

# ROYAL SOCIETY OF CHEMISTRY

## NEW AND RECENT ANALYTICAL BOOKS

### Spectrochemical Analysis by Atomic Absorption and Emission

By Lauri H.J. Lajunen  
*University of Oulu, Finland*

This **new** book describes both the theory of atomic spectroscopy and all the major atomic spectrometric techniques (AAS, Flame-AES, Plasma AES, AFS and ICP-MS), including basic concepts, instrumentation and applications.

**Spectrochemical Analysis by Atomic Absorption and Emission** is very wide in scope and will be extremely useful to both undergraduates and lecturers undertaking modern analytical chemistry courses. It contains many figures and tables which illuminate the text, covers various sample preparation methods and gives suggestions for further reading.

#### Contents:

Introduction; Theory of Atomic Spectroscopy; Atomic Absorption Spectrometry; Flame Atomic Emission Spectrometry; Plasma Atomic Emission Spectrometry; Inductively Coupled Plasma Mass Spectrometry; Atomic Fluorescence Spectrometry; Sample Preparation; Advantages and Mutual Comparison of Atomic Spectrometric Methods; Further Reading; Subject Index.

**Softcover**  
ISBN 0 85186 873 8  
June 1992

**xii + 242 pages**  
Price £18.50

### Analytical Ultracentrifugation in Biochemistry and Polymer Science

Edited by S.E. Harding  
*University of Nottingham*

J.C. Horton  
*University of Nottingham*

A.J. Rowe  
*University of Leicester*

**Analytical Ultracentrifugation in Biochemistry and Polymer Science** is the first book of its kind to appear for nearly two decades and gives as comprehensive a coverage as is possible of the present state-of-the-art, from the leading experts in the field. It describes the advances currently being made and assesses to what extent 'classical' methods are still applicable, providing an up-to-date guide for potential users and experienced researcher alike.

The book divides naturally into four parts. Part I describes the state-of-the-art in instrumentation including a detailed consideration of optical systems and data capture and analysis procedures. Part II focuses on sedimentation equilibrium methods for obtaining molecular weight, polydispersity and interaction information. Part III considers transport methods (both sedimentation and diffusive) and includes a detailed consideration of rigid and flexible particle conformation analysis, polydisperse and interacting systems and concentration dependence phenomena. Part IV looks at a wide range of applications to macromolecular systems in biochemistry and polymer science, including seed and membrane proteins, polysaccharides and glycoconjugates and synthetic macromolecular systems.

This important **new** book is the consequence of an exciting resurgence of interest in the technique, will assist researchers in biochemistry and polymer science to make the most of the exciting opportunity that now exists.

**Hardcover**  
ISBN 085186 345 0  
November 1992

**xiv + 630 pages**  
Price £85.00

### Particle Size Analysis

Edited by N.G. Stanley-Wood  
*University of Bradford*

R.W. Lines  
*Coulter Electronics Limited, Luton*

**Particle Size Analysis** reviews the development of particle characterization over the past 25 years and also speculates on its future. Interest in the subject has increased enormously over the years and this book highlights the changes and advances made within the field.

This book is comprehensive in its coverage of particle size analysis and includes contributions on such characterization techniques as microscopy using fractal analysis, light diffraction, light scattering with the phase doppler technique, light observation, and photon correlation spectroscopy. A number of chapters address the interest in on-line in-stream particle size analysis and illustrate the progress being made in achieving this long sought after ideal of *in-situ* in-process particle characterization.

Applications to other technological fields are detailed by chapters covering biological systems and the pharmaceutical industry. The subject of surface area determination is considered with particular emphasis on the measurements on porosity of powders, the characterization and comparability of reference materials, and the need for standards.

**Particle Size Analysis** should provide stimulating reading for technologists, scientists, and engineers involved in particle characterization and powder technology worldwide.

