New Titles in Organic and Inorganic Chemistry

Organic Chemistry

BIOACTIVE NATURAL PRODUCTS

Opportunities and Challenges in Medicinal Chemistry

edited by **Goutam Brahmachari** *(Visva-Bharati University, India)*

Bioactive natural products are a rich source of novel therapeutics. Thus, the search for bioactive molecules from nature continues to play an important role in fashioning new medicinal agents. This volume, which comprises sixteen chapters written by active researchers and leading experts in natural products chemistry, brings together an overview of current discoveries in this remarkable field. It also provides information on the industrial application of natural products for medicinal purposes. This book will serve as a valuable resource for researchers to predict promising leads for developing pharmaceuticals to treat various ailments and disease manifestations.

600pp (approx.)	**Nov 2011**	
978-981-4335-37-9	**US$158**	**£98**

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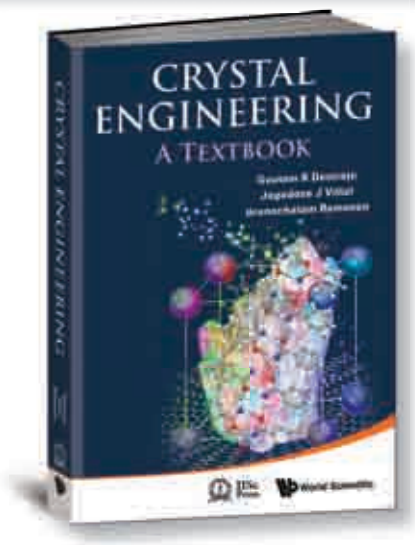

CRYSTAL ENGINEERING

A Textbook

by **Gautam R Desiraju** *(Indian Institute of Science)*, **Jagadese J Vittal** *(National University of Singapore)* & **Arunachalam Ramanan** *(Indian Institute of Technology Delhi)*

This book is important because it is the first textbook in an area that has become very popular in recent times. There are around 250 research groups in crystal engineering worldwide today. The subject has been researched for around 40 years but there is still no textbook at the level of senior undergraduates and beginning PhD students. This book is expected to fill this gap.

The writing style is simple, with an adequate number of exercises and problems, and the diagrams are easy to understand. This book contains information about major areas of the subject, including organic crystals and co-ordination polymers, and can easily form the basis of a 30 to 40 lecture course for senior undergraduates.

232pp	**Jun 2011**	
978-981-4338-75-2	**US$99**	**£65**
978-981-4366-86-1(pbk)	**US$49**	**£32**

ORGANIC SYNTHESIS VIA EXAMINATION OF SELECTED NATURAL PRODUCTS

by **David J Hart** *(The Ohio State University, USA)*

This book is written for advanced graduate and undergraduate students to expose them to a variety of strategies for the synthesis of organic compounds. This is done largely within the context of natural products synthesis, but some unnatural products synthesis is also included. Multiple approaches to each group of synthesis targets are presented, and the approaches are compared with one another with an eye on similarities and differences. General problems in organic synthesis are introduced early in the book and revisited throughout the text within the context of a variety of structurally unrelated natural products.

The book provides readers with a somewhat historical overview of organic and natural products chemistry, and spans synthetic methodology that dates from the 1940's to the present time. It is written in a style that readers will find entertaining at times. It also contains lots of useful references with complete titles provided.

588pp	**Feb 2011**	
978-981-4313-70-4	**US$112**	**£77**
978-981-4313-71-1(ebook)	**US$146**	

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HANDBOOK OF PORPHYRIN SCIENCE

With Applications to Chemistry, Physics, Materials Science, Engineering, Biology and Medicine

edited by **Karl M Kadish** *(University of Houston, USA)*, **Kevin M Smith** *(Louisiana State University, USA)* & **Roger Guilard** *(Université de Bourgogne, France)*

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- Content carefully selected by: Karl M Kadish, Editor-in-Chief of the Journal of Porphyrins and Phthalocyanines and President of the Society of Porphyrins and Phthalocyanines; Kevin M Smith, winner of the Corday-Morgan Medal and Prize from the Royal Society of Chemistry and the Alfred Bader Award from the Americal Chemical Society and Roger Guilard, holder of 22 patents in the area of heterocyclic chemistry and author of over 400 papers and 22 books.

