Book Reviews *

Research-Doctorate Programs in the United States: Continuity and Change. Edited by Marvin L. Goldberger, Brenden A. Maher, and Pamela E. Flattau. National Academy Press: Washington, DC. 1995. xiv + 740 pp. $59.95. ISBN 0-309-05094-7.

This book updates and combines, into one comprehensive volume, the five volumes of a series of publications available in the 1980s on doctoral programs in the United States. The five volumes ranked graduate programs in the humanities, biological science, mathematical and physical sciences, social and behavioral sciences, and engineering. What makes this volume unique is the science behind the ratings, as the doctoral programs were studied and rated by a committee of the prestigious National Research Council. The volume provides information on nearly 4000 doctoral programs in 41 subdisciplines at 274 doctorate-granting institutions. This book contains four chapters, references, appendixes, and an index.

JA965640+

S0002-7863(96)05640-5

Methane and Alkane Conversion Chemistry. Edited by Madan M. Bhasin (Union Carbide) and D. W. Slocum (Western Kentucky University). Plenum: New York. 1995. ix + 349 pp. $110.00. ISBN 0-306-45212-X.

The symposium from which this book originates took place during the 207th National Meeting of the American Chemical Society which was held in San Diego, March 13−17, 1994. Two ACS Divisions, Petroleum Chemistry and Industrial and Engineering Chemistry, cosponsored the symposium. The symposium was developed to present the current research on methane and alkane conversion There are 11 reports on Gas Conversion: Methane and Alkane Activation Chemistry, 8 reports on the Mechanism and Modeling of Methane-Rich Oxidation, and 17 reports on Methane to Oxygenates and Chemicals.

JA9656412

S002-7863(96)05641-7

High Resolution Laser Photoionization and Photoelectron Studies. Edited by Ivan Powis (University of Nottingham, England), Tomas Baer (University of North Carolina−Chapel Hill), and Cheuk-Yiu Ng (Iowa State University). Wiley: New York. 1995. xvi + 509 pp. $154.00. ISBN 0-471-94158-1.

Vacuum ultraviolet spectroscopy experienced an upsurge, beginning in about the 1950s. At that time, high resolution (<1 cm^{-1}) and photoionization suggested the measurement of Rydberg states by absorption spectroscopy, and extraction of an ionization potential by series extrapolation. About 30 years ago, mass resolved photoionization measurements (PIMS) began in earnest, and achieved resolutions as low as $\sim$2 cm^{-1} in favorable cases. However, apart from determining an adiabatic ionization potential, the interpretation of PIMS was nontrivial, due to the ubiquitousness of structure due to autoionization. A complementary study, He I photoelectron spectroscopy (PES) made its appearance at roughly the same time. With He I PES, the interpretation was usually straightforwrd, but resolution (limited not by photon but electron analysis) was limited to about 200 cm^{-1}, at best about 80 cm^{-1}. This was sufficient for vibrational resolution in many cases, but not rotational resolution (except for H_2).

In the past 10−15 years, the advent of lasers has altered the direction of high-resolution photoionization and photoelectron studies. Rotational resolution has now been achieved in a number of small to moderate sized molecules. The methods of achieving this breakthrough, the results obtained, and the analyses required are the topics of *High Resolution Laser Photoionization and Photoelectron Studies*. The book consists of 12 chapters, each with a different perspective reflecting the authors' areas of specialization. The emphasis in the early chapters is on zero kinetic energy (ZEKE) analysis of electrons, a kind of photoelectron spectroscopy which is limited in resolution essentially by the laser bandwidth, rather than dispersive electron analysis. The method depends upon laser excitation of a species near an ionization threshold and then extracting the near zero energy electrons with a pulsed field, after an appropriate time delay ($\sim$1 μs). Early on, it was discovered that most of these near zero energy electrons actually emanated from very high Rydberg states ($n \gtrsim 150$), induced to ionize by the Stark field imposed by the pulse. However, appropriate corrections could be made, and very precise ionization potentials and rotational structure could be observed.

