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Foreword

The unusual properties of multiply charged ions have captured the attention and spurred the imagination of physicists and chemists alike for many years. Multiply charged ions have become the focus of study in various subdisciplines of modern physics and chemistry. These include spectroscopy and atomic structure, ion chemistry and dynamics, electrospray mass spectrometry, biochemistry, plasma diagnostics, and the development of soft x-ray lasers and heavy ion accelerators. Multiply charged ions have been probed with photons, electrons, atoms, molecules, ions, clusters, and surfaces. Current research encompasses multiply charged ions ranging from fully stripped uranium atoms to heavily protonated biological molecules.

This special issue of the International Journal of Mass Spectrometry has tried to bring together in one volume all of these different aspects of multiply charged ions. In addition, it attempts to provide a representative and illustrative sample of current research with multiply charged ions. The articles compiled here have been divided into several categories: production and sources, properties, reactions and dynamics, fragmentation, multiply charged biological molecules, interactions with photons, and interactions with surfaces.

The reader will see that there is much new and exciting research going on with multiply charged ions. It was a great pleasure for us to serve as guest editors for this volume and to learn about all of these new developments through our interactions with the contributing authors. We hope that the readers will also find this volume a useful document presenting a snapshot of a burgeoning field in ion physics and chemistry.

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