Vol. 1-5 • May 2010 • 2440pp
978-981-4280-16-7
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Vol. 6-10 • August 2010 • 2808pp
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List Price: £1,221

Vol. 11-15 • April 2011 • 2588pp
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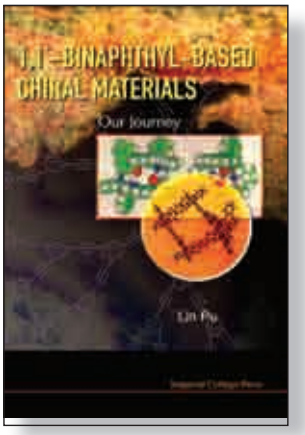
1,1'-BINAPHTHYL-BASED CHIRAL MATERIALS

Our Journey

by **Pu Lin** *(University of Virginia, USA)*



Chiral materials have been studied in the Department of Chemistry at the University of Virginia for applications in areas like asymmetric catalysis, enantioselective fluorescent sensing, and optical/electrical materials. Optically active 1,1′-binaphthyl molecules are used to build novel chiral polymers, dendrimers, macrocycles, and acyclic molecules. 1,1′-Binaphthyl molecules are chosen because of their remarkably stable chiral configuration as well as their high asymmetric inductions in many processes.

In this book, both the fundamental knowledge about the 1,1′-binaphthyl molecules and the synthesis of the structurally diverse 1,1′-binaphthyl-based materials are described. The applications of these materials in various fields are also discussed. This book will serve as a reference for graduate students as well as other professionals working in the related fields.

Contents: Introduction About 1,1′-Binaphthyls; Main Chain Chiral-Conjugated Polymers; Polybinaphthyls in Asymmetric Catalysis; Asymmetric Catalysis by BINOL and Its Non-Polymeric Derivatives; Enantioselective Fluorescent Sensors Based on 1,1′-Binaphthyl Derived Dendrimers, Small Molecules and Macrocycles; Miscellaneous Studies on Materials Related to 1,1′-Binaphthyls.

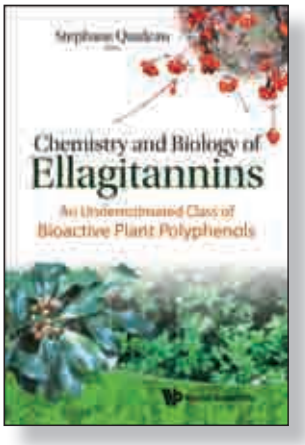
Readership: Researchers in the field of organic chemistry and new materials, especially those working on or studying chiral chemistry.

368pp **Aug 2009**
978-1-84816-411-6 **US$125** **£83**
978-1-84816-412-3(ebook) **US$163**

CHEMISTRY AND BIOLOGY OF ELLAGITANNINS

An Underestimated Class of Bioactive Plant Polyphenols

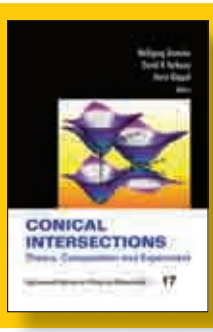
edited by **Stéphane Quideau** *(University of Bordeaux, France)*

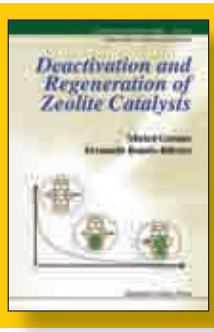


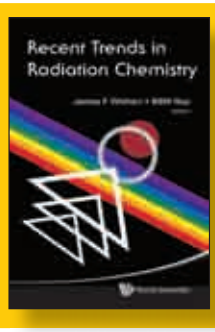
This book is the first of its kind that focuses on the chemistry and biology of ellagitannins, a special class of naturally occurring polyphenols which have so far not received the attention they deserve. They not only exhibit unique structural features that fascinate most chemists who are aware of their existence, but also express remarkable biological activities that have yet to attract the interest of the pharmaceutical industry.

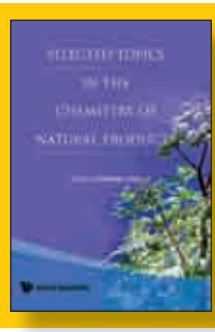
The principal aim of this book is to set the record straight. Most, if not all, worldwide experts in each aspect of the chemistry and biology of this underestimated class of natural products have contributed to this book. It covers topics such as their structural determination and natural occurrence; the most up-to-date knowledge of their biosynthesis; the current state of the art of their total chemical synthesis; their main physicochemical properties and principal biological activities; their presence in food and beverages; and their related health effects.

396pp **Jan 2009**
978-981-279-740-7 **US$170** **£112**
978-981-279-741-4(ebook) **US$221**









FUNDAMENTALS OF POLYMERIZATION

by **Broja Mohan Mandal** *(Indian Association for the Cultivation of Science, India)*

Over the last twenty years, the field of the chemistry of polymerization witnessed enormous growth through the development of new concepts, catalysts, processes etc. Examples are: non classical living polymerizations (group transfer polymerization, living carbocationic polymerization, living radical polymerization and living ring-opening metathesis polymerization (ROMP)); new catalysts (metallocenes and late transition metal catalysts for stereospecific polymerization, Schrock and Grubbs catalyst for ROMP among others) and new processes such as miniemulsion, microemulsion polymerization and dispersion polymerization (in polar solvents). Apart from the developments in the chemistry of polymerization, methods have been developed for the evaluation of highly reliable rate constants of propagation in radical as well as cationic polymerization. All these have revolutionized the field of synthetic polymer chemistry.