The recognition and interpretation of ZEKE still seems to be a matter of dispute. In Chapter 1, it is attributed to discussions at Yale, and ZEKE PES "detected only electrons that were generated by field ionizing long-lived Rydberg states". In Chapter 2 it is stated that true zero energy electrons and those induced by the Stark field produce very similar spectra and both are called ZEKE electrons. In Chapter 3, the "relationship between field ionization and ZEKE spectroscopy was first made by Reiser, et al"−i.e. the Munich group of Müller-Dethlefs et al.

The historical development of PES, from HeI PES to threshold photoelectron spectroscopy (TPES) (a technique somewhat similar to ZEKE but performed prior to the use of lasers, and hence lacking the high resolution) to ZEKE is discussed in the first four chapters, with considerable repetition. The exceptionally long lifetime of the Rydberg states detected by pulsed field ionization (ZEKE-PFI) has attracted considerable attention. This lifetime is longer than would be predicted by decay rates proportional to n^{-3} and makes ZEKE-PFI possible. In the second half of Chapter 4, Merkt and Softley make a valiant attempt to consider the origin of the ZEKE electrons, to include the various kinds of interlopers and perturbations that can distort the ZEKE intensities, and that can permit ZEKE vibrational intensities to appear far beyond the Franck−Condon zone (earlier seen in TPES). In a number of cases, they conclude that the interactions are too complex, requiring many interacting channels (as many as 14 vibrational channels in a 200 cm^{-1} domain in H_2).

ZEKE can be performed by resonantly enhanced multiphoton ionization (REMPI) or with a single VUV photon. Merkt and Softley note that single photon ionization is universal, whereas REMPI requires knowledge of an intermediate state and high-intensity (focused) lasers. On the other hand, REMPI enables detailed studies of intermediate states and the ability to control the vibrational states accessed, and hence to choose an intermediate state with a geometry different from that of the ground state. This capability is used to great advantage by Grant (Chapter 11) in the study of NO_2, which has a bent neutral ground state and linear cation state. Conventional PIMS or PES was unable to access the adiabatic IP, but REMPI by way of a linear low Rydberg state is notably successful.

Chapter 7 (Reid and Leahy) provides a good pedagogical approach to the complex problem of the angular distribution of rotationally state-selected photoelectrons (via an intermediate state) in molecules. They note that the "use of different polarization geometries, which is possible in a 2-photon, 2-color experiment, is essential in the determination of the dynamical parameters that control molecular photoionization because there are many more such parameters than there are in the atomic case". Usually, ZEKE-PFI does not provide angular information.

Volumes like the present one provide reviews of the works of individual groups, rather than a coherent theme. Thus, Wiedmann and White discuss single photon ionization of small molecules such as O_2, NO, CH_3, H_2O, H_2S, and H_2CO, while Merkt and Softley include H_2, N_2, O_2, and NO. Using REMPI, Müller-Dethlefs describes results on NH_3, H_2O, and H_2S, as well as benzene and some of its hydrogen-bonded complexes. C.A. de Lange discusses his work on the hydrides OH, NH, and HCl, Grant focuses on NO_2, including the effects of vibrational autoionization, and Eyler summarizes the current level of detail on H_2, especially the ionization and dissociation thresholds, including hyperfine effects. Most of these studies are of interest to chemical and molecular physicists. Chemists might find the REMPI studies of large molecules more to their taste. Thus, Knee describes intramolecular vibrational relaxation, vibrational predissociation of van der Waals complexes and nonradiative transitions of electronic states for molecules such as fluorene, acenaphthene, 1-naphthol, *p*-difluo-

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[*] Unsigned book reviews are by the Book Review Editor.

robenzene, and benzene. Weisshaar and collaborators deduce internal rotational barriers for aromatic neutrals and cations (toluene, phenylsilane). For the more theoretically inclined, Lefebvre-Brion presents a concise mathematical description of couplings (*l*-uncoupling, s-uncoupling, spin−orbit coupling, electrostatic coupling) related to corresponding frame transformations. Wang and McKoy review their method of calculating rotational intensities. Their chapter contains a collection of complicated equations with a large number of symbols, in an attempt to be general but with no derivation. The relative merits of McKoy's method (single center expansion of the photoelectron orbital in the field of the ion) with the multichannel quantum defect frame transformation is not explained, leaving the reader bewildered.

