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Book review

Inductively Coupled and Microwave Induced Plasma Sources for Mass Spectrometry
E.H. Evans, J.J. Gigtio, T.M. Castellano and J.A. Caruso, Royal Society of Chemistry, Analytical Spectroscopy Monographs, Cambridge, UK, 1995, viii +109 pp., price £32.50 (hardbound,) ISBN 85404-560-0 (hardbound), 0-444-89161-7 (paperback).

These experienced authors have prepared a valuable "tutorial style" contribution to the RSC "Analytical Spectroscopy Monographs" series which brings to both specialist and general reader insight into the background and application of plasma source mass spectrometry (PS-MS). Over the past decade such instrumentation has become widely used in elemental and inorganic analytical laboratories, but is often viewed with trepidation by those unfamiliar with its theory and application. This may be particularly so for chromatographers, but the increasing application of PS-MS in chromatographic detection makes this a topic of importance to them. This text goes far to address these difficulties in a highly accessible fashion.

While of most value to practitioners in the field, it covers the theoretical background with lucidity and will be of value to the student and general reader. The first two chapters give an overview of plasma ion sources, plasma gas characteristics and ion sampling. While not aiming to give a comprehensive literature review they nevertheless provide a useful theoretical and instrumental design introduction, well balanced by practical considerations such as the operating costs of various plasma gases.

Chapters 3 and 4 cover, respectively, inductively coupled plasma (ICP) and microwave induced plasma (MIP) sources and their MS applications. Topics addressed include spectroscopic interferences, sensitivities and analytical figures of merit for high and low pressure plasmas. While ICP-MS has been the more extensively studied and commercially developed, the equal coverage given to MIP sources emphasizes their actual and potential utility in chromatographic detection. HPLC–ICP-MS has already an extensive literature and examples are included from the authors' own studies along with GC–ICP-MS. MIP atomic emission spectroscopy is well established as an element selective GC detector and the reader will gain a clear view of the great potential of MIP–MS for GC, SFC and capillary LC.

This is a highly readable and practical introduction to the field, well referenced and illustrated – essential to the laboratory as well as the library.

Amherst, MA, USA — Peter C. Uden

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