In the book, fundamentals of both the new and old polymerization chemistry have been dealt with. The new chemistry has been given nearly equal space along with the old.

Contents: Step Polymerization; Free Radical Polymerization; Anionic Polymerization; Coordination Polymerization; Cationic Polymerization; Ring-Opening Polymerization (ROP) and Ring-Opening Metathesis Polymerization (ROMP); Chain Copolymerization; Heterophase Polymerization.

600pp (approx.) **Feb 2012**
978-981-4322-46-1 **US$128** **£79**

Advanced Series in Physical Chemistry - Vol. 17

CONICAL INTERSECTIONS

Theory, Computation and Experiment

edited by **Wolfgang Domcke** *(Technical University of Munich, Germany)*, **David R Yarkony** *(Johns Hopkins University, USA)* & **Horst Köppel** *(Heidelberg University, Germany)*

The concept of adiabatic electronic potential-energy surfaces, defined by the Born–Oppenheimer approximation, is fundamental to our thinking about chemical processes. Recent computational as well as experimental studies have produced ample evidence that the so-called conical intersections of electronic energy surfaces, predicted by von Neumann and Wigner in 1929, are the rule rather than the exception in polyatomic molecules. It is nowadays increasingly recognized that conical intersections play a key mechanistic role in chemical reaction dynamics. This volume provides an up-to-date overview of the multi-faceted research on the role of conical intersections in photochemistry and photobiology, including basic theoretical concepts, novel computational strategies as well as innovative experiments. The contents and discussions will be of value to advanced students and researchers in photochemistry, molecular spectroscopy and related areas.

750pp (approx.) **Sep 2011**
978-981-4313-44-5 **US$190** **£131**

Catalytic Science Series - Vol. 9

DEACTIVATION AND REGENERATION OF ZEOLITE CATALYSTS

edited by **Michel Guisnet** & **Fernando Ramôa Ribeiro** *(Technical University of Lisbon, Portugal)*

In chemical processes, the progressive deactivation of solid catalysts is a major economic concern and mastering their stability has become as essential as controlling their activity and selectivity. For these reasons, there is a strong motivation to understand the mechanisms leading to any loss in activity and/or selectivity and to find out the efficient preventive measures and regenerative solutions that open the way towards cheaper and cleaner processes. This book covers the fundamental and applied aspects of solid catalyst deactivation in a comprehensive way and encompasses the state of the art in the field of reactions catalyzed by zeolites.

360pp **Feb 2011**
978-1-84816-637-0 **US$90** **£56**

RECENT TRENDS IN RADIATION CHEMISTRY

edited by **James F Wishart** *(Brookhaven National Laboratory, USA)* & **BSM Rao** *(University of Pune, India)*

Recent Trends in Radiation Chemistry is a state-of-the-art review of the present status and future trends in the field of radiation chemistry research. It covers a broad spectrum of topics, ranging from the historical perspective, instrumentation of accelerators in the nanosecond to femtosecond region, through the use of radiation chemical methods in the study of antioxidants and nanomaterials, radiation-induced DNA damage by ionizing radiation involving both direct and indirect effects, to ultrafast events in free electron transfer, radiation-induced processes at solid–liquid interfaces and the recent work on infrared spectroscopy and radiation chemistry.

The contributors to the book are world-renowned specialists. The book is unique in that it covers a wide spectrum of topics that will be of great interest to beginners as well as experts. Recent data on ultrafast phenomena from the recently established world-class laser-driven accelerators facilities in the US, France and Japan are reviewed.

636pp **Feb 2010**
978-981-4282-07-9 **US$112** **£74**
978-981-4282-09-3(ebook) **US$146**

SELECTED TOPICS IN THE CHEMISTRY OF NATURAL PRODUCTS

edited by **Raphael Ikan** *(Emeritus Professor, Hebrew University of Jerusalem, Israel)*

Despite the fact that there exists a vast literature devoted principally or entirely to naturally occurring compounds, there are very few books or monographs of moderate length that provide an overall view of the field.

This book covers the following topics of natural products: cannabinoids; toxic constituents from marine sources; natural sweeteners; generation of wines; biological markers; pheromones of insects and mammals; pest management; and secondary natural chemicals formed by microorganisms. It contains specialized work that describes the chemistry of separate classes of compounds such as steroids, terpenes, alkaloids, sugars, carotenoids, fatty acids and so on. It also includes data on compounds isolated from various classes of organisms such as lichens, bacteria and fungi, which are usually treated in special monographs. The topics in this book are unlikely to be found in general chemistry courses.

