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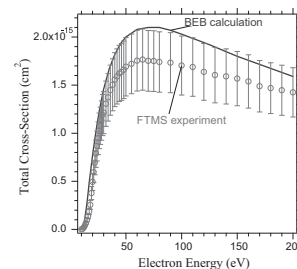
Regular articles

2–11

Electron ionization and gas-phase ion molecule reactions of methylcyclohexane

C.Q. Jiao, K.K. Irikura, S.F. Adams, A. Garscadden

- Electron ionization of C_7H_{14} generates the main product ions $C_7H_{14}^+$, $C_6H_{11}^+$ and $C_4H_7^+$. ► Total ionization cross section of C_7H_{14} reaches a soft maximum of $18 \times 10^{-16} \text{ cm}^2$ at ~65 eV.
- Ab initio calculations agree well with a predicted maximum of $21 \times 10^{-16} \text{ cm}^2$ at 70 eV.
- Subsequent ion-molecule reactions between C_7H_{14} and fragment ions are also studied.

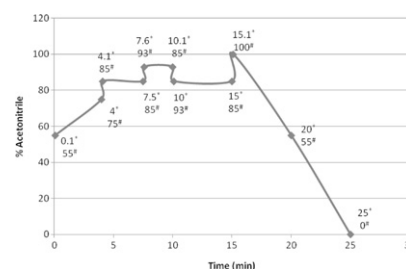


12–20

Quantification of organophosphate insecticides in drinking water in urban areas using lyophilization and high-performance liquid chromatography–electrospray ionization–mass spectrometry techniques

Sukesh Narayan Sinha, K. Vasudev, M. Vishnu Vardhana Rao, Martins Odetokun

- Lyophilization with LC-MS/MS method for quantification of Ops in water was developed. ► The LOD & LOQ were observed in the range of 4.9–51 and 16.5–171 ngL^{-1} , respectively. ► The CV (≥ 0.999) was less than 8.2% at the 0.1 ngL^{-1} with % recovery from 96% to 103%. ► 23% water was contaminated with Ops pesticides. ► This method is simple, accurate, cost-effective, sensitive and time saving.

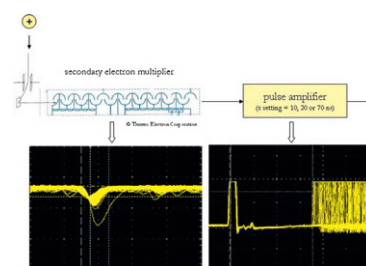


21–25

Consequences of and potential reasons for inadequate dead time measurements in isotope ratio mass spectrometry

Ulrika Nygren, Henrik Ramebäck, Anna Vesterlund, Michael Berglund

- The effect of SEM voltage on dead time determination and correction is found to be significant.
- It is shown that the pulse width from the SEM is larger than the dead time set on the amplifier of an Element2.
- Non-linearity in SEM response previously reported can be explained due to the factors investigated here.

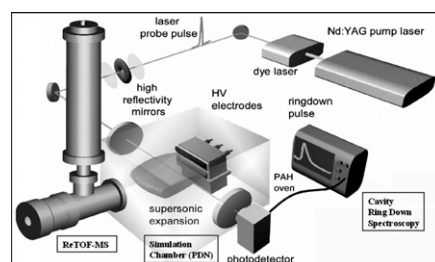


26–30

The coupling of a reflectron time-of-flight mass spectrometer with a cosmic simulation chamber: A powerful new tool for laboratory astrophysics

Claire L. Ricketts, Cesar S. Contreras, Robert L. Walker, Farid Salama

- ReTOF-MS is a powerful tool for the study of extraterrestrial molecules and ions.
- Detection of externally generated ions when coupling the ReTOF-MS to the plasma.
- Mass spectra show evidence of fragmentation and bond forming reactivity.
- Mass-selected products can be probed with cavity ringdown spectroscopy.

