

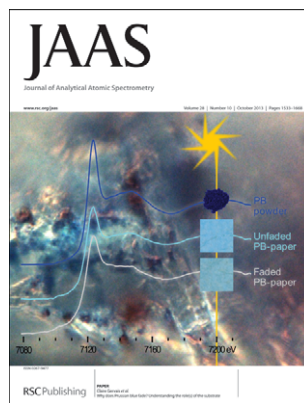
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ISSN 0267-9477 CODEN JASPE2 28(10) 1533–1668 (2013)



Cover

See Nicola Pallavicini *et al.*, pp. 1591–1599.
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Inside cover

See Claire Gervais *et al.*, pp. 1600–1609.
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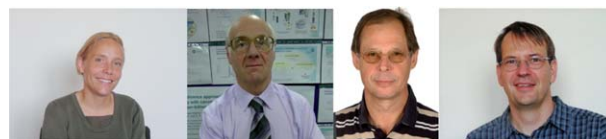
EDITORIAL

1540

Known purity—the fundament of element determination by atomic spectrometry

Silke Richter,* Mike Sargent, Detlef Schiel and Heinrich Kipphardt

Silke Richter, Mike Sargent, Detlef Schiel and Heinrich Kipphardt provide an introduction to a new project within the European Metrology Research Programme on Primary Standards for Challenging Elements.



ATOMIC SPECTROMETRY UPDATE

1544

2013 Atomic spectrometry update—A review of advances in X-ray fluorescence spectrometry

Margaret West, Andrew T. Ellis, Philip J. Potts, Christina Strelis, Christine Vanhoof, Dariusz Wegrzynek and Peter Wobrauschek

This review demonstrates advances in XRF instrumentation and applications published between April 2012 and March 2013.



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PAPERS

1591

A high-throughput method for the determination of Os concentrations and isotope ratio measurements in small-size biological samples

Nicola Pallavicini,* Frauke Ecke, Emma Engström, Douglas C. Baxter and Ilia Rodushkin

An analytical method allowing multi-element characterization by external calibration, osmium (Os) concentration determination by isotope dilution (ID) and $^{187}\text{Os}/^{188}\text{Os}$ isotope abundance ratio measurement from a single sample preparation was developed.

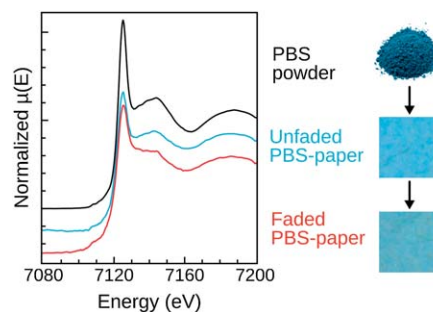


1600

Why does Prussian blue fade? Understanding the role(s) of the substrate

Claire Gervais,* Marie-Angélique Languille, Solenn Réguer, Martine Gillet, Sébastien Pelletier, Chantal Garnier, Edward P. Vicenzi and Loïc Bertrand

XANES measurements show that the structure of Prussian blue may change both upon deposition on a paper substrate and exposure to light. This has direct implications for the understanding and prevention of light-induced fading of Prussian blue in cultural artefacts.



1610

Photo- and thermo-chemical vapor generation of mercury

Ralph E. Sturgeon* and V. Luong

Photochemical vapor generation of both inorganic and methylmercury species can be achieved with equal efficiency when a sample reaction medium containing 2–10% formic acid is irradiated by low power (0.3 mW) deep UV LED sources with output in the range 245–260 nm.



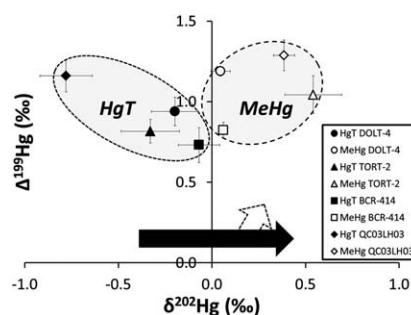
UV-LED based photoreactor

1620

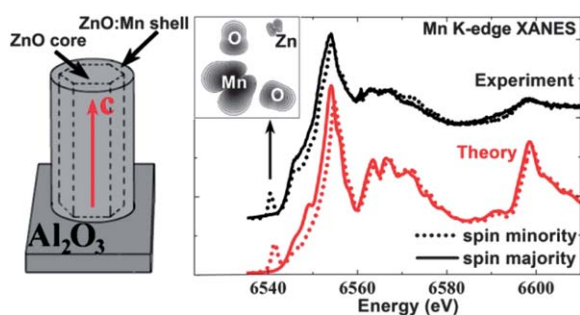
Application of a selective extraction method for methylmercury compound specific stable isotope analysis (MeHg-CSIA) in biological materials

Jeremy Masbou,* David Point and Jeroen E. Sonke

High precision methylmercury compound specific stable isotopic analysis in biological materials.