There are numerous errors, both factual and typographical, which could have been minimized by tighter editing. Among the more amusing is (p 155) "It is worth not(h)ing that ..."

For the nonspecialist, this book describes new high-resolution techniques, and some possible directions of research. For the specialist, individual chapters provide reviews and references as of late 1994 to early 1995.

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JA955349E

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Issues in Environmental Science and Technology, Volume 4: Volatile Organic Compounds in the Atmosphere. Edited by R. E. Hester (University of York) and R. M. Harrison (University of Birmingham). The Royal Society of Chemistry: Cambridge. 1995. xi + 140 pp. $27.00. ISBN 0-85404-215-6.

This informative little book is a recent entry in this series devised "in response to the rapid growth of interest in the environment and the acute need for concise, authoritative, and up-to-date reviews of topical issues". It is indeed concise, authoritative, and up-to-date, and the content of many chapters is of general current interest. The amount of information contained in the various tables, figures, and reaction schemes is impressive, and it should be a great convenience to all concerned with volatile organic compounds (VOCs) in the atmosphere to have this particular collection of information in one location.

The first chapter (Sources, Distributions, and Fates of VOCs in the Atmosphere by R. G. Derwent, 30 references (20 from 1990 on), 3 tables) sets the stage nicely for the following chapters using data mainly from the U.K. supplemented by some information from the rest of Europe.

The second chapter (Atmospheric VOCs from Natural Sources by C. N. Hewitt, X-L. Cao, C. Boissard, and S. C. Duckham, 76 references (44 from 1990 on), 6 tables, 1 figure) describes measurement methods and presents information about emission fluxes or rates, global inventories, and typical air concentrations including data from locations outside the U.K. and the rest of Europe.

The third chapter (The UK Hydrocarbon Monitoring Network by G. J. Dollard, T. J. Davies, B. M. R. Jones, P. D. Nason, J. Chandler, P. Dumitraen, M. Delaney, D. Watkins, and R. A. Field, 13 references (11 from 1990 on), 5 tables, 5 figures) describes the U.K. hydrocarbon monitoring network structures, analytical procedures, and data handling and presents a wealth of hydrocarbon concentration data (much of it for 1994).

The fourth chapter (Source Inventories and Control Strategies for VOCs by N. R. Passant, 12 references (all from 1990 on), 3 tables, 1 figure) describes developing, improving, verifying, and using inventories; four techniques for VOC abatement; and proposed measures for VOC control.

The fifth chapter (Gas Phase Tropospheric Chemistry of Organic Compounds by R. Atkinson, 73 references (55 from 1990 on), 1 table, 9 reaction schemes, 58 reaction equations) describes the formation of OH and NO_3 radicals, photolysis, and lifetimes of VOCs and then presents the tropospheric chemistry of alkanes, alkenes, aromatics, oxygen-containing compounds, and nitrogen-containing compounds.

The sixth chapter (Alternatives to CFCs and their Behavior in the Atmosphere by P. Midgley, 34 references (29 from 1990 on), 3 tables, 4 reaction schemes, 5 reaction equations) introduces the alternative HCFCs and HFCs and describes their reaction chemistry and atmospheric lifetimes as well as their environmental effects.

The seventh chapter (Volatile Organic Compounds in Indoor Air by D. R. Crump, 36 references (29 from 1990 on), 5 tables, 3 figures) considers VOCs in indoor air with respect to sources, measurement, concentration, health effects, control of indoor air pollution, and emission testing of products.

The eighth and final chapter (Volatile Organic Compounds: The Development of UK Policy by J. Murlis, 3 references (2 from 1990 on), 2 tables) treats the role of some of the information from previous chapters in the evolution of U.K. policy development concerning VOCs.

