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BOOK REVIEWS

Radioionidation Reactions for Pharmaceuticals: Compendium for Effective Synthesis Strategies. By Heinz H. Coenen (Institute of Nuclear Chemistry, Jülich, Germany), John Mertens (BEFY/NUGE, Bruxelles, Belgium), and Bernard Mazière (CEA/DRIPP, Orsay France). Springer: Dordrecht. 2006. xii + 102 pp. $99.00 ISBN 1-4020-4560-3.

The radioactive isotopes of iodine have been important tools for the diagnosis and treatment of disease for decades. This short book is a compendium of information on the preparation of radioiodine pharmaceuticals. It is not an up-to-date summary of the latest research in this area—most references are from before 2000—but a collection of mature, well-tested ideas about the preparation of radioiodine pharmaceuticals.

The book begins with a discussion of the nuclear properties and preparation of the radioactive isotopes of iodine, ranging from ^{120}I to ^{131}I. Chapter 3 summarizes some important physical and chemical properties of radiolabeled compounds and pharmaceuticals. Chapters 4 and 5 deal with the general ideas of preparing radiolabeled compounds and contain detailed specific procedures for labeling and purification. General guidelines for evaluating procedures for radioiodination are briefly discussed in the final two chapters.

All in all, this succinct volume may be of interest to the specialist in radiopharmaceutical preparation.

Walter Loveland, *Oregon State University*

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Modern Aspects of Electrochemistry, No. 39. Edited by C. G. Vayenas (University of Patras, Greece), Ralph E. White (University of South Carolina), and Maria E. Gamboa-Adelco (Superior, CO). Springer Science + Business Media, LLC: New York. 2006. xxii + 280 pp. $139.00. ISBN 0-387-23371-7.

This 39th edition of the venerable series *Modern Aspects of Electrochemistry* contains five chapters covering an eclectic mix of topics relevant to electrochemical phenomena. In the first chapter, Politzer and Murray discuss varying treatments of solvent−solute interactions. Both continuum and discrete models are described, and their relative merits are evaluated particularly with respect to ionic solvation. A discussion of the energy relationships of linear solvation concludes the chapter.

In the comprehensive and well-written second chapter, Zhang discusses porous silicon in terms of its morphology and mechanisms of formation. He describes and evaluates the various available models and outlines the intricate relationship between morphology and kinetics in reactions for forming porous silicon.

The third chapter by Fahidy is a description of the uses of Markov chains in modeling electrochemical processes. Markov chains represent a probabilistic method of prediction in which future events depend only on the present state of the system involved. After a brief introduction to Markov chains, the author discusses some uses of this tool in modeling electrode surface processes, such as a random walk of a surface ion between adjacent centers. Process-related topics, such as electrolyzer performance and cell reliability, round out the chapter.

Go and Pyun discuss the use of fractals to describe rough surfaces and interfaces in the next chapter. The authors show how to extract parameters from microscopic images of surfaces and use these to evaluate processes like diffusion and corrosion. This chapter lacks the topic of electrodeposition, but it still provides a good starting point for those interested in processes of surface evolution.

Finally, the fifth chapter by Vijh covers electrochemical treatment of tumors. In this process, electrodes are arranged on opposite sides of a tumor, and a current passed between them causes its necrosis. The author discusses the history of this treatment going back over 100 years and the more modern understanding of the process, including the electrochemical events occurring at both electrodes. Electrochemical treatment of tumors is in use in only a few clinics worldwide, but the author makes a case for its continued investigation and possible adoption into the cancer-fighting arsenal.

The articles in this book are well written and well referenced, and the volume should find a deserved place in chemistry libraries.

Andrew A. Gewirth, *University of Illinois at Urbana-Champaign*

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Handbook of Practical X-Ray Fluorescence Analysis. Edited by Burkhard Beckhoff (Physikalisch-Technische Bundesanstalt, Berlin, Germany), Birgit Kanngiesser (Technische Universität Berlin), Norbert Langhoff (IfG-Inst. for Scientific Instruments GmbH, Berlin), Reiner Wedell, and Helmut Wolff (Institut für Angewandte Photonik e.V., Berlin). Springer: Berlin, Heidelberg, New York. 2006. xxiv + 864 pp. $459.00. ISBN 3-540-28603-9.

This handbook was designed to be "a resource for scientists and industrial users that provides enough information to conceive and set up modern XRF [X-Ray fluorescence] experiments for use in a wide range of practical applications". There are nine chapters, each of which is self-contained, that cover the history of XRF, the details of its instrumentation, methods of quantitation, and current applications. An appendix on "X-Ray Safety and Protection" and "Useful Data Sources and Links" as well as a subject index complete the book.

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