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Foreword

Mass Spectrometry: Innovation and Application

In the past two decades, mass spectrometry (MS) has become an indispensable tool in many application areas of analytical chemistry. Already in the 1980s, MS rapidly became the preferred detection, and identification, technique for many trace-level studies in capillary gas chromatography (GC) – with petrochemistry, and environmental and agricultural chemistry as main areas of interest. In the 1990s, this trend continued and, today, GC-MS has an almost unassailable position – especially after the introduction of ion-trap instruments, which allow highly selective MS/MS operation, and, more recently, extremely rapid (but rather expensive) time-of-flight mass spectrometers, which are indispensable for studies in the field of comprehensive GC, or GC×GC.

The 1990s also witnessed the coming of age of LC-MS, the combination of column liquid chromatography and mass spectrometry once considered the mismatch of the 20th century. However, with the introduction of atmospheric-pressure ionisation interfaces, most technical problems were found to have been solved and, by now, LC-MS has become a highly important tool in, e.g., the pharmaceutical and biomedical fields. For example, LC-MS-MS in the selected-reaction-monitoring mode has rapidly become the method of choice in quantitative bioanalysis, and electrospray and matrix-assisted-laser-desorption ionisation MS have revolutionised analysis in biochemistry and biotechnology. However, LC-MS techniques are used not only in these areas, but an increasing number of sophisticated applications are also reported in the fields of food and veterinary-drug, natural-products and environmental analysis.

The rapidly growing importance of mass spectrometry – for detection, identification and/or confirmation, and quantification purposes – especially when combined on-line with chromatographic techniques, was recognised already several years ago by the publishers and editors of the *Journal of Chromatography A*. As a recognition of this fact, “including . . . mass spectrometry [as] detection method” was added to the subtitle of the Journal in 1997.

In order to highlight the ever-increasing interest of both authors and readers in MS-related studies, we were asked a few months ago to invite scientists from a variety of research and application areas to contribute reviews or regular papers on their current MS-related research activities to a special issue entitled *Mass Spectrometry: Innovation and Application* (and, in the case of applied studies, we were allowed to cast our nets somewhat wider than is usually done in this journal). The interest to participate was much larger than expected, with several non-invited scientists, upon learning of the initiative, expressing their interest to also contribute to the issue. As a result, the papers collected for *Innovation and Application* will now be published in two separate issues, Volumes 970 and a further Volume to be published in October 2002 of the Journal. And, as a final example of the impact of MS in current analytical research: we have agreed to attempt a ‘repeat performance’ next year!

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