While the emphasis of this volume is on the U.K. with only two of the nineteen contributors from elsewhere, this collection of information has a much broader audience. The particulars are of greatest interest to engineers and scientists in the U.K. and to some extent the rest of Europe; however, engineers and scientists in other locations and students around the globe should find this work of sufficient general interest to strongly consider adding it to their personal library.

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JA965571Z

S0002-7863(96)05571-0

Electronic Processes in Catalysis−A Quantum Chemical Approach to Catalysis. By S. Yoshida (Kyoto University), S. Sakaki (Kumamoto University), and H. Kobayashi (Kyoto Prefectural University). VCH: Weinheim. 1994. xii + 284 pp. $100.00. ISBN 3-527-25265-9.

Rapid advances in computing capabilities make it possible to study the electronic structure of increasingly complicated systems. As a result, our understanding of complex molecular and solid state systems which incorporate transition metals has grown dramatically in recent years. In light of the many quantum chemical attempts to understand the underlying electronic factors in both homogeneous and heterogeneous catalysis, a monograph which surveys these applications is most welcome. The authors of the monograph have attempted to review a broad range of topics, some more successfully than others.

The first three chapters, written by S. Sakaki, make up the bulk of the book. They appear to be poorly edited, since the distinct lack of articles such as "the" and "a" detracts from the readability of these chapters. Chapter 1 reviews MO theory and is densely laden with abbreviations, equations, and jargon. While the preface to the book makes clear that the reader does not need to follow all of the mathematical details, the chapter is very heavy going. As in several of the later chapters, the attempt to be all inclusive often detracts from the text. A great many topics (including Hartree−Fock and density functional theory, semiempirical MO theory, choice of basis functions, frontier orbital theory, and Walsh diagrams) are summarized in 60 pages. As a result, no topic, with the exception of Energy Decomposition Analysis, is covered thoroughly.

Chapter 2 reviews bonding in transition metal complexes. Once again, the discussion attempts to cover everything known about these complexes in 70 pages. Much of this material is covered more thoroughly in the very readable *Orbital Interactions in Chemistry* by Albright, Burdett, and Whangbo. Unlike the book by Albright et al., the chapter does include results from many ab initio calculations. Unfortunately, the brief descriptions of these results are usually very difficult to follow. In addition, typographical errors abound. Sign errors and inconsistencies among the text, tables, and diagrams are found on nearly every page. Many figures and tables are taken out of context from the original sources, and their connection to the discussion in the text is not always apparent.

Chapter 3 provides a review of calculations related to catalysis by metal complexes. Covering such topics as nucleophilic and electrophilic attack, elementary steps in polymerization, oxidative addition, reductive elimination, metathesis, and catalytic cycles, this chapter suffers from most of the same problems found in Chapter 2. The results of many calculations are described very briefly, and it is extremely difficult to "see the forest for the trees".

Chapters 4 and 5, written by H. Kobayashi and S. Yoshida, respectively, cover fewer results and serve more as critical reviews of the work in two other areas. Chapter 4, Catalysis by Metals, surveys calculations on adsorption and reactions on metal surfaces. The strengths and weaknesses of cluster versus extended surface calculations and ab initio versus approximate methods are evaluated. Chapter 5, Catalysis by Metal Oxides, discusses bonding in general in metal oxides and then goes on to describe calculations on such topics as early and late transition metal oxides, heteropoly acids, zeolites, alumina, and supported oxides. In each case various results are compared and evaluated. Although much less comprehensive than the earlier chapters, Chapters 4 and 5 provide a critical analysis of the work that is discussed.

