

might want to consider a brief scan through its pages prior to investing another \$89.95.

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Analytical Chemistry. Edited by R. Kellner, J.-M. Mermet, M. Otto, and H. M. Widmer. Wiley-VCH, New York, 1998. xxv + 916 pp. 21.5 × 30 cm. ISBN 3-527-286101. \$84.95.

Analytical Chemistry is designed to serve as an approved text for the FECS curriculum in analytical chemistry. As a text for a training course it includes problems, worked example problems, references, and learning objectives to guide students in their study of analytical chemistry. The excellently designed figures are well-drawn and complement the text, providing both practical and theoretical information concerning the analytical technique being discussed. The appendix includes items from statistical tables to dissociation constants arranged in a convenient and workable manner.

The well-organized chapters, which cover an extensive number of analytical techniques, are arranged so that material dealing with "The Analytical Process" and "Quality Assurance and Quality Control" precedes chapters dealing with analytical procedures. The range of topics is comprehensive, including chapters on computer interfacing of analytical instruments, LC-MS, GC-MS, and other hyphenated techniques as well as classical techniques of analytical chemistry. *Analytical Chemistry* will serve as an excellent text as well as a valued reference following completion of the student's course of study.

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High-Performance Capillary Electrophoresis. Edited by Morteza G. Kahaledi. John Wiley & Sons, New York, NY, 1998. xxxii + 1047 pp. 16 × 24 cm. ISBN 0-471-148512. \$150.00.

This is the most recent addition to *Chemical Analysis, a series of Monographs on Analytical Chemistry and its Applications*. This multiauthored book contains 31

chapters, organized into five sections on theory, detection systems, techniques, applications in chemical analysis, and determination of physicochemical parameters.

The first section on theory takes both beginner and expert reader through a detailed step-by-step description of capillary zone electrophoresis, micellar electrokinetic chromatography, capillary gel electrophoresis, capillary isoelectric focusing, capillary isotachopheresis, and capillary electrochromatography. Rigorous mathematical descriptions of the forces involved in separation are presented for the technically equipped reader. In addition, each chapter gives a brief, "layman's" version of the underlying separation theory for the novice.

The section on detection systems includes chapters discussing light-based detection, electrochemical detection, indirect detection, and mass spectrometric detection. The chapter on light-based methods, the most frequently used detection method in capillary electrophoresis, is particularly well-written. With this said, the other detection methods are newer, less developed, certainly difficult to review, and harder to accurately predict the future directions. The lack of more than a few commercial detectors makes this section of this book somewhat "expert"-oriented limiting its value to the beginner or the casual reader.

The techniques section includes chapters on sample introduction and stacking, coated capillaries, nonaqueous solvent systems, method validation, two-dimensional separations, and fabrication of microchips for separations. These techniques are all clearly written and should be of great interest to the expert and beginner alike.

The section on applications is excellent for those readers specifically interested in the analysis of peptides, proteins, carbohydrates, DNA, enantiomeric mixtures, inorganic ions, and pharmaceuticals. Also included are chapters covering on-line sample preconcentration, microbioanalysis and chemical analysis, and enzyme assays. The selection of these applications, while not all inclusive, clearly establishes the versatility of capillary electrophoresis.

The final section on physicochemical studies contains three short chapters on affinity capillary electrophoresis, determination of physicochemical parameters, and quantitative structure-activity relationships. These give the reader a completely different perspective in how capillary electrophoresis can be applied to obtain useful data about the physicochemical properties of macromolecules and their interactions.

The monograph is surprisingly well-edited and reads better than most multiauthored texts. This reader found only a few errors in individual chapters. While detailed experimental procedures are not presented in each chapter, the reader is directed to carefully selected primary literature; thus, this monograph serves as a helpful guide to those new to the field. The updates presented at the conclusion of many of the chapters are somewhat disconcerting, but the listings of recent publications make this monograph very current. The figures and schemes are of high quality, and the general index is both complete and useful. This reviewer recommends this monograph for all libraries and for any

researcher currently using or seriously contemplating the use of capillary electrophoresis.