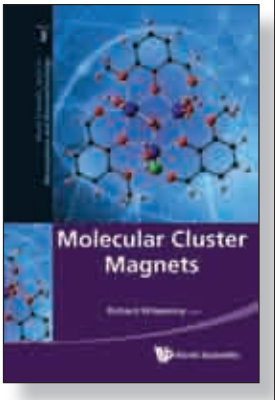
624pp **Dec 2007**
978-981-270-569-3 **US$225** **£148**
978-981-279-078-1(ebook) **US$293**

Inorganic Chemistry

World Scientific Series in Nanoscience and Nanotechnology

MOLECULAR CLUSTER MAGNETS

edited by **Richard Winpenny** *(The University of Manchester, UK)*



This work covers new developments in the field of molecular nanomagnetism, complementing previous books in this area (for example the volume by Gatteschi, Sessoli and Villain on Single Molecule Magnets). The book is written by experts in the field and is intended as a compilation of critical reviews of new areas rather than a comprehensive text.

Contents: Synthesis of Molecular Nanomagnets *(G Aromi & R E P Winpenny)*; Nanoscale Magnetic Grids *(L K Thompson)*; Magnetic Anisotropy in Molecular Clusters *(B S Tsukerblat)*; Developing and Testing Models in Magnetic Molecules *(M Luban et al.)*; Spin Clusters for Quantum Information Processing *(S Carretta & P Santini)*; EPR Spectroscopy of Molecular Nanomagnets *(E J L McInnes)*; Molecular Spintronics *(W Wernsdorfer)*; Spin–Phonon Interactions in Molecular Magnets *(M Affronte)*; INS Studies of Molecular Cluster Magnets *(T Guidi)*.

300pp (approx.)	**Aug 2011**	
978-981-4322-94-2	**US$95**	**£59**

BIOTEMPLATING

Complex Structures from Natural Materials

by **Simon R Hall** *(University of Bristol, UK)*

In terms of structural complexity, the natural world presents innumerable examples of stunning beauty and high functionality, usually with the minimum of material and energy expenditure. Materials chemists can harness these amazing structures as ready-made scaffolds on which to grow inorganic phases which replicate the underlying complexity, thereby producing materials with greatly enhanced physical properties. This book comprehensively describes the entire range of natural materials that have been used in this way and the inorganic phases which result from them. The book covers simple molecules such as cellulose and chitin, to large biological constructs such as bacterial proteins, viruses and pollen. Practically every inorganic material has been synthesized using biotemplating methods and the book reflects this, ranging from simple oxides and carbonates such as silica and calcite, to complex semi- and superconducting materials. The book also discusses the formation of these materials from a mechanistic point of view, thereby enabling the reader to better understand the processes involved in biotemplated mineralization.

216pp	**Jun 2009**	
978-1-84816-403-1	**US$96**	**£63**
978-1-84816-404-8(ebook)	**US$125**	

SCORPIONATES II: CHELATING BORATE LIGANDS

Dedicated to Swiatoslaw Trofimenko

by **Claudio Pettinari** *(University of Camerino, Italy)*

Since their discovery by Swiatoslaw Trofimenko in 1967, poly(pyrazol-1-yl)borates have been considered as one of the most useful ligands in modern coordination chemistry. This all-inclusive reference book continues where Trofimenko's original work left off. It not only includes discussions on all new ligands reported from 1999 to date, but also introduces new ligands that have yet to be touched upon in other titles, such as scorpionates based on S donors or P donors. As such, this comprehensive volume is a "must have" for all researchers who utilize this family of molecules.

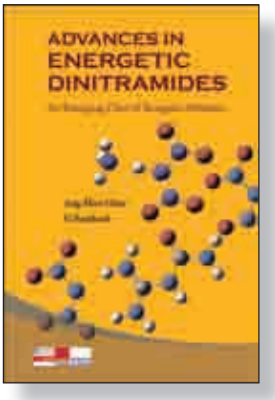
572pp	**May 2008**	
978-1-86094-876-3	**US$232**	**£153**
978-1-86094-877-0(ebook)	**US$302**	

ADVANCES IN ENERGETIC DINITRAMIDES

An Emerging Class of Inorganic Oxidizers

by **Ang How Ghee** & **G Santhosh**

(Nanyang Technological University, Singapore)



This monograph is about the chemistry and technology of an emerging class of inorganic oxidizers — the Dinitramide Salts. Each chapter discusses a distinct aspect of the oxidizers, of which ADN enjoys an extensive coverage (based on about 70% of published papers) owing to its potential applications in solid and liquid propellants.