Much of this book is disappointing in that it makes available a catalog of calculations but does not really provide an evaluation of the results of these calculations. This will probably make the content of the book quite inaccessible to many readers. On the other hand, the book provides a comprehensive set of references (through 1992) for anyone interested in the topics covered here, and this collection of references is perhaps the greatest strength of the entire book. A reader is unlikely, for example, to understand the electronic factors related to nucleophilic attack at coordinated ligands after reading Chapter 3, but the chapter provides an extensive set of leading references where the reader can go to actually learn about this topic. In a number of instances in Chapters 2 and 3, a reader might be advised to read the text just to get at these references. Thus, the book will be useful as a starting point for anyone wanting to learn more about the relation between catalysis and electronic structure, but it does not serve as a stand-alone resource on the topic.

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JA955153E

S0002-7863(95)05153-5

Advances in Nitrogen Heterocycles. Volume 1. Edited by Christopher J. Moody (Loughborough University). JAI: London. 1995. xi + 257 pp. $97.50. ISBN 0-89232-864-9.

This initial volume of *Advances in Nitrogen Heterocycles* edited by C. J. Moody focuses on synthetic methodology. The first chapter is by H. M. L. Davies on the reactions of pyrroles with metal-stabilized carbenoids. Examples of metal-catalyzed substitution, cyclopropanation, and cycloadditions of pyrroles and indoles are covered. The chapter by T. D. Lash discusses methods for synthesis of porphyrins with fused carbocyclic rings. The chapter discusses both pyrrole syntheses that are applicable to fused ring pyrrole precursors and cyclization methods. The chapter on Pd-catalyzed coupling reactions of indoles by A. R. Martin and Q. Zheng gives a brief mechanistic overview of Pd-coupling and then provides numerous examples of vinylations, Heck reactions, and cross-couplings which have been applied to indoles. A chapter by U. Pindur describes cycloadditions of both vinylindoles and indole-2,3-quinodimethanes. H.-J. Knölker is the author of a chapter on transition metal-mediated synthesis of carbazole derivatives. This chapter encompasses Pd-mediated diarylamine cyclization, cobalt-mediated cycloadditions, reactions of anilines with Fe(II)$(CO)_3$ complexes of cyclohexadiene, and annulations via $Cr(CO)_5$−carbene complexes. S. Hibino and E. Sugino review electrocyclizations of 2,3-disubstituted indoles. The final chapter is a summary of the synthesis of both enantiomers of the antitumor agent duocarmycin by D. L. Boger. The synthetic strategy features regioselective additions to *p*-quinone diimines for generation of indolic intermediates.

Each chapter is well-referenced, and they generally emphasize work done in the last 10 years. The chapters run from 20 to 50 pages in length. The text has been set in type, rather than photoreproduced, and each chapter provides a quite thorough summary of the topic in question. If the pattern of the first volume is followed in the future, it would appear this series will tend to focus on synthetic methodology to a greater extent than most other review series covering the area of heterocyclic chemistry.

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JA955344H

S0002-7863(95)05344-3

Osteopontin: Role in Cell Signalling and Adhesion. Edited by David T. Denhardt (Rutgers University), William T. Butler (Texas Medical Center), Ann F. Chambers (University of Western Ontario), and Donald R. Denger (Beth Israel Hospital). Annals of the New York Academy of Sciences. New York Academy of Sciences: New York. 1995. 388 pp. $110.00. ISBN 0-89766-9389-8.

This book is the presentation of a conference devoted solely to osteopontin held October 21−23, 1994, in New Brunswick, NJ. A multidisciplinary group of top scientists present their latest research on this GRGDS-containing phosphoprotein secreted by most epithelial cells, many cancer cells, and stimulated or activated cells of various types including smooth muscle cells, fibroblasts, and macrophages. It is a ligand for the $a_v\beta_3$ integrin, promoting cell adhesion and triggering a signal transduction pathway that can influence gene expression. Binding multiple Ca^{2+} ions, osteopontin is involved in the formation and remodeling of mineralized tissues and Ca^{2+} homeostasis; it has also been implicated in host defense mechanisms.

JA965548D

S0002-7863(96)05548-5

Interleukin-6-Type Cytokines. Edited by Andrzej Mackiewicz (Great Poland Cancer Center), Aleksander Koj (Jagiellonian University), and Pravin Sehgal (New York Medical College). Annals of the New York Academy of Sciences. New York Academy of Sciences: New York. 1995. 518 pp. $150.00. ISBN 0-89766-931-2.

