

Book Review

**Chiral Photochemistry. Molecular and Supramolecular Photochemistry,  
Volume 11 Edited by Yoshihisa Inoue (Osaka University) and  
Vaidhyanathan Ramamurthy (Tulane University). Marcel Dekker:  
New York. 2004. xii + 686 pp. \$185.00. ISBN 0-8247-5710-6.**

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*J. Am. Chem. Soc.*, **2005**, 127 (14), 5272-5272 • DOI: 10.1021/ja0409917 • Publication Date (Web): 09 March 2005

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**Chiral Photochemistry. Molecular and Supramolecular Photochemistry, Volume 11.** Edited by Yoshihisa Inoue (Osaka University) and Vaidhyanathan Ramamurthy (Tulane University). Marcel Dekker: New York. 2004. xii + 686 pp. \$185.00. ISBN 0-8247-5710-6.

This book is a part of an excellent series on topics spanning all areas of photochemistry. It provides a range of articles by experts dealing with various aspects of controlling the chirality of photochemical reactions.

In the opening chapter, Rau reviews the history and recent results in the interesting field of direct control of chirality by employing “chiral” photons, that is, circularly polarized light. A chapter by Brumer and Shairo follows in which they cover a fascinating use of optical methods wherein quantum control and coherence effects are employed to separate enantiomers. Rikken describes the observation of magnetochiral anisotropy in asymmetric photochemistry and other fields in Chapter 3, and in the succeeding chapter, Inoue provides a comprehensive review of a wide range of photoreactions involving photosensitized enantiodifferentiating reactions. Complementing Inoue’s article is Chapter 5 by Hoffmann and Pete on diastereodifferentiating photoreactions.

In the next three chapters, respectively, Yokoyama and Saito provide a brief review of chirality in photochromism, categorized in terms of reaction modes; Sakaki and Hamada review chiral photochemistry with transition metal complexes, a subject that is relevant to the stereochemical aspects of electron transfer and energy transfer; and Grosch and Bach discuss chiral templates that transfer chiral information through complexes in solutions. Wada and Inoue review the conceptually relatively new and mechanistically interesting use of supramolecular ideas for chiral induction of photoreactions in Chapter 9, and in the following chapter, Kuroda discusses the principles and applications of solid-state circular dichroism, which is shown to offer valuable information on the supramolecular nature of solid-state reactions.

Sakamoto next reviews solid-state photoreactions using chiral crystals, systems that to date have provided the highest enantiomeric excesses of products for a range of reactions. Then Scheffer describes a novel method that he pioneered using solid-state ionic chiral auxiliaries as a general method for asymmetric

photochemistry in the solid state. Koshima discusses the use of chiral hosts for creating a supramolecular environment to induce stereoselectivity in organic photochemical reactions in Chapter 13, and Ohshi outlines an X-ray investigation of configurational photoinversion of a Co complex in the crystalline state in Chapter 14. In the final two chapters, Ramamurthy et al. first review the wide scope and successes of using zeolites as hosts for investigating photoenantioselectivity employing chiral auxiliaries, and Yashima then discusses the photoresponsive properties and functions of chromophores containing chiral polymers with a configurational or conformational chirality in the polymer main chains.

This volume is an important contribution to the field of chiral induction by photochemical methods. It covers a vast range of topics in the field and should be very useful for those interested in reviewing or entering the field, as well as for experts who are interested in detailed coverage of the subject.

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JA0409917

10.1021/ja0409917

**Handbook of Biotransformations of Aromatic Compounds.** By Brian L. Goodwin (retired). CRC Press LLC: Boca Raton, FL. 2005. 2128 pp. \$450.00. ISBN 0-415-27176-2.

This resource lists the biotransformations of 20 000 aromatic compounds that contain or are fused with one aromatic C<sub>6</sub> ring. The data presented here were gleaned from the literature from major research journals since 1972. In Part 1, “Reactions of Individual Compounds”, each compound is listed alphabetically and its metabolism is described, including forward and reverse mechanisms. In Part 2, “Enzymes and Reactions”, descriptions of the different types of organic reactions and the enzymes involved are given. The book also includes a searchable CD-ROM of aromatic compounds researched from 1900 through 1972. An extensive bibliography and a subject index for Part 2 complete the book.

JA041055U

10.1021/ja041055u