Contents: Synthesis of Ammonium Dinitramide (ADN); Synthesis of Other Dinitramide Salts; Characterisation of ADN; Crystallisation and Prilling of ADN; Coating and Microencapsulation of ADN; Stability and Thermal Stabilisation of ADN; Thermal Decomposition of ADN; Sensitivity, Compatibility and Mechanical Behaviour of ADN; Studies on Combustion of ADN; Applications of ADN and Dinitramide Salts; Propellant Formulations Based on ADN; Solid Composite Propellants and Ingredients — A Comparison.

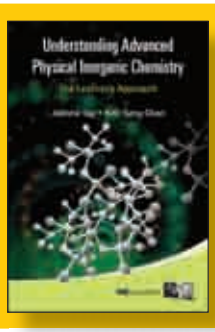
180pp	**Nov 2007**	
978-981-277-203-9	**US$58**	**£38**

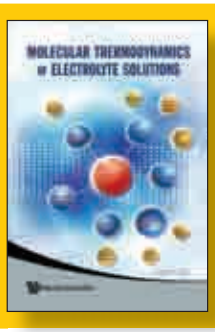
A GUIDE TO CHALCOGEN-NITROGEN CHEMISTRY

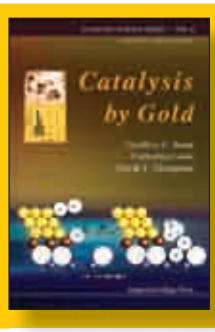
by **Tristram Chivers** *(University of Calgary, Canada)*

Chalcogen-nitrogen chemistry involves the study of compounds that exhibit a linkage between nitrogen and sulfur, selenium or tellurium atoms. Such studies have both fundamental and practical importance. *A Guide to Chalcogen-Nitrogen Chemistry* examines the role of chalcogen-nitrogen compounds in areas ranging from solid-state inorganic chemistry to biochemistry. The discussion covers fundamental questions concerning the bonding in electron-rich systems, as well as potential practical applications of polymers and materials with novel magnetic or electrical properties. This book is the only account of this important topic to appear in the last twenty–five years, and coupled with its extensive literature coverage of very recent developments, this comprehensive guide is essential for anyone working in the field. The treatment is unique in providing a comparison of sulfur, selenium and tellurium systems, with an approach intended to emphasize general concepts that will be helpful to the non-specialist. Each chapter is designed to be self–contained, and there are extensive cross–references between chapters.

340pp	**Jan 2005**	
978-981-256-095-7	**US$171**	**£113**
978-981-256-311-8(ebook)	**US$222**	







UNDERSTANDING ADVANCED PHYSICAL INORGANIC CHEMISTRY

The Learner's Approach

by **Jeanne Tan** & **Kim Seng Chan**
(Raffles Institution, Singapore)

Written for students taking the A-level examinations, this textbook covers essential topics under the University of Cambridge stipulated A-level chemistry syllabus. It is written in such a way as to guide the reader through the understanding and applications of essential chemical concepts by introducing a discourse feature — the asking and answering of questions — that stimulates coherent thinking and hence, elucidates ideas.

Topics are explored through an explanatory and inquiry-based approach. They are interrelated and easy to understand, with succinct explanations/examples being included, especially on areas that students frequently find difficult. Topics address the whys and hows behind key concepts to be mastered, so that the concepts are made understandable and intuitive for students. The focus is on conceptual learning so as to equip students with knowledge for critical learning and problem solving.

488pp	**Dec 2010**	
978-981-4317-26-9(pbk)	**US$28**	**£17**

CHEMISTRY OF NANOCRYSTALLINE OXIDE MATERIALS

Combustion Synthesis, Properties and Applications

by **K C Patil**, **M S Hegde** *(Indian Institute of Science., Bangalore, India)*, **Tanu Rattan** *(Nunano Solutions, India)* & **S T Aruna** *(National Aerospace Laboratories, India)*

Nano-oxide materials lend themselves to applications in a wide variety of emerging technological fields such as microelectronics, catalysts, ceramics, coatings, and energy storage. However, developing new routes for making nano-based materials is a challenging area for solid-state materials chemists. This book does just that by describing a novel method for preparing them. The authors have developed a novel low-temperature, self-propagating synthetic route to nano-oxides by the solution combustion and combustible precursor processes. This method provides the desired composition, structure, and properties for many types of technologically useful nanocrystalline oxide materials like alumina, ceria, iron oxides, titania, yttria, and zirconia, among others.

The book is particularly instructive in bringing readers one step closer to the exploration of nanomaterials. Students of nanoscience can acquaint themselves with the actual production and evaluation of nanopowders by this route, while academic researchers and industrial scientists will find answers to a host of questions on nano-oxides. The book also provides an impetus for scientists in industrial research to evaluate and explore new ways to scale up the production of nanomaterials, offering helpful suggestions for further research.

