

Book reviews

Photoinduced Electron Transfer, edited by Marye Anne Fox and Michel Chanon. Elsevier, New York and Amsterdam. (These books are available from Amsterdam, P.O. Box 330, 1000 AH Amsterdam or Elsevier Science Publishing Co. Inc., P.O. Box 882, Madison Square Station, New York, NY 10159, U.S.A.)

Part A — Conceptual Basis, 1988. 640 pp. Price U.S. \$189.50/Dfl. 360.00. ISBN 0-444-87122-5.

Part B — Experimental Techniques and Medium Effects, 1988. 748 pp. Price U.S. \$215.75/Dfl. 410.00. ISBN 0-444-87123-3.

Part C — Photoinduced Electron Transfer Reactions: Organic Substrates, 1988. 754 pp. Price U.S. \$215.75/Dfl. 410.00. ISBN 0-444-87124-1.

Part D — Photoinduced Electron Transfer Reactions: Inorganic Substrates and Applications, 1988. 790 pp. Price U.S. \$223.75/Dfl. 425.00. ISBN 0-444-87125-X.

Set price U.S. \$710.50/Dfl. 1350.00. Set ISBN 0-444-87121-7.

Electron transfer is ubiquitous in chemistry. The editors have recognized that photoinduced electron transfer reactions are also extremely common and that there is great interest currently in this topic area. The size of these four volumes is itself clear evidence of the excitement which this field develops. Since these four volumes cover nearly 3000 pages, it is impossible in this short review to indicate in detail what is contained therein. Nevertheless, the flavour can be presented. Each volume is a multiauthor presentation in which the names are for the most part well known to connoisseurs of the field.

Part A, covering the conceptual basis of this topic area contains 11 chapters dealing, inter alia, with the theory of electron transfer, distance dependences, competition between energy and electron transfer, the problems of preventing reverse electron transfer, the theory of solvent effects, photochemistry and photophysics of organic charge transfer complexes, etc.

Part B, dealing with experimental techniques and medium effects, has 10 chapters dealing with laser spectroscopic methods, pulse radiolysis, magnetic and electrical fields, time-resolved phenomena, electron spin resonance, and temperature, wavelength and pressure dependences. Four chapters on the medium effects cover solvent and salt effects, membrane and interface problems and polyelectrolytes.

Part C, covering photoinduced electron transfer with respect to organic substrates, has 11 chapters covering a range of different organic systems

from hydrocarbons to aromatics to heteroaromatics, carbonyls, iminium cations, thiols, thiol ethers, flavins and light-induced reactions at dyestuffs.

Finally Part D, dealing with inorganic substrates has six chapters, involving the activation of molecular oxygen, studies of dioxygen complexes, electron transfer in hexacoordinate inorganic complexes, supramolecular systems, and organometallic compounds, etc. There are also seven chapters dealing with the applications of photoinduced electron transfer including photocatalysis on semiconductors, intramolecular electron transfer, solar energy, information storage, microlithography and drug-induced photosensitization.

The topics considered in these four volumes are extremely diverse and cover the field very effectively. This is of course not a comprehensive coverage of the field but it does provide some information on any aspects that one might be interested in. Newcomers to the field would greatly profit by working through these books while experts in the field will also gain a great deal by having all this information at their fingertips.

All the books have detailed subject and author indexes. They are printed by photo-offset from the original manuscript, and for the most part, this has been successful. It does mean, however, that the actual typeface varies from one chapter to another. Nevertheless, the presentation is excellent.

The Editor's desk

Critical Stability Constants — Volume 6, 2nd Supplement. Compilers, Robert M. Smith and Arthur E. Martell. Plenum, New York, 1989. 643 pp. Price U.S. \$95.00. ISBN 0-306-43104-1.

This reviewer remembers with pleasure referring frequently to the first compilation of stability constants published by the Chemical Society in 1964. The information contained therein was a magnificent key to understanding or at least rationalizing the binding of ligands of all kinds to a wide variety of metals. Such data were also invaluable in rationalizing metal-ligand bonding in the class A, B format just being recognized at that time. Since then there have been a series of supplements to this work, culminating in this volume which supplements early data to 1985. Earlier volumes tended to present a wide variety of often conflicting data for a given metal-ligand fragment. The less-expert reader had difficulty in deciding which number to choose. In this volume, the editors have made the critical comparison themselves and present the values they consider most reliable. References to the less-reliable numbers are, however, included. The procedure developed to make this critical choice is presented in detail in the Introduction.