Title (en)

Method for generating ions, specially for a mass spectrometer such as a time-of-flight mass spectrometer, from thermally instable, non-volatile, large molecules

Title (de)

Verfahren zum Erzeugen von Ionen, insbesondere für ein Massenspektrometer, wie Flugzeitmassenspektrometer, aus thermisch instabilen, nichtflüchtigen grossen Molekülen

Title (fr)

Procédé pour générer des ions, en particulier pour un spectromètre de masse tel qu'un spectromètre à temps de vol, à partir de molécules thermiquement instables, non-volatiles et de masse élevée

Publication

EP 0503748 B1 19961211 (DE)

Application

EP 92250055 A 19920307

Priority

- DE 4108462 A 19910313
- DE 4108463 A 19910313

Abstract (en)

[origin: EP0503748A2] A method for generating ions, especially for a mass spectrometer, such as a time-of-flight mass spectrometer, from thermally unstable, non-volatile large molecules, in which a sample substance having the molecules is subjected to energy pulses by means of which molecules are released from the sample substance, and in which the released molecules are taken by a jet of a carrier gas and are cooled during its expansion as well as subsequently being ionised in an ionisation space, characterised in that the molecules are ionised by electron impact; in that the radiation density of the electrons which are used for the ionisation is selected such that a potential trough is produced, at the focus of the electron beam, whose depth is greater than the translation energy of the molecule ions in the carrier gas flow; in that the molecule ions generated by the electron impact ionisation are collected in the potential trough in each case for a specific period of time; and in that the molecule ions which are in each case collected in the potential trough are accelerated in a pulsed manner out of the ionisation chamber, and an apparatus especially for carrying out this method. <IMAGE>

IPC 1-7

H01J 49/40; H01J 49/04

IPC 8 full level

H01J 49/04 (2006.01); **H01J 49/14** (2006.01); **H01J 49/16** (2006.01); **H01J 49/40** (2006.01)

CPC (source: EP US)

H01J 49/0463 (2013.01 - EP US); **H01J 49/147** (2013.01 - EP US)

Citation (examination)

- APPLIED PHYSICS B. PHOTOPHYSICS AND CHEMISTRY, Band 51, Nr. 6, Dezember 1990, Seiten 395-403, Heidelberg, DE; G. MEIJER et al.: "Laser desorption jet-cooling of organic molecules"
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EP0633602A3; DE19822672A1; DE19822672B4; DE102005005333B4; DE102005005333A1; DE19822674A1

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DE FR GB

DOCDB simple family (publication)

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DOCDB simple family (application)

EP 92250055 A 19920307; DE 4108462 A 19910313; DE 59207642 T 19920307; EP 95104288 A 19920307; US 84988692 A 19920312