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International Journal of Mass Spectrometry 179/180 (1998) ix–x



Foreword

A year ago we were offered the privilege of acting as guest editors for a special honour issue of the *International Journal of Mass Spectrometry* dedicated to Professor Fulvio Cacace on the occasion of his 40 years of scientific activity in the field of gas-phase ion chemistry and physics (1958–1998). As former students and present colleagues of Fulvio, we were delighted to undertake such a welcome task. In seeing how overwhelming the response was of the international scientific community to the initiative, we asked Fulvio's students, including ourselves, not to contribute to this issue so as to leave all the space to external contributors. We thank all of them for their valuable contributions covering the wide panorama of ion chemistry and physics, where Fulvio dedicates so many of his talents.

As many gas-phase ion chemists and physicists reading this will acknowledge, Fulvio has had a tremendous impact on the discipline across the landscape from ion physics to organic and inorganic reaction mechanisms. Fulvio's high versatility in these different areas stems from the education received from teachers of the format of Giordano Giacomello in Italy and of Jacob Bigeleisen and Alfred P. Wolf in the USA. Thanks to this training and his all-round talents, in the late 1950s Fulvio developed unconventional methods for labeling chemicals, including the use of ion accelerators. Soon afterwards, he realized the importance of applying radiochemical sources to the study of positive ion structure and reactivity in the gas phase under experimental conditions inaccessible to most conventional mass spectrometric methods. He first developed and applied the "decay technique" for generating in any media, including rarified or dense gases and liquids, cationic species from the spontaneous decay of the

tritium nucleus in a multitritiated molecule. Later on, he combined this approach with the most conventional radiolytic and mass spectrometric techniques so as to provide an integrated kinetic methodology for investigating the structural and reactivity features of the same ionic species under largely variable experimental conditions. Although Fulvio is primarily an experimentalist, his work is constantly pervaded with the most current theoretical understanding.

Besides his outstanding scientific and professional aptitude, during the past 40 years Fulvio had the opportunity to fully exploit his natural warmth in human relationships and his considerable talents for pedagogical and managing work. His perpetual activity, creative invention, and permanent contacts with young and bright students and postdocs soon brought the establishment of an Italian school in the ion chemistry field. He has always been much respected as an excellent teacher and organizer. Many of his pupils and co-workers have remained devoted to gas-phase ion chemistry and some of them became successful university teachers. Owing to his influence as a scientist, his ability as a communicator, his friendly way of behavior, and his permanent readiness to help, Fulvio has won the respect and the admiration of his scientific world. His warm contacts with numerous ion chemists and physicists worldwide, as well as the excellent response to this editorial initiative, are proof of this.

As Fulvio's oldest students, sharing with him the same space and confronting his ideas with ours for almost 30 years, we earned the privilege of undersigning this foreword also on behalf of all of Fulvio's pupils and postdocs, whether still involved in scientific research or not. All of us thank Fulvio for his

guidance and friendship, and hope that he will enjoy all his activities for the years to come. One of Fulvio's earlier co-workers might virtually subscribe this foreword: Gabriella Montefinale, who 35 years ago decided to share with Fulvio his rare spare time out of the lab by becoming his wife.

In closing this preface, we would like to thank the Editors of the *International Journal of Mass Spectrometry* for their decision to celebrate Fulvio for his 40 years in the field of the gas-phase ion chemistry and physics. Indeed, in Italy, full professors retire at 75 and Fulvio tends to further intensify his scientific

production. Thanks to the Editors of the *International Journal of Mass Spectrometry*, we now take just a snapshot of Fulvio's scientific life before his production kinetics becomes too fast for our detecting capabilities and the pool of his friends and collaborators too large for a single party.

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