This book explains the role of interleukin-6-type cytokines in hematopoietic cell proliferation, neuronal differentiation, and acute phase response to inflammation. New data concerning the structure and function of interleukin-6, the leukemia inhibitory factor, interleukin-11, oncostatin M, and the ciliary neurotrophic factor are presented. The book also discusses cytokine receptor function, common signal transduction mechanisms, the molecular basis of cytokine-mediated alterations in gene expression, and regulation of cell proliferation. Preclinical and clinical studies with these cytokines are evaluated.

JA965543G

S0002-7863(96)05543-6

Studies in Surface Science and Catalysis #92: Science and Technology in Catalysis 1994. Edited by Y. Izumi (Nagoya University), H. Arai (Kyushu University), and M. Iwamoto (Hokkaido University). Elsevier: Amsterdam. 1995. xxii + 472 pp. $291.25. ISBN 0-444-82189-9.

This volume comprises the proceedings of the Second Tokyo Conference on Advanced Catalytic Science and Technology (TOCAT 2) held in Tokyo, August 21−26, 1994. The papers are grouped in three categories: plenary lectures, oral presentations, and papers presented at industrial poster sessions. In 1990, the Catalysis Society of Japan embarked on a new series of international conferences on catalysis entitled Tokyo Conference on Advanced Catalytic Science and Technology, aiming to stimulate closer cooperation between technology and basic research and promote new concepts for the development of useful catalytic systems. The success of the first conference encouraged the Society to hold the second conference (TOCAT 2) based on the same idea and style as its predecessor. TOCAT 2 attracted much attention with more than 500 attendants from 22 nations and 183 presented papers.

JA9553819

S0002-05381-9

Kirk-Othmer Encyclopedia of Chemical Technology, Volume 16: Mass Transfer to Neuro-Regulators. Edited by Jacqueline I. Kroschwitz and Mary Howe-Grant. Wiley: New York. 1995. xxviii + 1117 pp. $295.00. ISBN 0-471-52685-1.

This is the 16th volume of a 25-volume encyclopedia set, 4 volumes being published each year. The Fourth Edition is similar in format to the earlier editions with updates to the entries as necessary and the addition of several new subjects. This volume contains 36 entries ranging from Mass Transfer to Neuroregulators. This volume does not contain an index; however, paperback indexes are published every four volumes, and the supplement and index volumes are scheduled for publication in 1998.

JA965628H

S0002-7863(96)05628-4

Synthesis and Applications of Isotopically Labelled Compounds 1994. Edited by J. Allen (Synthelabo Recherche, France) and R. Voges (Sandoz Pharma, Switzerland). Wiley: New York. 1995. xxix + 935 pp. $199.95. ISBN 0-471-95143-9.

This book is a result of the proceedings of the Fifth International Symposium that was held June 20−24, 1994, in Strasbourg, France. The information presented is a wide-ranging, authoritative, and comprehensive coverage of the recent advances in the synthesis production and applications of stable and radioactive isotopes. This volume focuses on significant growth areas including the applications of organic compounds labelled with isotopes of carbon, hydrogen, nitrogen, oxygen, phosphorus, fluorine, and other elements; the current status and future projections for production of stable and radioactive isotopes; the use of isotopes in agriculture nutrition and environment studies; the applications of isotopically labelled compounds in pharmaceutical research and development; the use of isotopes in protein, nucleic acid, and monoclonal antibody research; and applications of labelled compounds in drug metabolism and toxicology.

JA955316Z

S0002-7863(95)05316-9

Advances in Biochemical Engineering/Biotechnology, Volume 52. Microbial and Enzymatic Bioproducts. Edited by A. Fiechter (ETH Zurich). Springer: New York. 1995. vi + 199 pp. $147.00. ISBN 3-540-59113-3.

