

Supramolecular Photochemistry, by Vincenzo Balzani and Franco Scandola (Ellis Horwood Series in Physical Chemistry, Series Editor, T. J. Kemp), Ellis Horwood, Chichester, UK, 1991, 427 pp., US \$121.00. ISBN 0-13-877531-1.

Inorganic photochemistry is now established as a mature field of study in inorganic chemistry. Its emergence is owed, to no small extent, to the publication of a seminal work by Adamson and Fleischauer in 1975. Professors Balzani and Scandola have played pre-eminent roles in developing this field over the ensuing years. More recently, the field of supramolecular chemistry has blossomed, with contributions from Balzani and his collaborators of especial impact. This volume is a natural and very valuable outcome of the intersection between these two fields of study.

In developing supramolecular photochemistry, the authors have greatly increased the value of this book by beginning with much of the basic inorganic photochemistry needed to understand the applications to the supramolecular field. This basic introduction is followed by a chapter discussing in depth the processes which may occur between components of a supramolecule, especially introducing a fairly detailed discussion of Marcus's theory.

The following chapters define the ways in which supramolecules may be constructed and tuned, focussing on the ways in which energy levels may be perturbed or new energy levels "created". The bulk of the book considers electronic energy and electron transfer between components of the wide variety of currently known supramolecules. These include porphyrin-quinone and porphyrin-viologen systems, binuclear and oligomeric homo and hetero-metallic systems, photoflexible molecules such as spiro and TICT species, and their supramolecular analogues, ion pairs, host-guest molecules, donor-acceptor and cage systems, etc.

The book ends with a fascinating probe into the future of photochemical molecular devices, an area of especial fascination to the Balzani group. This chapter suggests how supramolecules may be designed to facilitate operations of importance in the burgeoning field of molecular electronics.

The book is factually accurate and has no obvious errors of omission; it focusses well into its specific mandate. It is well written in a very easy style and is replete with explanatory diagrams. It also gains strength in the way in which the basic theory is melded into the text to provide the necessary background. Although the book obviously emphasizes supramolecular systems, it will prove valuable to anyone interested in inorganic photochemistry in a more general sense. It should certainly be required reading in any graduate inorganic photochemistry course. It is well referenced but lacks

question sets which would have been beneficial where the book is used as a teaching text. There are author and subject indexes.

The Editor's Desk

Inorganic Reactions and Methods, edited by J. J. Zuckerman (Founding Editor) and A. P. Hagen, VCH Publishers, New York. *Vol. 4, Formation of Bonds to Halogens*, Part 2, 1991, 491 pp., DM 385.00, ISBN 0-89573-250-0 (set). *Vol. 5, Formation of Bonds to Group VIB (O, S, Se, Te, Po) Elements*, Part 1, 1991, 567 pp., DM 385.00, ISBN 0-89573-250-5 (set). *Vol. 9, Formation of Bonds to C, Si, Ge, Sn, Pb*, Part 1, 1991, 604 pp., DM 385.00, ISBN 0-89573-250-5 (set). *Vol. 17, Oligomerization and Polymerization. Formation of Intercalation Compounds*, 1990, 431 pp., DM 385.00, ISBN 0-89573-267-X.

This series of monographs specialises in describing the methods available to form specific bonds between elements. It aims, through the foresight of its founding editor, Jerry Zuckerman, now deceased, to provide an unprecedented coverage of synthetic inorganic chemistry classified through bond formation and type of reaction.

A very considerable amount of experimental detail is provided, all backed up by a detailed bibliography, allowing the interested researcher enough information to decide upon a particular pathway.

There is an author index to the experimental work, and, very usefully, a detailed compound index which lists all the species mentioned in the text with their section headings. This index is ordered C,H, alphabetical as in Chemical Abstracts, but the entries are permuted such that all species containing, for example, titanium can be found under Ti irrespective of any other elements they contain. The non-permuted entries are followed by keywords indicating the context in which they are described.

Volume 17 differs slightly from Volumes 4, 5, and 9. It is focussed, in part, on the formation of specifically bonded oligomers and polymers, and contains a detailed survey of ring-ring and ring-polymer interconversions and a brief survey of the experimental methods usable to study these polymers. Volume 17 also contains experimental methods used to form intercalation compounds, subdivided into the formation of clathrates, tunnel structures and sheet structures.

Each volume in this edited series has contributions from some 10–30 expert researchers responsible for the various sections.