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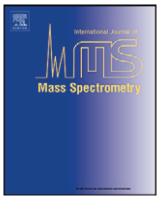


Contents

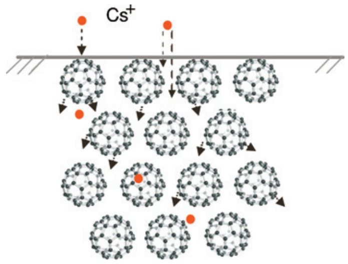
Regular Articles

1–6

Mass spectrometric identification of C_{60}'s fragmentation regimes under energetic Cs^+ bombardment

Sumaira Zeeshan, Sumera Javeed, Shoaib Ahmad

▶ Three fragmentation regimes are identified for Cs^+ bombarded fullerite as a function of Cs^+ energy. ▶ C_2 dominates all the fragments at all energies. ▶ Upper threshold energy of C_{60} to fragment by emission of C_2 is 210 eV. ▶ The cumulative effect of the Cs^+ induced fragmentation results in the conversion of fullerite into amorphous carbon.

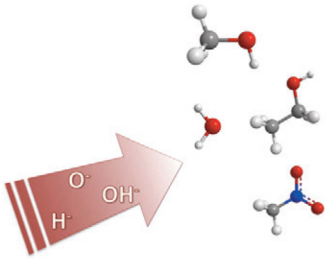


7–16

Mass spectrometry of anions and cations produced in 1–4 keV H^-, O^-, and OH^- collisions with nitromethane, water, ethanol, and methanol

D. Almeida, R. Antunes, G. Martins, G. Garcia, R.W. McCullough, S. Eden, P. Limão-Vieira

▶ 1–4 keV anions (H^-, O^-, and OH^-) interactions with gas-phase molecules. ▶ Negative and positive ion formation. ▶ Dipole-bound states. ▶ Charge transfer to shape resonance.

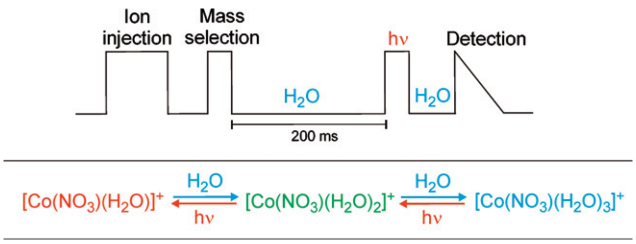


17–23

Microhydrated cobalt-nitrate cations $[Co(NO_3)(H_2O)_n]^+$ ($n = 2, 3$) studied by infrared spectroscopy in the gas phase

Christopher J. Shaffer, Detlef Schröder

▶ IRMPD spectra of mass-selected $[Co(NO_3)(H_2O)_2]^+$ and $[Co(NO_3)(H_2O)_3]^+$. ▶ Computed structures and IR spectra of $[Co(NO_3)(H_2O)_n]^+$ cations. ▶ Kinetic modeling of association/ dissociation equilibria in an ion-trap mass spectrometer.



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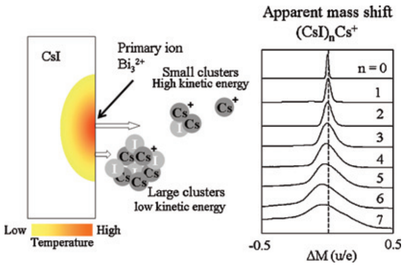
doi:10.1016/S1387-3806(12)00012-7

24–30

Mass shift in the mass spectra of TOF-SIMS and the analysis of kinetic energies of the ions

Taisuke Nakanaga, Hidekazu Nagai, Naoaki Saito, Yukio Fujiwara, Hidehiko Nonaka

► Apparent mass shifts of the CsI cluster ions were observed in the corrected mass spectrum of CsI measured by TOF-SIMS. ► The kinetic energies of the secondary ions have been determined using post acceleration electrodes. ► The unimolecular dissociation of the cluster ion strongly depends on the relative stability of the cluster ions.

