

BOOK REVIEWS

Conducting Polymers: Special Applications. Edited by LUIS ALCACER. Reidel, Dordrecht, 1987. ix + 220 pp. \$69.00.

This interesting book represents the proceedings of a workshop held in Portugal in July of 1986. The book's principal detractor is its title, since it implies, with little subsequent evidence, a considerable discussion of applications of conducting polymers. Only three of the fifteen chapters (and two abstracts) place a major emphasis on applications. The book is instead a collection of good papers with particular attention given to the chemistry and physics of electrically conducting polymers, although two chapters are dedicated to ionic conductors. The discussion of both types of materials in a single volume is long overdue.

The first chapter (Bockris and Miller) is an entertaining review of the electrochemistry of conducting polymers, which, in fact, discusses applications (both actual and possible), including biosensors, batteries, and corrosion protection. Other chapters which specifically speak to the theme of applications deal with the use of conducting polymers as catalytic electrodes (Mammone) and gas sensors (Miasik *et al.*). Three chapters are devoted to polyacetylene and discuss Raman studies of electrochemical doping (LeFrant) and electrical properties of oriented films (Theophilou *et al.*). Two chapters discuss new porphyrin and phenothiazene polymers (Geib *et al.*) and polyphthalocyanines (Hanack *et al.*). MacDiarmid *et al.* and Epstein *et al.* treat the synthesis, electrochemistry, and physics of polyaniline in two chapters, while Wudl presents convincing evidence for structure of emeraldine (essentially polyaniline), thereby legitimizing dozens of papers in the literature. Finally, one chapter discusses the preparation of functionalized thin films using the Langmuir-Blodgett technique (Morgan *et al.*).

Ionically conducting polymers are represented with three chapters, the first of which discusses the preparation and conductivity of poly(ethylene oxide) complexes of divalent cations (Farrington *et al.*). Alkali metal-silver halide complexes with poly(ethylene oxide) are discussed by Stevens and Mellander. Spindler and Shriver discuss the preparation and conductivities of alkali metal complexes of low T_g polysiloxanes having ether side chains.

The book concludes with brief (1-3 page) reports on

panel discussions which focus on (1) preparative methods and properties of well-oriented conducting polymers, (2) prospectives of realization of polymer electrolytes with amorphous structures and high room temperature conductivities, (3) interfaces and contact problems, and (4) cyclability, power efficiency, and energy density of polymer electrolyte cells. The reports are intelligently written and nicely summarize the papers of the Proceedings in the context of applications.

The data presented are new enough to make the book a welcome addition to the growing collection of books devoted to conducting polymers.

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Studies in Surface Science and Catalysis, Vol. 33, Synthesis of High-Silica Aluminosilicate Zeolites. By P. A. Jacobs and J. A. Martens. Elsevier, Amsterdam/New York, 1987. xvi + 390 pp. ISBN 0-444-42814-3. \$136.50.

This is a very appealing book, published as Volume 33 in the series "Studies in Surface Science and Catalysis," with many graphs and halftone pictures (some of them not very well reproduced), printed on good semigloss paper. The thin paper makes leafing through this book very easy despite the over 400 pages of text and figures.

Research on high-silica zeolites has soared during the last 10 years and by now constitutes the bulk of both academic and (published) industrial research. Many laboratories are actively synthesizing new materials but proven recipes are difficult to extract from the jungle of patent literature, or even from published literature reports. However, the synthesis of good and representative samples is the most important aspect of characterization or catalysis. This is where this new book will be very useful for both the novice and the advanced synthetic chemist. The authors are two experienced zeolite chemists from the University of Leuven in Belgium, known primarily for their work on characterization of catalytic materials.