

Book Reviews *

Advances in Atomic Spectroscopy. Volume 5. Edited by Joseph Sneddon (McNeese State University). JAI Press: Stamford. 1999. x + 292 pp. \$115.00. ISBN 0-7623-0502-9.

This book contains a compendium of five monographs written by specialists in their respective fields on topics related to atomic spectroscopy. While one might initially expect discussions on the more popular techniques such as ICP-MS, the five topics are speciation, new tunable lasers, detector development, glow discharge, and laser-induced breakdown spectroscopy. In general, all chapters are informative on their respective topic with a reasonably good bibliography for the reader wishing to pursue the subject.

The speciation chapter provides a good overview of the topic. Since the theme of the book is atomic spectroscopy, the coverage naturally focuses on metal-based complexes and compounds. The chapter is well referenced with over 650 references cited. It provides a broad overview of the activity in various areas of speciation (e.g., water, biological fluids of various types, soils, etc.) and often includes bar charts to indicate the level of publication activity in the various areas. The latter clearly shows an increase—often an exponential increase—in activity in this area. Several tables are presented in each section that concisely outline the species and matrix with respective references. I particularly like the introductory material that reiterates the importance of sampling and sample preservation and treatment if speciation information is to be obtained. In general, the topic of “speciation and atomic spectroscopy” has garnered increasing interest, even though most difficulties arise from sampling and separations; the atomic spectroscopy “tool” serves as a back-end, sensitive, *elemental detector*. To its credit, this chapter does not attempt to underplay the importance of maintaining sample integrity if speciation is the analyst’s objective.

Tunable lasers are covered in the second chapter, which contains a nice tutorial on the basic principle behind each of the lasers discussed: optical parametric oscillator (OPOs), titanium:sapphire and semiconductor diode lasers. Their features are generally discussed in relation to their use in atomic spectroscopic applications, but informative data on the general attributes of each type are clearly presented. Assessments of such features as tunability, stability, and spectral coverage are found for each type. With only ca. 60 references provided, the chapter obviously does not provide a “review” of laser applications in atomic spectroscopic techniques, but rather it focuses on the operational characteristics of the sources.

Like the tunable laser chapter, the chapter on detector development considers newer (optical) detection devices and has a good explanation of the basic principles behind charge-transfer devices (CCDs and CIDs). Characteristics of their performance and periodic comparisons with the traditional photomultiplier tubes (PMTs) represent the primary themes. Concise discussions of signal-to-background and noise considerations are also presented. On a more practical note, segmented charge-coupled devices (SCDs), which are used on commercial instruments, as well as the eschelle spectrometers, which are a common design/mount for incorporating these panoramic detectors, are discussed.

With about 400 references, the chapter on glow discharges provides a brief history of the topic as well as some discussion on the theory of operation and references to fundamental studies. The bulk of the chapter concentrates on various design modifications as well as specific applications (e.g., metals, non-conductors, and liquids).

The last chapter describes laser-induced breakdown spectroscopy (LIBS). Again, it provides a broad spectrum of information on the technique, beginning with its history and the theory behind the ablation

and plasma formation and ending with applications. While the discussions themselves are informative, an added benefit is the ca. 400 references provided for the interested reader. It should be noted that this chapter, like its predecessor, has some useful information that can be gleaned by the analyst interested in laser ablation or discharge sputtering for sample introduction into secondary sources such as ICPs.

In general, the book provides tutorial information and should be useful to the non-specialist, including the non-atomic spectroscopist, who wants some basic information about the designated topic area. The chapters, in general, are well written and provide an easy read with, for example, detailed mathematical descriptions appearing only occasionally. The referencing is not exhaustive but is adequate and provides a good starting path into the literature. However, I am certain that it was not the intent to provide a literature review. In short, sufficient historical, theoretical, and practical information is provided in each topical area for the reader to leave with a sense of having learned something.

James A. Holcombe, *University of Texas at Austin*

JA9957985

10.1021/ja9957985

Supramolecular Structure in Confined Geometries. ACS Symposium Series 736. Edited by Srinivas Manne (University of Arizona) and Gregory G. Warr (University of Sydney). Oxford University Press: New York. 1999. xii + 278 pp. \$110.00. ISBN 0-8412-3615-1.

This book is comprised of 17 papers that explore the common features of confinement on supramolecular structure and behavior. The chapters are broadly organized into three categories: surfactant confinement, polymer confinement, and confinement of biomolecules. An author index and a subject index complete the book.

JA0047222

10.1021/ja0047222

Second Supplements to the 2nd Edition of Rodd’s Chemistry of Carbon Compounds. Rodd’s Chemistry of Carbon Compounds. Volume IV. Heterocyclic Compounds. Part I: Six-membered Heterocyclic Compounds with Two Hetero-Atoms from Group V of the Periodic Table: the Pyridazine and Pyrimidine Groups. Part J: Six-membered Heterocyclic Compounds with Two Hetero-Atoms from Group V of the Periodic Table: the Pyrazine Group, Phenoxazine, Phenothiazine, Phenazine and Sulphur Dyes. Six-membered Heterocyclic Compounds with Three and More Hetero-Atoms. Edited by Malcolm Sainsbury (University of Bath). Elsevier: Amsterdam. 2000. xiv + 298 pp. \$183.50. ISBN 0-444-82980-6.

The book provides updates to earlier editions on the subjects of pyridazines, cinnolines, pyrimidines, quinazolines, and pyrazines. New material on phenazine, oxazine, and thiazine sulfur dyes is also presented, and reviews of quinazoline alkaloids and six-membered rings with three or more heteroatoms are featured.

JA004721+

10.1021/ja004721+

*Unsigned book reviews are by the Book Review Editor.