



## Contents

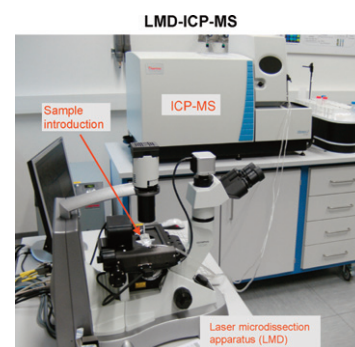
### Regular articles

#### 1–6

#### Scaling down the bioimaging of metals by laser microdissection inductively coupled plasma mass spectrometry (LMD-ICP-MS)

J.S. Becker, S. Niehren, A. Matusch, B. Wu, H.-F. Hsieh, U. Kumtabtim, M. Hamester, A. Plaschke-Schlütter, D. Salber

A novel analytical tool was created for quantitative bioimaging of metals in thin tissue sections at a spatial resolution at the low micrometre scale by a combination of a laser microdissection (LMD) to an inductively coupled plasma mass spectrometer (ICP-MS).

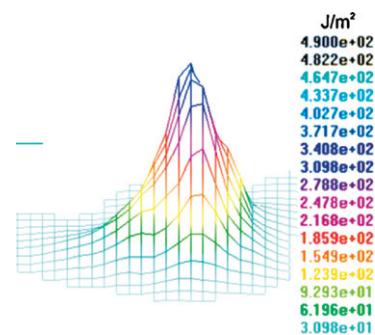


#### 7–15

#### Laser spot size and laser power dependence of ion formation in high resolution MALDI imaging

Sabine Guenther, Martin Koestler, Oliver Schulz, Bernhard Spengler

Laser parameters in high resolution MALDI Imaging were investigated and evaluated to understand ion formation in the micrometer spatial resolution range.

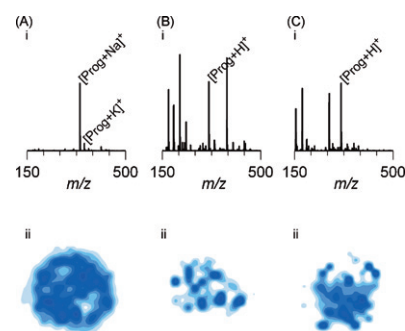


#### 16–22

#### Surface-assisted laser desorption ionisation time-of-flight mass spectrometry with an activated carbon surface for the rapid detection of underivatised steroids

Georgia E. Guild, Claire E. Lenehan, G. Stewart Walker

This article reports the rapid detection of 10 underivatised steroids using surface-assisted laser desorption ionisation time-of-flight mass spectrometry (SALDI TOF-MS)

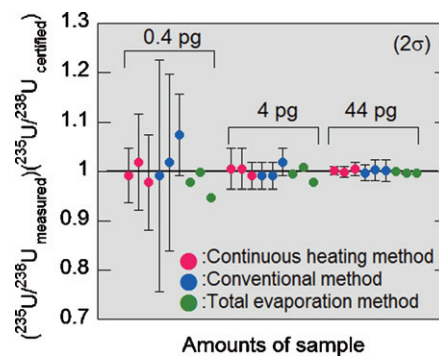


## 23–27

### A new method for isotope ratio measurement of uranium in trace amount by thermal ionization mass spectrometry: The continuous heating method

Daisuke Suzuki, Yoko Saito-Kokubu, Satoshi Sakurai, Chi-Gyu Lee, Masaaki Magara, Kazunari Iguchi, Takaumi Kimura

The continuous heating method by TIMS was developed to measure accurate isotope ratios in a trace amount of uranium.

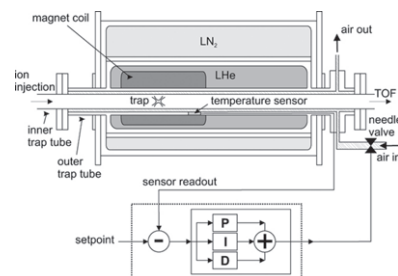


## 28–32

### Improved temperature regulation of Penning trap mass spectrometers

Y. Liu, M. Hobein, A. Solders, M. Suhonen, R. Schuch

A new Penning trap temperature stabilization system that regulates the flow of air circulating the trap enclosure sets the trap temperature with a standard deviation of only 2.5 mK.