*Special Publication No. 102*

**Hardcover**  
ISBN 0 85186 487 2  
June 1992

**xx + 538 pages**  
Price £57.50

### Bioanalytical Approaches for Drugs

**including Anti-asthmatics and Metabolites**

Edited by Eric Reid  
*Guildford Academic Associates*

I.D. Wilson  
*ICI Pharmaceutical Division, Macclesfield*

### Methodological Surveys in Biochemistry and Analysis

#### Volume 22

Series Editor Eric Reid  
*Guildford Academic Associates*

**Bioanalytical Approaches for Drugs, including Anti-asthmatics and Metabolites** gives a state-of-the-art account of the subject and focuses on assaying blood and other biological samples, especially drugs which are given in low dosage or which yield metabolites that need subtle investigation. It covers advances in HPLC, SFC, CZE, MS and other detectors, NMR, and automated sample handling, as well as diverse drugs. The book also looks at problems such as analyte lability, stereoselectivity and interferants.

This book is the latest volume in the 'Analysis' sub-series of **Methodological Surveys in Biochemistry and Analysis**, which is acknowledged as an integrated reference source, and contains a cumulative analyte index. It will be essential reading for researchers involved in analytical, medicinal, pharmaceutical and bio-organic chemistry.

*Special Publication No. 110*

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## ORGANIC AND BIO-ORGANIC TITLES

### Laser Light Scattering in Biochemistry

Edited by S.E. Harding  
University of Nottingham

D.B. Sattelle  
University of Cambridge

V.A. Bloomfield  
University of Minnesota, USA

This new book covers the state of the art in both classical (or 'total intensity') and dynamic (or 'quasielastic') light scattering. Although the past two decades have seen a great deal of attention paid towards the contribution that dynamic light scattering is making towards biomolecular science, classical light scattering is now also making significant in-roads, particularly with the appearance of so-called 'Maxwell Demon' techniques, involving the coupling of classical light scattering photometers to a gel permeation or size exclusion chromatography system.

Part I ('Techniques') of this book seeks to address all these developments. Part II ('Macromolecules') deals with the specific applications to systems of biological macromolecules, from proteins and glycopolymers right through to nucleic acids. The final part of the book ('Macromolecular Assemblies') deals with the application of light scattering techniques to the study of large biomolecular assemblies, including membrane systems, whole micro-organisms and other cellular systems, and finally it addresses polymer systems for drug delivery.

Special Publication No. 99

Hardcover  
ISBN 0 85186 486 4  
March 1992

xii + 452 pages  
Price £59.50

### Molecular Recognition: Chemical and Biochemical Problems II

Edited by S.M. Roberts  
University of Exeter

This book reviews currently important work in the area of molecular recognition and focuses on recent advances in the mutual recognition of small-small, small-large and large-large molecules.

**Molecular Recognition: Chemical and Biochemical Problems II** covers the latest research into the theoretical and physical chemical considerations of the subject as well as the growing area of self-assembly processes. In addition, the book looks at specific examples of molecular recognition which illustrate many of the recent innovations in methodology occurring in the field.

Written by world leaders in the field it complements the previous volume published under this title and gives an up-date on important progress made in the subject in the UK and USA. **Molecular Recognition: Chemical and Biochemical Problems II** is essential reading for scientists in the pharmaceutical and agricultural chemical industries, as well as for bio-organic and bio-inorganic chemists in academia.

Special Publication No. 111

Hardcover  
ISBN 0 85186 226 8  
September 1992

viii + 200 pages  
Price £39.50

### Chemistry of Biomolecules: An Introduction

By R.J. Simmonds  
The University College of Wales, Aberystwyth

#### A New Text for Undergraduates!

This new book provides a readily accessible source of information on the chemistry of biomolecules and aims to convey some of the fascination of the chemistry responsible for sustaining life. It describes syntheses and chemical properties of biomolecules, illustrating how events at the molecular level (i.e. chemistry) explain biological properties.

**Chemistry of Biomolecules: An Introduction** covers the chemistry of those groups of compounds of biological importance which are included in most undergraduate chemistry courses, namely carbohydrates, proteins, nucleic acids, and steroids, with the addition of two areas of pharmaceutical interest – prostaglandins and  $\beta$ -lactam antibiotics.

The material is written in a lively style and includes sufficient detail to relieve students of the need to consult specific texts covering various types of biomolecule. This book will serve as a key text supporting undergraduate courses in the UK and post-graduate courses in the US, filling an important gap between general organic chemistry books, which may lack the detail needed, and expensive specialist texts.

