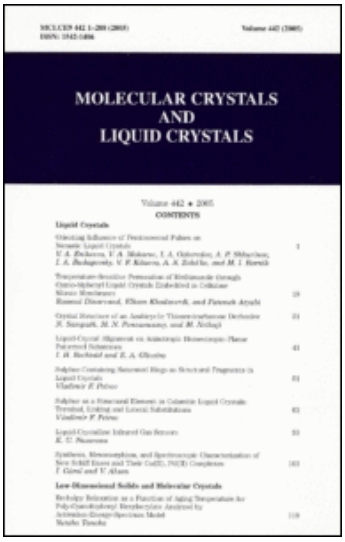

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Book Review

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Book Review

Supramolecular Chemistry, 2nd ed., by J. W. Steed and J. Atwood. John Wiley & Sons, Ltd. Chichester, 2009; ISBN 978-0-470-51233 (cloth); 978-0-470-51234 (paper); xxxii + 970 pages; $200 (cloth); $100 (paper).

This second edition of Steed and Atwood's text is a significant expansion and has much to offer as a teaching text for advanced undergraduates as well as a reference source for interested researches. The book consists of 15 chapters titled as follows: Concepts; The Supramolecular Chemistry of Life; Cation-Binding Hosts; Anion Bonding; Ion Pair Receptors; Molecular Guests in solution; Solid-State Inclusion Compounds; Crystal Engineering; Network Solids; Self-Assembly; Molecular Devices; Biological Mimics and Supramolecular Catalysis; Interfaces and Liquid Assemblies; Supramolecular Polymers, Gels, and Fibres; Nanochemistry. Most chapters have a summary and study problems. The problems range from straightforward to challenging. PowerPoint slides of the figures in the book and solutions to the problems are found on the Wiley Web site.

Simply reading the chapter titles will convey that the authors have covered topics in organic, inorganic, and biological chemistry and materials. Yet the coverage is broad in each area and often takes on considerable depth. Topics covered include processes in solution as well as the solid state. The challenge to an instructor using the book as a text will be in deciding which areas to concentrate on. There is more than enough material for a one-semester course.

One area where the authors create some confusion is the subject of cocrystals. They give the appropriate definition as crystals containing more than one molecule on p. 386. On p. 493, they note the complexity of the term *cocrystal*. On p. 522, they refer to charge-transfer complexes as cocrystals. This is problematic, and a better classification scheme has been advanced by F. H. Herbstein (*Crystalline Molecular Complexes and Compounds*, Vol. 1, Oxford University Press, 2005). Herbstein discussed complexes between molecules A and B in terms of the dominant interactions and whether the A . . . B interaction has dominant localized or delocalized interactions. A charge-transfer complex clearly has a delocalized interaction, whereas a cocrystal such as a complex between a carboxylic acid and isonicotinamide has predominantly localized interactions.

On p. 358, the authors discuss the redox behavior of tetrathiafulvalence (TTF) and paraquats. They state that TTF is not an acceptor. Donor-acceptor termination is arbitrary. In fact, TTF undergoes irreversible reduction in cyclic voltammetry.

On p. 522, the authors discuss stacking representations of five charge-transfer complexes. They fail to make the distinction that the first four are neutral complexes, whereas TMPD-TCNQ has an ionic-ground state.

There are several structural mistakes. In Scheme 5.1, the SN macrocycle lacks the third bond to nitrogen. Structure 7.16 has an aromatic ring. On p. 453, the amine oxide should be represented as R_3N^+-O^-.

On the whole, the book is a useful contribution to the teaching of the subject of supramolecular chemistry as well as a good source for interested researchers.

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