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Book Review

Inductively Coupled Plasma Mass Spectrometry, Edited by A. Montaser, Wiley-VCH, USA, 1998, ISBN 0-471-18620-1, \$149.

This monumental book characterizing the new analytical technology of Inductively Coupled Plasma Mass Spectrometry runs to 964 pages. There are eleven chapters, each written by a different person or group of persons; a total of 27 Authors from 7 Countries. Powerful recommendations for the book are contained in the Foreword by three of the towering figures of modern American atomic spectrometry: the late Professor Velmer Fassel, Professor James Winefordner and Professor Gary Hieftje.

Professor Montaser has contributed an enormous effort in the writing and editing of this book, following his equally great effort in preparing his volume, 'Inductively Coupled Plasmas in Analytical Atomic Spectrometry', published in 1987 and revised in 1992. These books have, in a timely manner, provided research workers in atomic spectrometry a guide to the new technology; thus speeding the development and utilization of these methods. Those benefiting from this technology owe a great debt of gratitude to Professor Montaser.

The chapters are (paraphrased somewhat): 1. Introduction to ICP, 2. Microwave sample preparation, 3. Sample introduction in ICP-MS, 4. Plasma generation, 5. Fundamental aspects of sample introduction, 6. Instrumentation for ICP-MS, 7. Analytical characteristics, 8. Fundamental considerations, 9. Applications, 10. Mixed gases and He ICPs, 11. Microwave-induced plasmas.

The book will benefit workers using ICP-MS as well as those considering that option. The theory

is covered in an elegant manner, usually by those who pioneered their aspect of the technology. The needs of those who are applying the technique to practical problems is served by several chapters. The authoritative chapter on microwave sample preparation which, by itself, is worth the price of the book to those using ICP-MS for environmental applications. Practical work is further supported by a long chapter on applications in a wide variety of different fields. Method development is guided by a chapter on analytical characteristics of the ICP-MS

But the principal beneficiaries of this book will be research workers in industrial laboratories and in universities for whom this book will provide an organized entrance to the already massive literature in this field. As a journal editor, I would expect any new research paper in ICP-MS to reference this book in introducing their work.

Each Chapter has its own reference list, with some chapters running to more than 600 references. There is a very useful Index which cross-references between the several chapters. The Publisher is to be complimented for using color figures in those cases where it helps to convey data or physical concepts. The clear graphical illustration of the mass spectra of each element including the natural abundance of each isotope will be frequently consulted.

Although the Editor made a valiant effort to avoid redundancy between the different chapter authors, the book still is clearly the work of

different individuals. Some topics are addressed differently in different chapters and this is unavoidable when more than one author prepares a book.

Having said all of that, the analyst who wants guidance for a new analytical problem will not, in general, find all that he needs in this book, despite the long chapter on applications. Some important topics are treated more briefly than their importance might suggest, e.g., laser-ablation ICP-MS, the use of the furnace, of flow injection and of hydride generation coupled with ICP-MS.

This reader would have liked to see the names and affiliations of the chapter authors in the table of contents rather than only at the beginning of each chapter. Also, it was troublesome to find the reference list for each chapter, compared to having a complete list at the back of a book. But these are small quibbles for a book that will undoubtedly be the reference book for ICP-MS for many years to come.

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