#### Contents:

Introduction; Monosaccharides; Polysaccharides; Peptides and Proteins; Nucleic Acids; Steroids; Prostaglandins;  $\beta$ -Lactam Antibiotics; Bibliography; Subject Index.

Softcover  
ISBN 0 85186 883 5  
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xiv + 276 pages  
Price £18.50

### Current Trends in Sonochemistry

Edited by G.J. Price  
University of Bath

**Current Trends in Sonochemistry** provides up-to-date coverage of the latest research in this still relatively new area and includes an introductory chapter to assist newcomers to the subject. It is written by eminent scientists in the field and discusses fundamental knowledge of sonochemical processes, as well as applications in organic, organometallic and polymer synthesis. The book also looks at current commercial applications and those predicted to be important in the near future.

Sonochemistry is a particularly rich area of study and attracts scientists from a wide range of disciplines and countries. Reflecting this the book has both a broad coverage and a strong international flavour. **Current Trends in Sonochemistry** will be of interest to undergraduates, graduates and research scientists involved in organic synthesis, industrial chemistry and many other areas.

Special Publication No. 116

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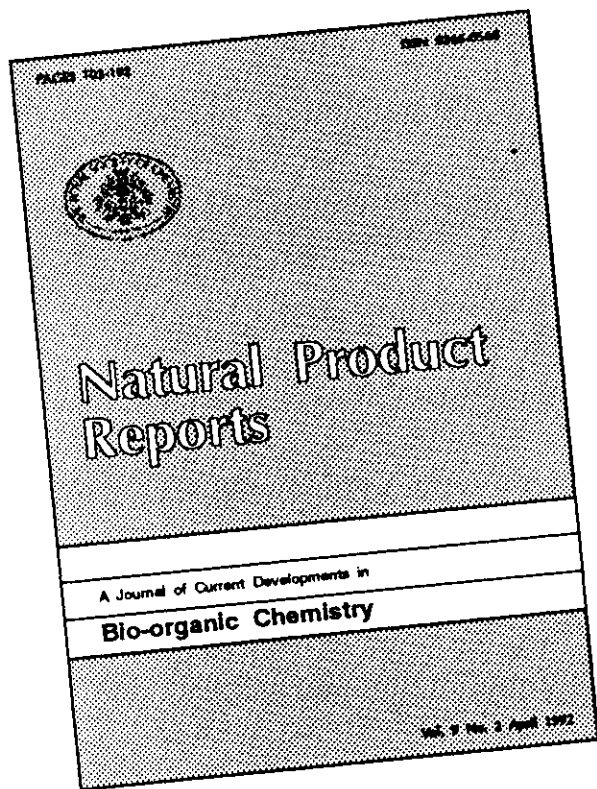
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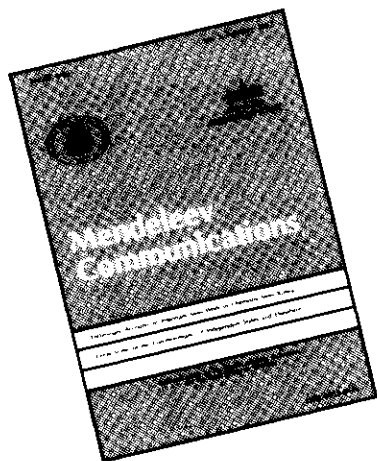
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# MENDELEEV COMMUNICATIONS



**Mendeleev Communications** is a prestigious new primary journal, produced as a collaborative venture between The Russian Academy of Sciences and The Royal Society of Chemistry. It publishes original papers directly in English, giving the international chemical community rapid access to important new research from Russia and the other states of the former Soviet Union in the shortest possible time.

The journal contains preliminary accounts of novel and significant results of wide general appeal or exceptional specialist interest and covers all branches of chemistry. In format and range of subject matter it closely resembles its 'sister' publication, the popular RSC journal **Chemical Communications**.