364pp	**Sep 2008**	
978-981-279-314-0	**US$153**	**£101**
978-981-279-315-7(ebook)	**US$199**	

MOLECULAR THERMODYNAMICS OF ELECTROLYTE SOLUTIONS

by **Lloyd L Lee** *(California State Polytechnic University, USA)*

The introductory textbook provides an update on electrolyte thermodynamics with a molecular perspective. It is eminently suited as an introduction to the solution thermodynamics of ionic mixtures at the undergraduate and graduate level. It is also invaluable for the understanding and design in the engineering of natural gas treating and adsorption refrigeration with electrolytes.

Contents: Solution Thermodynamics of Electrolyte Solutions; Basic Electrostatics; The Debye–Hückel Theory; Pitzer's Formulation for Electrolytes; The Statistical Mechanics of Electrolytes; Ions as Charged Hard Spheres: The Mean Spherical Approach; The McMillan-Mayer and Lewis-Randall Scales; Multi-Solvent Electrolyte Solutions: Setchenov's Salting-Out Principle; Ionic Distributions: An Integral Equation Approach; The Electric Double Layers; Application: Adsorption Refrigeration with Electrolytes; Application: Amine Solutions in Acid Gas Treating.

264pp	**Jul 2008**	
978-981-281-418-0	**US$112**	**£74**
978-981-281-419-7(pbk)	**US$82**	**£54**

Catalytic Science Series - Vol. 6

CATALYSIS BY GOLD

by **Geoffrey C Bond** *(Brunel University, UK)*, **Catherine Louis** *(Université Pierre et Marie Curie, France)* & **David T Thompson** *(Consultant, World Gold Council, UK)*

Gold has traditionally been regarded as inactive as a catalytic metal. However, the advent of nanoparticulate gold on high surface area oxide supports has demonstrated its high catalytic activity in many chemical reactions. Gold is active as a heterogeneous catalyst in both gas and liquid phases, and complexes catalyse reactions homogeneously in solution. Many of the reactions being studied will lead to new application areas for catalysis by gold in pollution control, chemical processing, sensors and fuel cell technology. This book describes the properties of gold, the methods for preparing gold catalysts and ways to characterise and use them effectively in reactions. The reaction mechanisms and reasons for the high activities are discussed and the applications for gold catalysis considered.

384pp	**Aug 2006**	
978-1-86094-658-5	**US$170**	**£112**
978-1-86094-895-4(ebook)	**US$221**	

METAL MEDIATED TEMPLATE SYNTHESIS OF LIGANDS

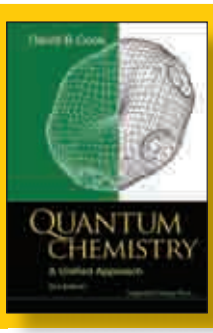
by **Otilia Costisor** *(Institute of Chemistry Timisoara, Academy of Science,, Romania)* & **Wolfgang Linert** *(Institute of Applied Synthetic Chemistry, TU-Vienna, Austria)*

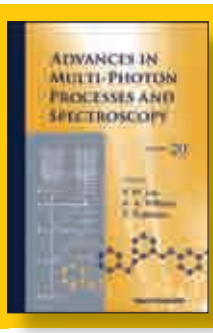
This book surveys the relatively new area of the synthesis of organic ligands when metal ions act as a template. In the last fifty years this field has undergone an explosive development, marked by a great amount of literature. The material in the book has been arranged according to the type of chemical reaction involved. In this frame, the basic principles of metal template reactions and the shape of the molecules are considered. Designed to satisfy the demands of students, young researchers doing their PhDs, and those working in the field of coordination chemistry, the book details the role of the metal ions and the specific properties of the formed complexes.

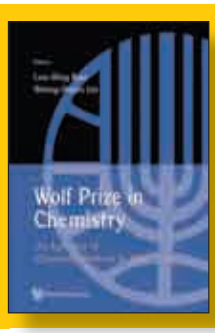
Metal Mediated Template Synthesis of Ligands offers a comprehensive analysis with wide-ranging references and provides an extensive overview of research on metal-directed organic ligands over the past five decades.

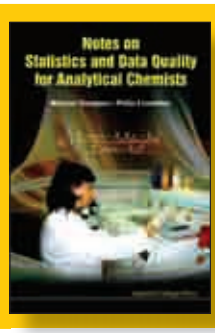
308pp	**Apr 2004**	
978-981-238-813-1	**US$140**	**£92**
978-981-279-481-9(ebook)	**US$182**	

Related Titles









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Review of the First Edition

"The text is written in an easy-to-access style that is broken down into clear chapters of progression … would consider the book to be valuable reading for anyone on a chemistry degree, or a degree in a related subject … first year students in particular would welcome this text as a valuable guide to navigating the fields of chemistry, as it addresses the eternal question of students encountering quantum chemistry for the first time … It should be essential reading for anyone who wishes to become an educator in the field of chemistry."