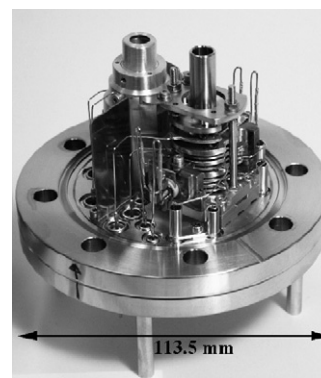


## 33–39

### An optimised compact electron impact ion storage source for a time-of-flight mass spectrometer

Dominic Abplanalp, Peter Wurz, Liliane Huber, Ingo Leya

Development of an optimised ion storage source for a compact high-sensitive TOF-MS; the space charge of the electron beam is used as an ion trap.

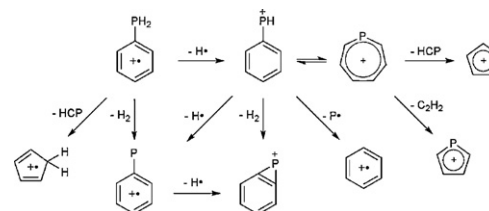


## 40–46

### Dissociation of the phenylphosphine molecular ion: A theoretical study

Sun Young Kim, Joong Chul Choe

The primary and secondary dissociations of the phenylphosphine molecular ion were examined to understand their kinetics and mechanisms from the DFT, G3//B3LYP and RRKM calculations.

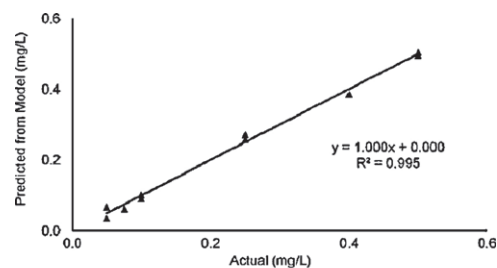


47–53

### Rapid analysis of selected beer volatiles by atmospheric pressure chemical ionisation-mass spectrometry

Nadim Ashraf, Robert S.T. Linforth, Francis Bealin-Kelly, Katherine Smart, Andrew J. Taylor

Aroma composition of beer was predicted by headspace analysis using APCI-MS. Different cone voltages and control of ionisation gave differentiation and reproducible results.



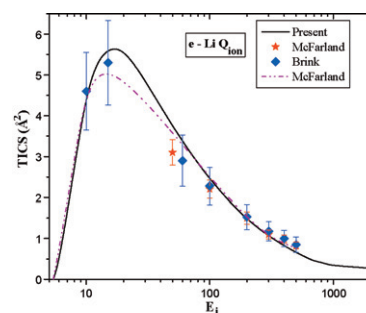
Actual beer aroma versus aroma predicted from APCI-MS headspace analysis

54–58

### Calculations of total and ionization cross-sections on electron impact for alkali metals (Li, Na, K) from threshold to 2 keV

Minaxi Vinodkumar, Kirti Korot, Harshad Bhutadia

We report calculations of  $Q_{el}$ ,  $Q_{ion}$  and  $Q_T$ , cross-sections for Li, Na, K atoms upon electron impact for energies from threshold to 2000 eV. We have employed well-known SCOP and CSP-ic method formalism to compute  $Q_{el}$ ,  $Q_{inel}$  and  $Q_{ion}$ .  $Q_T$  is very high at the lower energies. The figure compares the total ionization cross-section for e–Li scattering with available data. The present results are in very good accord with theoretical values of McFarland [9]. At peak the present results are slightly higher than results of McFarland [9]. The experimental results of McFarland and Kinney [7] and Brink [8] are also in very good accord with present data for the entire energy range.



Total ionization cross sections for e–Li scattering in  $\text{Å}^2$ . Solid line, Present  $Q_{ion}$ ; Stars, McFarland and Kinney [7]; Squares, Brink [8]; Dashed line, McFarland [9].

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