

## Book Review

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### Mass spectrometry basics

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Today, mass spectrometry (MS) in its different forms, whether elemental MS or organic MS, is one of the main analytical techniques, with an accordingly huge volume of general and specific literature. The book *Mass spectrometry basics* contains a compilation of previously published articles dealing with different aspects of MS from the theoretical to the more practical. The different aspects are explained in short, self-contained chapters covering the most widely used forms of MS, with the main focus on the different forms of organic MS. The basic aspects of the different sample introduction and ionization techniques, such as electrospray ionization and thermospray interface, are described in individual chapters, including practical hints on what technique to use for which problem. The basics of the ion optics and the mass separation techniques used in quadrupole, sector field, time-of-flight and hybrid MS instruments are explained in several chapters. For all techniques,

schematic drawings of the ion flow in instruments and the basic ion separation make it easy to understand how the specific technique works. Different chapters concerning the types of detector used in MS, time-to-digital converter and computer basics, including basic instrument optimization, conclude the instrumental side.

There are short chapters about gas and liquid chromatography and their on-line combination with MS instruments and different ionization sources in which the problems arising from these instrument combinations are explained. In some more practical chapters, the usefulness of MS for peptide and protein analysis is explained, by using molecule fragmentation and metastable ions for deducing molecular structures, and accurate mass measurements for the determination of the exact molecular mass and possibly the elemental composition. Isotopic ratios, their measurement and the use of accurate isotopic measurements are covered in three chapters of the book, including an introduction to isotopes and their uses in archaeology, geology and environmental science.

A chapter about 'objectives in buying a mass spectrometer', where the differences between the various instrumentation are summed up, is not only useful for

buying an instrument, but also for someone not experienced in MS to help them decide which technique might be the most suitable one for solving a specific problem.

A helpful collection of the summaries, plausible diagrams, a glossary and a short compilation of useful books and journals make the book highly user friendly. *Mass spectrometry basics* is clearly intended as a text book for beginners. Therefore, someone starting with any of the many MS techniques can find the basics of the technique. Unfortunately, there are no references in the chapters with regard to secondary literature. The principles of the different aspects of MS instrumentation and techniques are described in, as the title of the book says, a very basic, easy to understand way but do not go into the depths of theory. The accompanying drawings of ion paths through instruments and other technical details, such as ion paths through a quadrupole or through a magnetic-sector field, are very helpful for people not yet familiar with mass spectrometers.

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