Reviews

Each chapter has an Assignment Section containing "problems" which might be usefully attempted to improve the understanding of the new material in that chapter.

The new edition has had several appendices added which give support to concepts which, if included in the main text, would have hindered the main thrust of the presentation. These new appendices are an attempt to clarify oversights and errors which have been tacitly ignored and which have now become part of the conventional wisdom.

Contents: How Science Deals with Complex Problems; What We Know About Atoms and Molecules; A Strategy for Electronic Structure; The Pauli Principle and Orbitals; A Model Polyatomic: Methane; Lone Pairs of Electrons; Organic Molecules with Multiple Bonds; Molecular Symmetry; Diatomics with Multiple Bonds; Dative Bonds; Delocalised Electronic Substructures: Aromaticity; Organic and Inorganic Chemistry; Further Down the Periodic Table; Reconsidering Empirical Rules; Mavericks and Other Lawbreakers; The Transition Elements; Omissions and Conclusions.

350pp (approx.)	**Oct 2011**
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Advances in Multi-Photon Processes and Spectroscopy - Vol. 20

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(Volume 20)

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This book presents the latest developments and issues in both experimental and theoretical studies of multi-photon processes and the spectroscopy of atoms, molecules and nanomaterials in Physics, Chemistry, Biology and Material Science. It is an important addition to an advanced series that contains review papers suitable for both active researchers in these areas and non-experts who wish to enter the field. Special attention is paid to the recent progress of nonlinear photon-matter interactions applied to femtosecond laser induced nonadiabatic molecular alignment, high-order harmonic generation from C60 fullerene plasma, resonant femtosecond stimulated Raman spectroscopy and attosecond pulse generation, as well as near-field optical imaging of noble-metal nanoparticles and photoexcited ultrafast electron transfer in condensed phase.

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This book is the epitome of important developments in chemistry in the 20th century and beyond. It provides a historical account of the Wolf Prize in Chemistry and includes the biographies and selected papers of the distinguished recipients from 1978 to 2008 (no prize was awarded in 2009 or 2010). Many of the recipients have extensive publication lists; this book brings together a wealth of information on the Wolf Prize, the prize winners, and especially a reprint of their most significant publications.

Both editors of the book are veteran chemists who have worked in the field for many years. Dr Sheng-Hsien Lin, an Academician, is a theoretical chemist who has published more than 700 papers and 20 books. Dr Lou-Sing Kan is a biophysicist on structures of nucleic acids and an NMR specialist; he has authored 176 peer-reviewed papers and is also a popular science writer in Chinese.

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This book is intended to help analytical chemists feel comfortable with more commonly used statistical operations and help them make effective use of the results. Emphasis is put upon computer-based methods that are applied in relation to measurement and the quality of the resulting data. The book is intended for analytical chemists working in industry but is also appropriate for students taking first degrees or an MSc in analytical chemistry.

The authors have divided this book into quite short sections, each dealing with a single topic. The sections are as far as possible selfcontained, but are extensively cross-referenced. The book can therefore be used either systematically by reading the sections sequentially, or as a quick reference by going directly to the topic of interest. Every statistical method and application covered has at least one example where the results are analysed in detail. This enables readers to emulate this analysis on their own examples. All of the datasets used in examples are available for download, so that readers can compare their own output with that of the book and thus verify that they are entering data correctly into the statistical package that they happen to use.

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Molecular Medicine and Medicinal Chemistry - Vol. 5

FLUORINE IN PHARMACEUTICAL AND MEDICINAL CHEMISTRY

From Biophysical Aspects to Clinical Applications

edited by **Véronique Gouverneur** *(University of Oxford, UK)* & **Klaus Müller** *(F Hoffmann-La Roche AG, Switzerland)*

This book provides an overview of the impact that fluorine has made in the life sciences. In the first section, the emphasis is on how fluorine substitution of amino acids, peptides, nucleobases and carbohydrates can provide invaluable information at a molecular level. The following chapters provide answers to the key questions posed on the importance of fluorine in drug discovery and clinical applications. For examples, the reader will discover how fluorine has found its place as a key element improving drug efficacy, with reference to some of the best-selling drugs on the market. Finally, a thorough review on the design, synthesis and use of ^{18}F-radiotracers for positron emission tomography is provided, and this is complemented with a discussion on how ^{19}F NMR has advanced molecular and clinical imaging.

