

Book Reviews

Advances in Chromatography. Volume 41. Edited by Phyllis R. Brown (University of Rhode Island) and Eli Grushka (Hebrew University of Jerusalem). Marcel Dekker: New York, Basel. 2001. xxvi + 426 pp. \$195.00. ISBN: 0-8247-0509-2.

Those familiar with the series *Advances in Chromatography* will find this volume up to the high standards they have come to expect. The literature coverage is comprehensive and up-to-date, and the topics, written by scientists recognized for research in their respective fields, are of contemporary interest.

Briefly, the current volume contains authoritative reviews of the following topics: uses of theoretical concepts for understanding kinetic processes in electrochromatography and their impact on the development of instrumentation; development of supported liquid and porous membrane extraction techniques; application of rapid gradient methods to preparative liquid chromatography; design and applications of molecularly imprinted polymers for solid-phase extraction; application of immobilized biomembranes for the isolation of biologically active compounds; derivatization techniques to facilitate electrochemical detection of predominantly low-molecular-mass biologically important compounds; applications of liquid chromatography for element speciation studies and a limited discussion of detection techniques; temperature-responsive chromatography using separation materials that change their chromatographic properties with temperature; and a largely theoretical account of the fundamental properties of carrier gases for capillary gas chromatography and their influence on relative retention properties. The final chapter provides an overview of the chemistry and analysis by liquid chromatography of catechins in tea.

Like other volumes in this series, there is no particular theme for this issue and the 10 chapters have to be considered as stand-alone review articles, which will likely excite different degrees of interests for the individual reader. Thus, the logical market for this work is a technical library in which an individuals can skim through chapters of peripheral interest to their research specialty, read about how other fields are developing, or read a few chapters comprehensively that directly impact on their studies. This is how I have usually treated each volume as it arrives in our library. I commend the editors in their efforts to maintain a consistent style, scientific level, and critical selection of articles over many years.

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Physical Chemistry of Polyelectrolytes. Surfactant Science Series. Volume 99. Edited by Tsetska Radeva (Bulgarian Academy of Sciences). Marcel Dekker: New York, Basel. 2001. xvi + 882 pp. \$250.00. ISBN: 0-8247-0463-0.

Physical Chemistry of Polyelectrolytes presents a wonderful overview of the current state-of-the-art in this area of polymer science, as well as information on key developments in the field. It covers such aspects of polyelectrolytes as structure and properties of polyelectrolyte solutions and gels, polyelectrolytes at surfaces and interfaces, and complexation of polyelectrolytes with surfactants and proteins.

The book is divided into three parts. The first deals with the structure and properties of polyelectrolyte solutions. It contains presentations that bridge theory, computer simulations, and experiments. The topics that are covered include fast and slow modes and ordinary—extraordinary transition in polyelectrolyte solutions, conductivity of aqueous and nonaqueous polyelectrolyte solutions, and phase separation and physical gelation in solutions of polyelectrolytes in the presence of multivalent ions. The reviews of theoretical and computer simulations address the problem of counterion-condensation-mediated attraction between polyelectrolytes and the breakdown of the classical cell model for solutions of rigid polyelectrolytes.

The second part of the book focuses on the properties of polyelectrolytes at surfaces and interfaces. It covers such areas as kinetics of polyelectrolyte adsorption, stability of colloid—polyelectrolyte suspensions, emulsions stabilized by polyelectrolytes, self-assembly of block polyelectrolytes at air—water interfaces, and specificity of polyelectrolyte—surfactant interactions at solid—liquid interfaces. The final section addresses complexation of polyelectrolytes with surfactants, proteins, and metal ions, and phase transitions in polyelectrolyte gels as well as migration of polyelectrolytes in gels.

The book pulls together in a single volume results and ideas from many scientific papers. It contains one of the best collections available for references of classical works in the field of polyelectrolytes and is current up to the year 2000. This is a perfect book for the experts in the field as well as for scientists interested in a comprehensive introduction into this active area of polymer science.

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