pileio University of Southampton, UK

In 2004, the idea that a long-lived form of spin order, namely singlet order, can be prepared from nuclear spin magnetisation emerged. This first book on the subject gives a thorough description of the various aspects that intervene in the development of the topic and details the interdisciplinary applications. The book starts with a section dedicated to the basic theories of long-lived spin order and then proceeds with a description of the state-of-the-art experimental techniques developed to manipulate singlet order. The book proceeds by describing several applications of this order in various fields of research and then concludes by covering the generalization of the concept of singlet order by introducing and discussing other forms of long-lived spin order. This idea has caught the attention of research groups interested in exploiting this form of order in different fields of research spanning from biology to materials science and from hyperpolarisation to quantum computing.

Hardback | 442 pages | ISBN 9781788015684 | £159.00 | $220.00 | 15/04/2020



Transportation Biofuels

Pathways for Production

Alwin Hoogendoorn The Centre of Expertise Biobased Economy, The Netherlands
Han van Kasteren Eindhoven University of Technology and the Centre of Expertise Biobased Economy, The Netherlands

Ten years on from the publication of the first edition of this book and fossil fuels still dominate the transport industry. However, there have been a number of advances in the production of biofuels for transportation use. This new edition provides updates on the previously discussed pathways for biofuels, including new experimental results and pilot plant studies, making it a useful read for researchers and industrialists working in biofuel development as well as postgraduate students studying fuel alternatives.

Hardback | 212 pages | ISBN 9781788015042 | £149.00 | $205.00 | 14/04/2020

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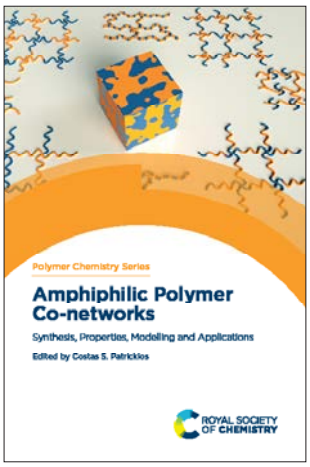


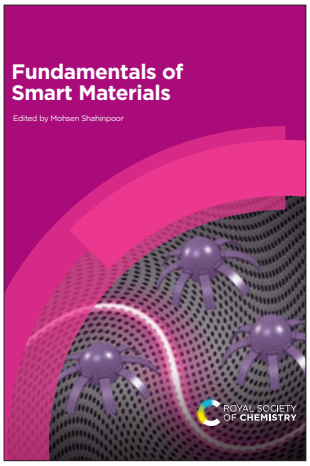
Amphiphilic Polymer Co-networks

Synthesis, Properties, Modelling and Applications

Costas S Patrickios University of Cyprus, Cyprus

The improved mechanical properties of amphiphilic polymer co-networks (APCNs) are attracting increasing attention from further basic research on the system and also new biomedical and catalysis applications. This new book focuses on the new developments in the field covering the key areas of synthesis, properties, applications and modelling. Edited by a leading name in the field, the book will appeal to graduate students and researchers interested in hydrogels, polymer networks, polymer chemistry, block copolymers, self-assembly and nanomaterials.

Hardback | 363 pages | ISBN 9781788013703 | £179.00 | $250.00 | 29/04/2020



Fundamentals of Smart Materials

Mohsen Shahinpoor University of Maine, USA

This textbook covers 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. Edited by a leading researcher in smart materials, topics include piezoelectric materials, magnetostrictive materials, shape memory alloys, mechanochromic materials, chemomechanical polymers and self-healing materials.

Hardback | 319 pages | ISBN 9781782626459 | £80.00 | $110.00 | 23/04/2020

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