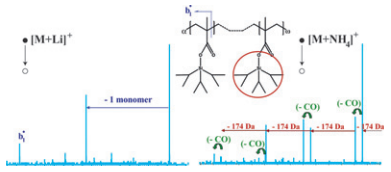


31–39

Fragmentation pathways of methacrylic homopolymers with labile trialkylsilyl ester side-groups—A mass spectrometric investigation of the RAFT process

Laurence Charles, Marlène Lejars, André Margaillan, Christine Bressy

► CID of poly(triisopropylsilyl methacrylate) has been established. ► The adducted cation was shown to determine the dissociation routes. ► Accurate characterization of end-groups allowed a deeper insight in the RAFT process.

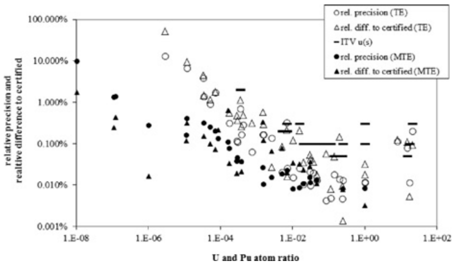


40–50

Uranium and plutonium analysis of nuclear material samples by multi-collector thermal ionisation mass spectrometry: Quality control, measurement uncertainty, and metrological traceability

S. Bürger, S.D. Balsley, S. Baumann, J. Berger, S.F. Boulyga, J.A. Cunningham, S. Kappel, A. Koepf, J. Poths

► A gain of up to an order of magnitude in precision in actinide isotope ratio measurements is observed when comparing the latest with the previous generation of MC-TIMS instruments. ► Uranium isotope ratio analysis is demonstrated utilizing a dynamic range of at least eight orders of magnitude. ► The agreement between the certified values of the two major uranium reference material series, IRMM's and NBL's, highlights the quality of both independently produced series.

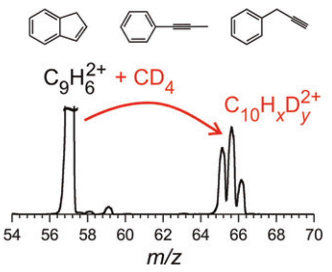


51–55

Reactivity of $C_9H_n^{2+}$ dications with methane

Jana Vachelová, Jana Roithová

► Dications $C_9H_x^{2+}$ react with methane to yield C_{10} coupling products. ► The coupling reaction pro-ceeds via a long-lived intermediate. ► The reactivities of analogous dications generated upon electron ionization from different neutral precursors are very similar.

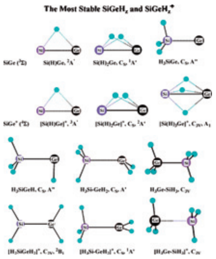


56–63

Structures and energetics of $SiGeH_z^{0,+1}$, $Ge_2H_z^{0,+1}$, and $Si_2H_z^{0,+1}$: A systematic theoretical study

Liming Wang, Jingsong Zhang

▶ Structures of $SiGeH_z$ and cations are examined by quantum chemistry calculations. ▶ Adiabatic ionization energies are predicted at G4 level. ▶ Appearance energies of ion fragments from $SiGeH_6$ are predicted. ▶ Results are compared with those for Si_2H_z and Ge_2H_z. ▶ Photoionization of $SiGeH_6$ is discussed with the potential energy surface of $SiGeH_6^+$.

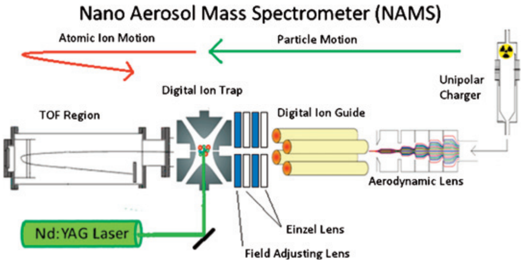


64–71

Trapping charged nanoparticles in the nano aerosol mass spectrometer (NAMS)

M. Ross Pennington, Murray V. Johnston

▶ The nano aerosol mass spectrometer (NAMS) analyzes individual airborne particles in the 10–30 nm size range. ▶ Inside the NAMS, charged nanoparticles are captured by a digital ion trap (DIT). Particle trapping is optimized through proper design of a field adjusting lens (FAL) assembly upstream of the DIT. ▶ A new FAL assembly increases the particle analysis rate of NAMS by an order of magnitude over the previous design.



Erratum

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Erratum to “Numerical investigation of stability regions in a cylindrical ion trap” [Int. J. Mass Spectrom. 308 (1) (2011) 109–113]

Houshyar Noshad, Behjat-Sadat Kariman