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## A selection of recent papers:

Transformation of Androsta-4,9-diene-3,17-dione into 16 $\alpha$ ,17 $\alpha$ -Epoxy corticosterone *Alevtina M. Turuta, Aleksei V. Kamernitskii, Tat'yana M. Fadeeva and Luu Duc Huy*

A Novel Approach to Carbacycline *Genrikh A. Tolstikov, Rinat R. Akhmetvaleev, Vadim M. Zhurba and Mansur S. Miftakhov*

Oxidation of Alkanes by Dioxygen in the Presence of an Iron Complex immobilized on Modified Silica. Chemical Model of Methane Monooxygenase *Vera S. Belova, Alexander M. Khenkin, Victor N. Postnov, Valerii E. Prusakov, Alexander E. Shilov and Marina L. Stepanova*

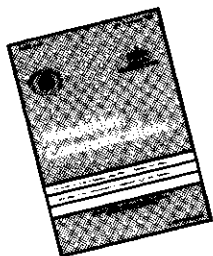
Cyclic Oligophosphonic Anhydrides *Ivan S. Alfer'ev and Sergey Yu. Bobkov*

Cyclopropanation of Unsaturated Compounds with Diazomethane Generated *in situ*: A New Efficient and Practical Route to Cyclopropane Derivatives *Oleg M. Nefedov, Yurii V. Tomilov, Andrei B. Kostitsyn, Usein M. Dzhemilev and Vladimir A. Dokitchev*

Direct Evidence for Bidentate Character of Potentially Tridentate N,S-Ligands. Molecular Structures of Bis[N-(2-pyridyl)thiosalicylidene- $\kappa$ S-amino- $\kappa$ N]-nickel(II) and Bis{1-isopropyl-3-methyl-4-[N-(2-pyridyl)imino- $\kappa$ N-methyl]pyrazole-5-thiolato- $\kappa$ S}-copper(II)} *Alexander E. Mistryukov, Igor S. Vasil'chenko, Vladimir S. Sergienko, Alexander L. Nivorozhkin, Stanislav G. Kochin, Mikhail A. Porai-Koshits, Leonid E. Nivorozhkin and Alexander D. Garnovskii*

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## TOPICAL BOOK

### The Chemical Industry — Friend to the Environment?

Edited by J.A.G. Drake

This topical book gives a state-of-the-art account of the feelings and approaches of leading companies to environmental issues and gives examples for other companies to emulate. It highlights current developments in the production of biodegradable materials, the treatment of non-biodegradable materials through recycling or safe disposal, and the control of solid, liquid and air-borne pollutants into the environment. It discusses a wide range of topics including various aspects of plastic recycling, processes for waste removal before discharge and disposal methods if removal cannot be achieved, approaches to environmental quality control systems, the control of discharges by agencies such as the National Rivers Authority and Her Majesty's Inspectorate of Pollution, and much more ... Radioactive discharges and their monitoring are given special treatment and put into perspective.

**The Chemical Industry – Friend to the Environment?** presents legal issues regarding discharges in layman's terms, lists sources of help available, for a wide range of problems, to both small and large companies, and presents some useful case studies. It is essential reading for chemical companies and will help them to judge whether or not they are a friend to the environment. If not, it will assist in helping them to become one.

*Special Publications No. 103*

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## ESSENTIAL READING

### Understanding Our Environment: An Introduction to Environmental Chemistry and Pollution

*2nd Edition*

Edited by R.M. Harrison  
*University of Birmingham*

This 2nd edition of **Understanding Our Environment** has been reworked and greatly updated, providing a modern introductory level text for students of pollution and environmental chemistry.

The book describes the basic concepts in relation to the chemistry of the atmosphere, freshwaters, oceans and soils, as well as the ways in which pollutants behave in these media (exemplified by case studies based upon topical environmental problems). It also examines the transfer of pollutants between different environmental compartments, the monitoring of the environment, the ecological and human health effects of chemical pollution, economics and regulatory control. Again case studies are used throughout.

This unique introductory text will be essential reading for students on undergraduate and first year postgraduate courses dealing with pollution and environmental chemistry, as well as for scientists and engineers in industry, public service and consultancy who require a basic understanding of environmental processes.

**Brief Contents:**

Introduction; The Atmosphere; Freshwaters; The Oceans; Land Contamination and Reclamation; Integrative Aspects of Pollutant Cycling; Environmental Monitoring Strategies; Ecological and Health effects of Chemical Pollution; Regulation and the Economics of Pollution Control; Subject Index.

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