550pp (approx.) **Feb 2012**
978-1-84816-634-9 **US$148** **£96**

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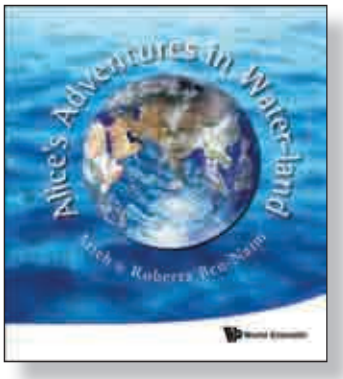
by **Arieh Ben-Naim** & **Roberta Ben-Naim**
(The Hebrew University of Jerusalem, Israel)



This highly illustrated book describes the properties of liquid water and the relevance of these properties to life, in a way that makes the content accessible to anyone. It will raise the awareness of the reader on the vital importance of water to all life on earth. It is a book of science interwoven into the fabric of a story.

There are very few books on water aimed at the general public. This volume will appeal to both adults and students with its superb delivery of scientific knowledge in highly accessible prose.

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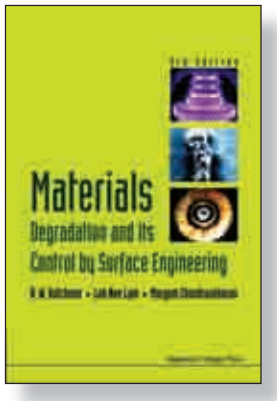
MATERIALS DEGRADATION AND ITS CONTROL BY SURFACE ENGINEERING (3rd Edition)

by **Andrew W Batchelor** *(previously Monash University, Malaysia)*, **Nee Lam Loh** *(Nanyang Technological University, Singapore)* & **Margam Chandrasekaran** *(Bio-Scaffold International Pte Ltd, Singapore)*



This book provides a general holistic view of materials degradation without undue emphasis on aqueous corrosion with the neglect of other important topics such as liquid metal corrosion. Discussion of materials degradation is balanced by detailed description and evaluation of surface engineering as a means of managing materials degradation. Thus, the trainee engineer is presented with a comprehensive view of the problem rather than just a part of the problem. The control or management of materials degradation is not only discussed in scientific terms, but the economics or financial aspects of materials degradation and surface engineering is also discussed in detail with the help of analytical models.

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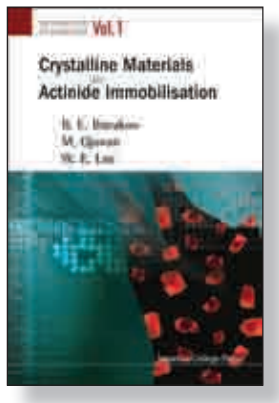
by **Boris E Burakov** *(V G Khlopin Radium Institute, Russia)*, **Michael I Ojovan** *(University of Sheffield, UK)* & **William (Bill) E Lee** *(Imperial College, UK)*



This book summarises approaches and current practices in actinide immobilisation using chemically-durable crystalline materials such as ceramics and monocrystals.

As a result of the increasing worldwide growth of the nuclear industry, long-lived α-emitting actinides such as Pu, Np, Am and Cm are fast becoming a serious environmental concern — actinide-bearing wastes have accumulated in different countries due to nuclear weapons production. On the other hand, as actinides are chemical elements with unique properties they could be beneficially used for humankind in areas such as medicine and technology. Unfortunately, there is currently no appropriate balance between safe actinide disposal and use, even though both processes require their immobilisation in a durable host material.

Although a wealth of information exists about actinide properties in many publications, little has been published summarising currently accepted approaches and practices for actinide immobilisation. Crystalline Materials for Actinide Immobilisation fills this gap using information based on the authors' first-hand experience and studies in nuclear materials management and actinide immobilisation.

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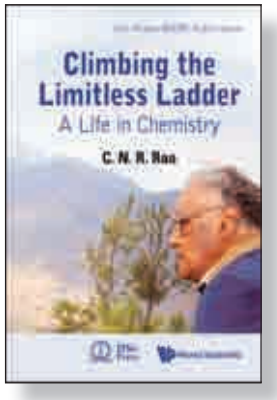

This invaluable book is an autobiographical account of doing scientific research in India. It provides an insight to the perseverance of a scientist from a developing country. His relentless pursuit of excellence in chemistry for more than half a century is a remarkable source of inspiration to young scientists facing modern-day challenges.

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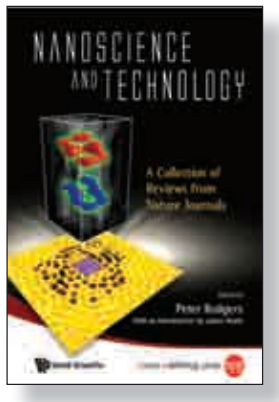

This book contains 35 review articles on nanoscience and nanotechnology that were first published in *Nature Nanotechnology, Nature Materials* and a number of other Nature journals. The articles are all written by leading authorities in their field and cover a wide range of areas in nanoscience and technology, from basic research (such as single-molecule devices and new materials) through to applications (in, for example, nanomedicine and data storage).

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