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The Combinatorial Index. By Barry A. Bunin. Academic Press, New York, NY. 1998. xvii + 322 pp. 18 × 26 cm. ISBN 0-12-141340-3. \$79.95.

Surely virtually everyone now knows that combinatorial chemistry is a rapidly growing multidisciplinary field in medicinal chemistry. The present rate of publication of research articles exceeds two papers daily, and the literature is widely scattered. Consequently it is becoming difficult for all but the most dedicated to keep abreast of current findings in an organized way. This book is a welcome aid to this process. It is an easy to use collection of reliable literature methods for all phases of medicinal chemical laboratory transformations using combinatorial techniques and places a particular emphasis on resin-based methods and the preparation of small, druglike libraries.

The book is divided into chapters describing particular laboratory transformations and procedures starting with a general background chapter and going on in turn to chapters dealing with linker technologies, specific reactions for preparing libraries, analytical methods, and solution/mixed solid-phase–solution reactions. This is followed by a series of appendixes keyed back into the preceding chapters covering a summary of functional group transformations, classification of heterocyclization reactions, unnatural biopolymers, oligosaccharides, a list of abbreviations, and then useful author and subject indexes. Each reaction covered is described in sufficient detail that a reasonably experienced chemist could perform the reaction described or use the description as the basis for developing an analogous reaction. Each reaction is also commented upon bringing out specific points of interest and ranges of utility, and each reaction or process is referenced at the point of discussion.

On the whole; this book is a very useful and practical “cook book” that many chemists will keep close at hand and refer to often. It is clearly organized and well-written and is comparatively inexpensive. Despite the magnitude of the task, it is hoped that Bunin will be able to follow through on his desire to keep the book up to date with supplements on or off the net.

All chemists who work in this key area will want to have a copy near at hand and will wear it out through constant resort. It is not, however, the sort of book that chemists will read from cover to cover. Those medicinal

chemists who are not actively engaged as yet in combinatorial work will find it an excellent way to learn about it.

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Practical Application of Computer-Aided Drug Design. Edited by Paul S. Charifson. Marcel Dekker, Inc., New York, NY. 1997. x + 52 pp. 16 × 23.5 cm. ISBN 0-8247-9885-6. \$150.00.

Practical Application of Computer-Aided Drug Design is an impressive compilation of chapters covering not only computational drug discovery techniques but also related fields in structural biology and biophysical chemistry. The authors of the various chapters have had considerable experience in their respective areas and many times provide lucid explanations of respective approaches to drug discovery. In general, the text is well-referenced and should be a valuable resource for interested researchers and students. Recent Successes and Limitations in Computer-Aided Drug Design, the topic of the first chapter; authored by Paul S. Charifson and Irwin D. Kuntz, provides a key take home message that the more “simplistic methods” have been the most successful. The fundamental concepts and techniques emphasized include molecular graphics applications, the calculation of interacting energies, molecular docking, QSAR, and pharmacophore modeling. The authors conclude that the simplistic method provides a multidisciplinary “buy-in” early in the design process and allows rapid evaluation of ideas studies permitting early incorporation of synthesis and bioavailability considerations. Clearly stated is the author’s bias that structure-based approaches possess the greatest overall potential.

The second chapter on Recent Techniques and Applications in Pharmacophore Mapping by Mark G. Bures highlights in some detail recent pharmacophore mapping techniques. There are 88 references that range from very specific examples such as the work on sigma 1 pharmacophores by Richard Glennon to the more general approaches using superposition methods (DISCO) developed by Yvonne Martin and colleagues at Abbott.

The Generation and use of 3D Databases for Drug Discovery is reviewed by Renée L. DesJarlais. The chapter provides general information on the sources of 3D structures and on how to assess the quality of structure data bases as well as a review of different search methods and specific applications including pharmacophore searching (auxin transport and protein kinase C inhibitors), caveat (cyclosporine analogues and major histocompatibility complex peptides), and DOCK (HIV-1 protease, thymidylate synthetase, influenza hemagglutinin, and inhibitors of parasitic proteases). The chapter, although of interest and well-presented, covers a smaller segment of the literature than the other chapters with only 20 references.