Title (en)

Mass spectrometric high-frequency quadrupole cage with superposed multipole fields

Title (de)

Massenspektrometrischer Hochfrequenz-Quadrupol-Käfig mit überlagerten Multipolfeldern

Title (fr)

Cage quadrupolaire haute fréquence pour spectrométrie de masse avec champs multipolaires superposés

Publication

EP 0459602 B1 19960313 (DE)

Application

EP 91250128 A 19910508

Priority

DE 4017264 A 19900529

Abstract (en)

[origin: EP0459602A2] An ion cage mass spectrometer, also known as a quistor or ion trap, having an annular electrode and two end-cap electrodes, voltage supplies for generating an ion-storing RF quadrupole field, means for generating ions of the substances which are to be investigated by mass-spectrometric means inside or outside the ion cage, if appropriate, means for introducing the ions into the ion cage, means for detecting those ions which emerge from the ion cage, characterised in that the exact quadrupole potential Pq = (A2/4z0<2>) * (r<2>-2z<2>) * [U - Vcos(Wt)] has superposed on it, by special shaping of the electrodes, exactly or approximately, a six-pole potential Ps = (A3/4z0<3>) * (3r<2>z-2z<3>) * [U - Vcos(Wt)], or an eight-pole potential P0 = (A4/4z0<4>) * (r<4> + 8z<4>/3-8r<2>z<2>) * [U - Vcos(Wt)], or a linear combination of the two, where r = distance from the z-axis, z = distance from the plane z = 0, z0 = distance of an end cap from the centre z = 0, A2 = intensity of the quadrupole field, A3 = intensity of the six-pole field, A4 = intensity of the eight-pole field, U = value of the DC voltage V = peak value of the AC voltage, omega = angular frequency of the AC voltage, t = time. <IMAGE>

IPC 1-7

H01J 49/42; H01J 49/10

IPC 8 full level

H01J 49/10 (2006.01); **H01J 49/42** (2006.01)

CPC (source: EP US)

H01J 49/424 (2013.01 - EP US)

Cited by

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