

**CRC Handbook of Fundamental Spectroscopic Correlation Charts.** By Thomas J. Bruno (National Institute of Standards and Technology, Boulder, CO) and Paris D. N. Svoronos (City University of New York). CRC Press and Taylor & Francis Group: Boca Raton, FL. 2006. xiv + 226 pp. \$89.96. ISBN 0-8493-3250-8.

This book is a collection of spectroscopic correlation charts and tables to aid the reader in interpreting spectroscopic measurements. Charts and tables are provided for the following areas: Ultraviolet–visible Spectrophotometry; Infrared Spectrophotometry; Nuclear Magnetic Resonance Spectroscopy; Mass Spectrometry; Laboratory Safety; and Unit Conversions and Physical Constants. A subject index and a chemical compound index complete the book.

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**Handbook of Chiral Chemicals, 2nd Edition.** Edited by David Ager (DSM Pharma Chemicals and PharQuest LLC, Raleigh, NC). CRC Press and Taylor and Francis Group: Boca Raton, FL. 2006. xvi + 648 pp. \$179.96. ISBN 1-57444-664-9.

The purpose of this book, according to the editor, “is to highlight the problems associated with the production of chiral compounds at a commercial scale.” This includes a discussion of how key materials of the chiral pool, e.g., amino acids, carbohydrates, and terpenes, are obtained. The book also covers “methods that can be used to introduce or control stereogenic centers” as well as specific examples of methodologies used to create specific compounds. A subject index completes the book.

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**Adventures in Chemical Physics. Advances in Chemical Physics, Volume 132.** Edited by R. Stephen Berry (The University of Chicago) and Joshua Jortner (Tel Aviv University). Series Edited by Stuart A. Rice. John Wiley & Sons, Inc.: Hoboken, NJ. 2006. xiv + 388 pp. \$175.00. ISBN 0-471-73842-5.

This special volume of *Advances in Chemical Physics* opens with a dedication to the series editor, Stuart Rice, by Berry and Jortner. This is followed by six chapters covering a range of subjects from photosynthetic light-harvesting to second- and first-order phase transition in molecular nanoclusters to the

special properties and features of ultracold, large finite systems. Author and subject indexes complete the book.

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**Controlled Synthesis of Nanoparticles in Microheterogeneous Systems.** By Vincenzo Turco Liveri (University of Palermo, Italy). from the Series: Nanostructure Science and Technology. Edited by David J. Lockwood. Springer Science + Business Media Inc.: New York. 2006. xviii + 168 pp. \$79.95. ISBN 0-387-26427-2.

The goal of the author in writing this book was to describe the basics behind using surfactant-based micro-heterogeneous systems to produce nanoparticles. There are four chapters: Chapters 1 and 2 deal with the properties of surfactant systems; Chapter 3 is a brief description of the novel properties of materials that emerge when their dimensions are reduced to nanometer sizes; and Chapter 4, which is the most extensive and useful, presents specific recipes for producing nanoparticles using micro-heterogeneous systems. The topics covered—surfactant based microstructures, size effects in materials, confinement effects in kinetics, and materials synthesis—are tremendously large research areas, a coherent overview of which is very difficult to generate in a single volume. Unfortunately the author tries to describe all possible variations of this theme. The result is that the book reads like a list of phenomena, making it hard for the reader to gain physical insight into the field. The treatment of quantum size effects and surface properties in Chapter 3 in particular is very qualitative. For example, there is no description of how the crystal structure of the particles affects their properties.

Chapter 4 is the strongest part of the book. The author does an excellent job of reviewing the recent, very extensive, literature on the use of micelles, reverse micelles, microemulsions, etc., for producing nanoparticles. The chapter is organized by the type of micro-heterogeneous system, e.g., reverse micelle versus direct micelle, with a review of the different types of particles that have been produced in each structure. This gives the reader the unfortunate view that one should select a micro-heterogeneous system and then decide what type of particles to make. This organization also makes it difficult to understand the role of the micro-heterogeneous system: are they controlling structure or simply acting as an effective medium for avoiding precipitation of the particles? It would also have been helpful if the author were more critical of the different synthetic methods: How good is the size and shape control? How do these methods compare with other techniques for producing nanoparticles?

Overall the book is a useful compilation of the literature for synthesizing nanoparticles in surfactant-based micro-heterogeneous systems. I found it less useful as a pedagogical text, in

part because the author has tried to supply too much detail without effectively outlining the underlying principles in this field.

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**Polysaccharides I: Structure, Characterization and Use. Advances in Polymer Science, 186.** Edited by Thomas Heinze (Friedrich-Schiller-Universität Jena, Germany). Springer: Berlin, Heidelberg, New York, 2005. xii + 282 pp. \$249.00. ISBN 3-540-26112-5.

This book contains five chapters, which are well written and should be of use to both nonexpert and expert readers. Unfortunately, there is little in the way of integration so as to foster a common theme among them. The two chapters on hemicellulose and cellulose focus on the standard chemistry of polysaccharides, detailing the isolation, structure, properties, and derivatization of these important classes of plant polysaccharides. The recent development of ionic liquid solvents for these polysaccharides is also discussed. The chapters are fairly up-to-date with references to papers published in 2004, and the abbreviations and terminology within are clearly defined making these chapters quite readable for researchers interested in undertaking their first studies on these important polysaccharides.

The chapters on pectic polysaccharides and chitosan have a decidedly different biomedical theme. The pharmacognosy of pectic polysaccharides is discussed with particular focus on the application of these as immunoregulators and regulators of the complement system. The application of polysaccharides in the field of biomaterials and in formulation and micro- and nanoparticles are the focus of the chitosan chapter. These chapters should be of interest to engineers working in biomaterials and to scientists working in the pharmaceutical sciences in the areas of natural products chemistry and pharmaceutical formulation.

The final chapter is the most disconnected from the rest of the book. This chapter deals with the physical methods of polysaccharide analysis and is specifically focused on ultracentrifugation. As with the preceding chapters, it is well written and of use to both expert and nonexpert readers.

In summary, this book should be useful to scientists and engineers working with polysaccharides, but it is only valuable to those interested in the specific areas of research selected by the volume editor.

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