

Title (en)
FRAGMENTATION METHODS FOR MASS SPECTROMETRY

Title (de)
FRAGMENTIERUNGSVERFAHREN FÜR DIE MASSENSPEKTROMETRIE

Title (fr)
PROCEDES DE FRAGMENTATION POUR SPECTROMETRIE DE MASSE

Publication
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Application
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Priority

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Abstract (en)
[origin: WO03102545A2] Apparatus and methods are provided that enable the interaction of low-energy electrons and positrons with sample ions to facilitate electron capture dissociation (ECD) and positron capture dissociation (PCD), respectively, within multipole ion guide structures. It has recently been discovered that fragmentation of protonated ions of many biomolecules via ECD often proceeds along fragmentation pathways not accessed by other dissociation methods, leading to molecular structure information not otherwise easily obtainable. However, such analyses have been limited to expensive Fourier transform ion cyclotron resonance (FTICR) mass spectrometers; the implementation of ECD within commonly-used multipole ion guide structures is problematic due to the disturbing effects of RF fields within such devices. The apparatus and methods described herein successfully overcome such difficulties, and allow ECD (and PCD) to be performed within multipole ion guides, either alone, or in combination with conventional ion fragmentation methods. Therefore, improved analytical performance and functionality of mass spectrometers that utilize multipole ion guides are provided.

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CPC (source: EP)
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Citation (examination)

- SCOTT A. MCLUCKEY ET AL: "Gas-phase Ionization of Polyatomic Molecules via Interactions with Positrons", RAPID COMMUNICATIONS IN MASS SPECTROMETRY, vol. 10, no. 3, 1 February 1996 (1996-02-01), pages 269 - 276, XP055024771, ISSN: 0951-4198, DOI: 10.1002/(SICI)1097-0231(199602)10:3<269::AID-RCM463>3.0.CO;2-R
- ROMAN A. ZUBAREV ET AL: "Electron Capture Dissociation of Multiply Charged Protein Cations. A Nonergodic Process", JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 120, no. 13, 1 April 1998 (1998-04-01), pages 3265 - 3266, XP055024775, ISSN: 0002-7863, DOI: 10.1021/ja973478k

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