Title (en)

QUADRUPOLE WITH APPLIED SIGNAL HAVING OFF-RESONANCE FREQUENCY

Title (de)

QUADRUPOL MIT EINEM VON DER RESONANZFREQUENZ ABWEICHENDEN ANGELEGTEN SIGNAL

Title (fr)

QUADRIPOLE A SIGNAL APPLIQUE DE FREQUENCE HORS RESONANCE

Publication

EP 0765190 B1 19991229 (EN)

Application

EP 94920813 A 19940627

Priority

- US 9407176 W 19940627
- US 8397293 A 19930628

Abstract (en)

[origin: WO9500237A1] A mass spectrometry method in which a combined field (comprising a trapping field and supplemental field) is established and at least one parameter of the combined field is changed to excite ions trapped in the combined field sequentially (such as for detection). The supplemental field is a periodically varying field having an off-resonance frequency, in the sense that the supplemental field frequency nearly matches (but differs from) a frequency of motion of an ion stably trapped by the trapping field alone. Sequential ion excitation in accordance with the invention can rapidly excite each ion to a degree sufficient for a desired purpose but insufficient for ejection from the trap. The amplitude of the supplemental field is kept sufficiently high to excite ions (via an off-resonance excitation mechanism) before they undergo resonant excitation.

IPC 1-7

B01D 59/44; H01J 49/00; H01J 49/42

IPC 8 full level

H01J 49/34 (2006.01); **H01J 49/42** (2006.01)

CPC (source: EP)

H01J 49/424 (2013.01); **H01J 49/4275** (2013.01); **H01J 49/429** (2013.01)

Designated contracting state (EPC)

AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 9500237 A1 19950105; AT E188139 T1 20000115; CA 2166207 A1 19950105; CA 2166207 C 20030916; DE 69422429 D1 20000203; DE 69422429 T2 20000803; EP 0765190 A1 19970402; EP 0765190 A4 19970903; EP 0765190 B1 19991229; JP 3067208 B2 20000717; JP H09501537 A 19970210

DOCDB simple family (application)

US 9407176 W 19940627; AT 94920813 T 19940627; CA 2166207 A 19940627; DE 69422429 T 19940627; EP 94920813 A 19940627; JP 50310895 A 19940627