



## Contents

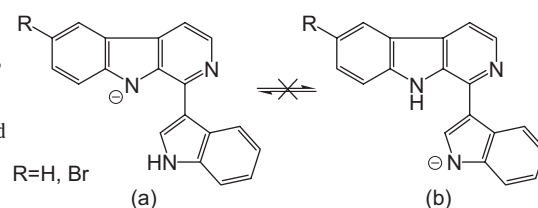
### Regular articles

43–52

#### Gas phase self-association of Eudistomin U controlled by gas phase acidity and origin of its interaction with nucleobases

Ying Xu, Carlos Afonso, Yves Gimbert, Françoise Fournier, Xiaochun Dong, Ren Wen, Jean-Claude Tabet

ESI-MS was used to investigate the intrinsic chemical properties of  $\beta$ -carbolines: Eudistomin U and 5-Br-Eudistomin U yielding self-association in negative ion mode.

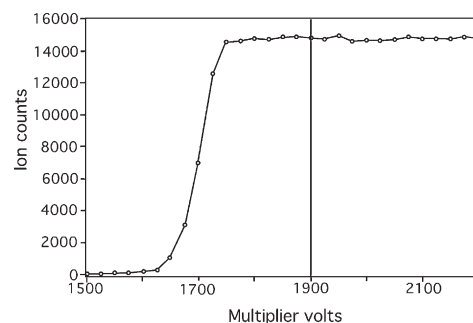


53–63

#### Mass-spectrometric mining of Hadean zircons by automated SHRIMP multi-collector and single-collector U/Pb zircon age dating: The first 100,000 grains

Peter Holden, Peter Lanc, Trevor R. Ireland, T. Mark Harrison, John J. Foster, Zane Bruce

The identification and retrieval of a large population of ancient zircons (>4 Ga; Hadean) is of utmost priority if models of the early evolution of Earth are to be rigorously tested. We have developed a rapid and accurate U–Pb zircon age determination protocol utilizing a fully automated multi-collector ion microprobe, the ANU SHRIMP II, to screen and date these zircons.

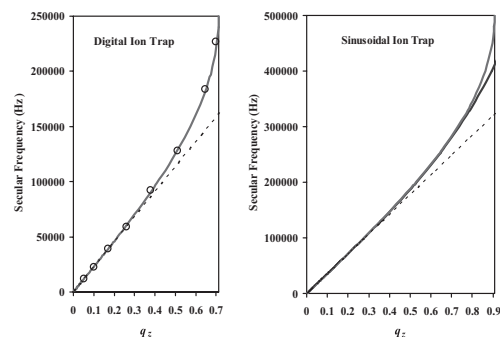


64–69

#### Derivation of mathematical expressions to define resonant ejection from square and sinusoidal wave ion traps

Hideya Koizumi, William B. Whitten, Peter T.A. Reilly, Eiko Koizumi

Accurate mathematical expressions for the ion secular frequencies and resonant ejection  $m/z$  have been determined for any value of trap frequency and voltage and excitation frequency.

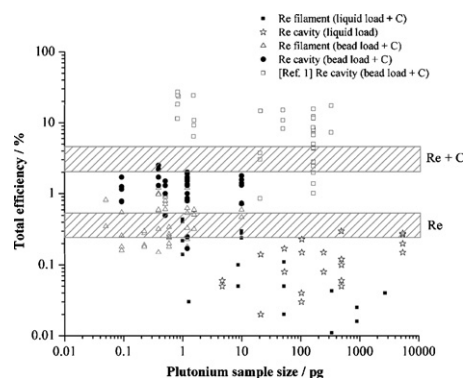


## 70–82

### Isotope ratio analysis of actinides, fission products, and geolocators by high-efficiency multi-collector thermal ionization mass spectrometry

S. Bürger, L.R. Riciputi, D.A. Bostick, S. Turgeon, E.H. McBay, M. Lavelle

A ThermoFisher "Triton" multi-collector thermal ionization mass spectrometer was evaluated for trace and ultra-trace level isotope ratio analysis of actinides, fission products, and geolocators.

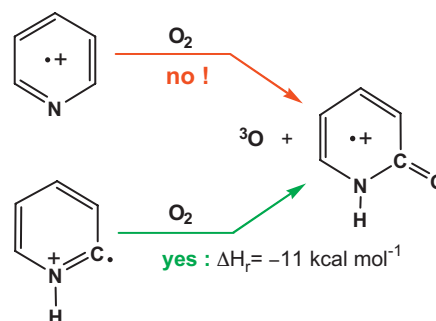


## 83–88

### Differentiation of the pyridine radical cation from its distonic isomers by ion–molecule reactions with dioxygen

Karl J. Jobst, Julien De Winter, Robert Flammang, Johan K. Terlouw, Pascal Gerbaux

Associative ion–molecule reactions with dioxygen in the hexapole reaction chamber of our six-sector mass spectrometer reveal structure diagnostic differences in reactivity between ionized pyridine and its distonic isomers.