The contents of this volume include Developments in Microbial Learning−Mechanisms of Manganese Solubilization, Production of Poly(hydroxyalkanoic Acid), The Potential of Using Cyanobacteria in Photobioreactors for Hydrogen Production, Synthetic Applications of Enzymatic Reactions in Organic Solvents, Chemical Modification of Proteins with Polyethylene Glycols, and Breakdown of Plastics and Polymers by Microorganisms. There is also an author index for Volumes 51 and 52, a subject index, 85 illustrations, and 36 tables.

JA955391+

S0002-7863(95)05391-1

High Performance Liquid Chromatography: Principles and Methods in Biotechnology. Edited by Elena D. Katz (Perkin-Elmer Corp.). Wiley: New York. 1996. x + 522 pp. $84.95. ISBN 0-471-93444-5.

The Wiley Separation Science Series provides the analyst in chemical, pharmaceutical, and clinical laboratories with well-focused books covering individual techniques, to be applied more efficiently and effectively to contemporary analytical problems. Analytical techniques based on separation processes, such as chromatography and electrophoresis, are finding a growing range of applications in these laboratories. The characterization and analysis of biomolecules such as proteins, oligosaccharides, and nucleic acids are of great importance in biotechnology, biochemistry, and molecular biology. High performance liquid chromatography (HPLC) has become one of the key analytical tools in these fields, providing rapid purification and quantitative analysis of biomolecules. This book covers the most important theoretical and practical aspects of the application of HPLC to the biosciences, including sample preparation, column selection, detection of biomolecules, preparative HPLC, and the use of HPLC for specific biomolecules. The technique is compared to alternative bioseparation methods. There are 10 chapters and an index.

JA9656560

S0002-7863(96)05656-9

Organic Reactions, Volume 48. Edited by Leo A. Paquette. Wiley: New York. 1996. vii + 880 pp. $99.95. ISBN 0-471-14699-4.

The volumes of *Organic Reactions* compile critical discussions of the more important reactions. Each chapter is devoted to a single reaction, or a definite phase of a reaction, of wide applicability. Subjects are presented from the preparative viewpoint. Particular attention is given to limitations, interfering influences, effects of structure, and the selection of experimental techniques. Chapter headings include (1) Asymmetric Epoxidation of Allylic Alcohols: The Katsuki-Sharpless Epoxidation Reaction and (2) Radical Cyclization Reactions. There are indexes and cumulative chapter titles, authors, and topics.

JA965657S

S0002-7863(96)05657-0

Advances in Mass Spectrometry, Vol. 13. Edited by I. Cornides (Eotvos University), Gy. Horvath (Institute for Drug Research), and K. Vekey (Central Research Institute for Chemistry HAS). Wiley: New York. 1996. xviii + 645 pp. $245.00. ISBN 0-471-95323-7.

This volume presents the proceedings of the 13th International Mass Spectrometry Conference, held in Budapest, Hungary, from August 19 to September 2, 1994. The full texts of the invited plenary and keynote lectures are included. This information covers the most important developments that have occurred in all fields of mass spectrometry within the last three years. A full list of all the papers presented at the poster sessions is included.

JA965659C

S0002-7863(96)05659-4

Bioluminescence and Chemiluminescence Fundamentals and Applied Aspects. Edited by A. K. Campbell, L. J. Kricka, and P. E. Stanley. Wiley: New York. 1996. xxiii + 672 pp. $195.00. ISBN 0-471-95548-5.

This book is a report on the proceedings of the 8th International Symposium on Bioluminescence and Chemiluminescence held at the University of Cambridge, U.K., September 5−8, 1994. These proceedings provide a substantial account of bioluminescence and chemiluminescence worldwide. The papers are grouped in the following areas: Chemiluminescence, Luminescence as a Signal, Luminescence in the Environment, Luminescence in Medicine, Luminescence in Education, Methods of ATP and Firefly Luciferase Analyses, Molecular Biology of Luminescence, and Imaging of Luminescence.

JA965658K

S0002-7863(96)05658-2