1629

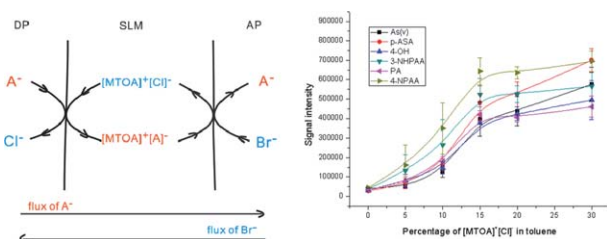


Spin-polarized electronic structure of the core-shell ZnO/ZnO:Mn nanowires probed by X-ray absorption and emission spectroscopy

A. A. Guda,* N. Smolentsev, M. Rovezzi, E. M. Kaidashev, V. E. Kaydashev, A. N. Kravtsova, V. L. Mazalova, A. P. Chaynikov, E. Weschke, P. Glatzel and A. V. Soldatov

Coexistence of paramagnetic phase and local antiferromagnetic coupling of Mn magnetic moments was observed in ZnO/ZnO:Mn core-shell nanowires.

1638

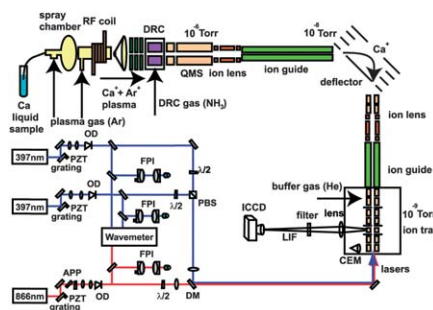


Ionic liquid based carrier mediated hollow fiber liquid liquid liquid microextraction combined with HPLC-ICP-MS for the speciation of phenylarsenic compounds in chicken and feed samples

Xueqin Guo, Beibei Chen, Man He, Bin Hu* and Xiaoqing Zhou

High enrichment factors were obtained by using the ionic liquid [MTOA]⁺[Cl][−] as the carrier for the extraction of As(v) and phenylarsenic species.

1648

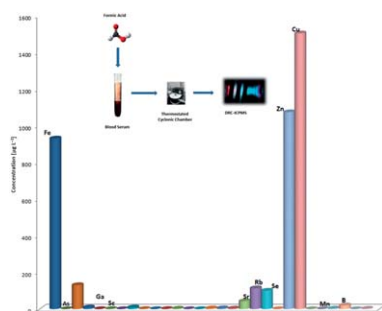


Dynamics of ion loading into a linear Paul trap using an inductively coupled plasma mass spectrometer

Masanori Kitaoka, Kyunghun Jung, Yuta Yamamoto, Takuma Yoshida and Shuichi Hasegawa*

Ions are transported from an ICP-MS to an ion trap and isotopes are selectively laser-cooled, and then their laser induced fluorescence (LIF) is observed. This technique provides a novel tool for isotope analysis based on laser spectroscopy.

1655



Handling spectral interferences and matrix effects in DRC-ICPMS to assess the elemental profile in human serum samples after dissolution with formic acid

Ernesto R. Verni, Franco Moyano, Luis D. Martinez, Alicia V. Lapierre and Raúl A. Gil*

Development of a novel method for elemental profile assessment based on the formic acid dissolution of human blood serum and its direct introduction into the DRC-ICPMS system.

TECHNICAL NOTE

1660

Chip-based liquid phase microextraction combined with electrothermal vaporization-inductively coupled plasma mass spectrometry for trace metal determination in cell samples

Han Wang, Zhekuan Wu, Yuan Zhang, Beibei Chen, Man He and Bin Hu*

Metal determination in precious biological samples is critical to metallomics research.