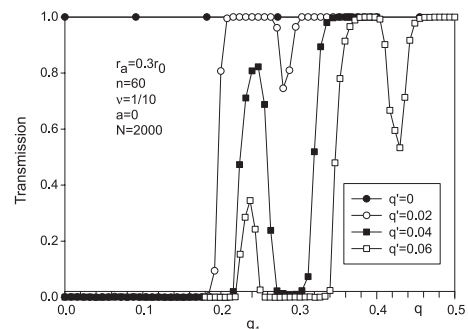


## 89–94

### Tandem RF-only quadrupole mass filter with quadrupolar excitation

Gongyu Jiang, Chan Luo, N.V. Kononov, Chuan-Fan Ding

A powerful instability band located near  $\beta = \nu = 1/10$  is created with auxiliary low frequency quadrupole excitations to filter low  $q$  ions.

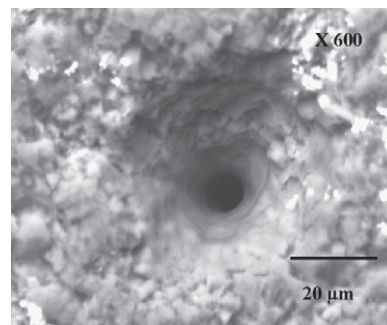


## 95–97

### Lead–Lead Method for age dating of granitic sample by LA-ICP-MS

A.M. Rashad, W.A. Ghaly, N.F. Zahran, A.I. Helal

Laser ablation inductively coupled plasma (LA-ICP-MS) is used for the determination of age of Egyptian granite samples collected from eastern desert–Egypt using Pb isotopic ratios. Standard Reference Material SRM 981 is used for the mass bias correction. The obtained age found after the mass bias correction is  $498.56 \pm 4.38$  My.

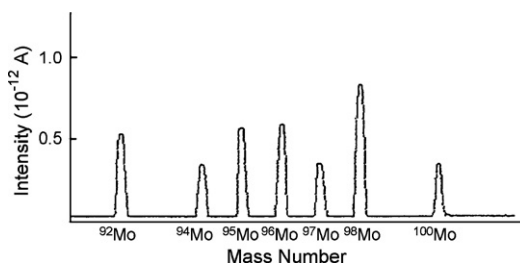


## 98–103

**Molybdenum isotope mass fractionation in iron meteorites**

M.E. Wieser, J.R. De Laeter

An examination of mass-dependent isotope fractionation of molybdenum in iron meteorites by double spike thermal ionization mass spectrometry found fractionations in the range  $-0.5\%$  to  $+1.2\%$  mass unit with respect to the terrestrial standard of known isotope composition.

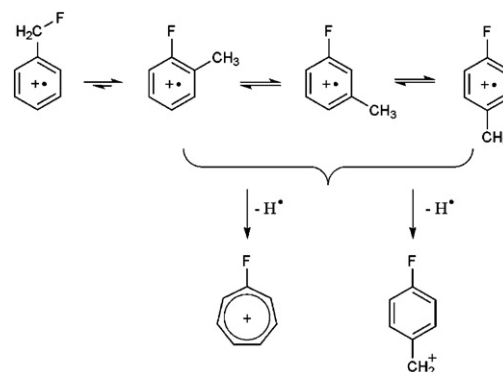


## 104–111

**Dissociation of fluorotoluene molecular ions: A theoretical study**

Joong Chul Choe

DFT and RRKM calculations were carried out to understand the kinetics and mechanism for dissociations of fluorotoluene molecular ions.

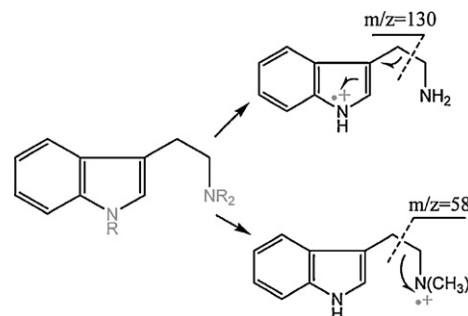


## 112–121

**Interpretation of the characteristic fragmentation mechanisms through determining the initial ionization site by natural spin density: A study on the derivatives of tryptophan and tryptamine**

Yong-Zhong Ouyang, Yi-Zeng Liang, Shuhua Li, Xiao Luo, Liangxiao Zhang, Zhonghai Tang, Qin Wang, Xiaona Xu

Elucidation of the characteristic fragmentation patterns for the derivatives of tryptophan and tryptamine through determining the initial ionization site by atomic spin density.

**Short communication**

## 122–128

**A high resolution and high sensitivity proton-transfer-reaction time-of-flight mass spectrometer (PTR-TOF-MS)**

A. Jordan, S. Haidacher, G. Hanel, E. Hartungen, L. Märk, H. Seehauser, R. Schottkowsky, P. Sulzer, T.D. Märk

We report on a new PTR-MS instrument using a time-of-flight mass spectrometer (mass resolution of 6000  $m/Dm$ , detection limit down to single digit pptv).