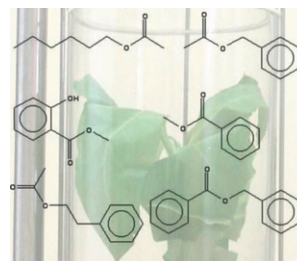


31–38

Selected ion flow tube (SIFT) studies of the reactions of H_3O^+ , NO^+ and O_2^{+*} with six volatile phytogetic esters

Kristýna Sovová, Kseniya Dryahina, Patrik Španěl

- Protonated hexyl acetate, phenethyl acetate and benzyl acetate efficiently associate with H_2O .
- Protonated methyl salicylate does not associate with H_2O .
- Benzyl benzoate reacts with H_3O^+ by incorporating the O atom into the product ion.
- New kinetic library allows simultaneous SIFT-MS quantification of the six esters released by plants.

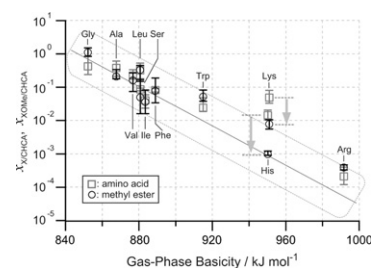


39–43

Effect of esterification on MALDI-MS detection sensitivity for amino acids

Masashi Tsuge, Kennosuke Hoshina

- MALDI-MS spectra for methyl esters H-X-OMe of 11 amino acid X were measured using CHCA.
- The effect of esterification is significant for His and Lys.
- The coexistence of a carboxyl group and a basic amino chain are responsible for suppression in the formation of HisH^+ and LysH^+ .

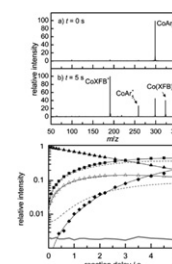


44–49

Ion-molecule reactions of CoAr_6^+ with di- and trifluorobenzenes probe absolute pressure in FT-ICR MS

Robert F. Höckendorf, Christian van der Linde, O. Petru Balaj, Ina Herber, Martin K. Beyer

► Pressure calibration factors for sticky substances can be pressure-dependent. ► Ion-molecule reactions at collision rate serve as *in situ* pressure gauge. ► CoAr_6^+ is suitable calibration reagent for di- and trifluorobenzenes. ► Effects become important at pressures below 10^{-8} mbar.

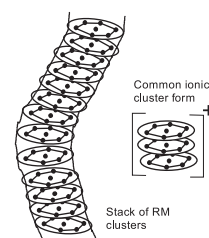


50–58

Large ion clusters H_N^+ of Rydberg Matter: Stacks of planar clusters H_7

Leif Holmlid

► Clusters H_7 of the lowest state of condensed atomic hydrogen form $\text{H}(1)$ are identified by MS. ► Clusters H_7 of this type are planar and form stacks with up to more than ten clusters in each stack. ► A common ion fragment contains three clusters H_7 . ► The H_7 cluster stacks are less sensitive to the applied electric field than other $\text{H}(1)$ cluster forms.



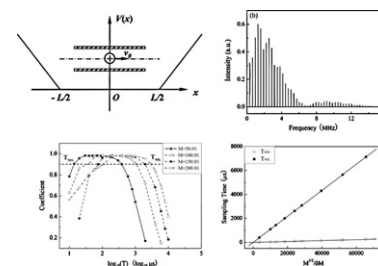
The form of the stacks of Rydberg Matter clusters $(\text{H}_7)_N$

59–64

Quantitative mass spectrometry by orthogonal projection method with periodic signal of electrostatic ion beam trap

Qi Sun, Changxin Gu, Li Ding

► EIBT model is set up to generate signal for mass spectrometry. ► Orthogonal projection method (OPM) performs quantitative MS with high precision. ► Sampling time of OPM is quite shortened comparing with FFT. ► Effective sampling time is proportional to $M^{3/2}/\delta M$.



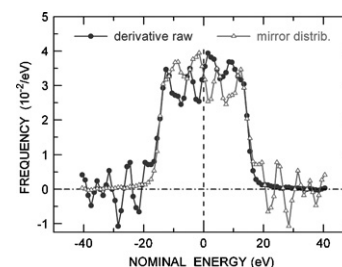
Short communication

65–69

Accurate *in situ* calibration of the energy bandwidth and the zero-energy offset in SIMS analysis using magnetic sector field instruments

Klaus Wittmaack

► Resolution function $R(E)$ derived as the derivative of the smoothed spectrum of Xe^+ ions produced by gas-phase ionization. ► Calculated data (solid circles) and the mirror image (open triangles). ► The mirror plane is the origin of the energy scale of secondary ions, $E = 0$.



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