

### IN THIS ISSUE

ISSN 0267-9477 CODEN JASPE2 39(7) 1619–1950 (2024)



**Cover**  
See Fang Huang *et al.*, pp. 1750–1758. Image reproduced by permission of Fang Huang from *J. Anal. At. Spectrom.*, 2024, **39**, 1750.



**Inside cover**  
See Teruhiko Kashiwabara *et al.*, pp. 1759–1777. Image reproduced by permission of Teruhiko Kashiwabara from *J. Anal. At. Spectrom.*, 2024, **39**, 1759.

### ATOMIC SPECTROMETRY UPDATES

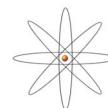
1629

#### Atomic spectrometry update: review of advances in elemental speciation

Robert Clough,\* Chris F. Harrington, Steve J. Hill, Yolanda Madrid and Julian F. Tyson



Atomic  
Spectrometry  
Updates

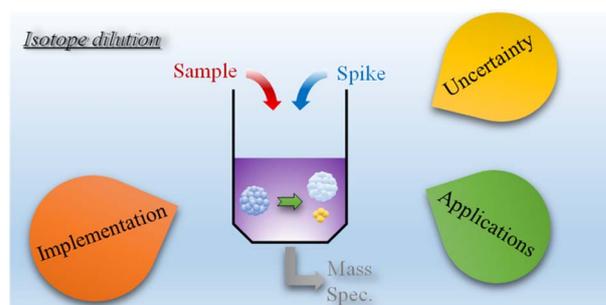


### CRITICAL REVIEW

1665

#### An isotope dilution mass spectrometry overview: tips and applications for the measurement of radionuclides

Alexandre Quemet, Amélie Hubert, Alkiviadis Gourgiotis, Ana María Sánchez Hernández, Marielle Crozet, Guillaume Bailly, Andrew Dobney, Georges Duhamel, Joe Hiess, Urska Repinc, Sébastien Mialle, Béatrice Boulet, Raphaëlle Escoube, Céline Bouvier-Capely, Fabien Pointurier and Sébastien Picart



# RSC Applied Interfaces

GOLD  
OPEN  
ACCESS

Interfacial and surface research  
with an applied focus

Interdisciplinary and open access

[rsc.li/RSCApplInter](https://rsc.li/RSCApplInter)

Fundamental questions  
Elemental answers

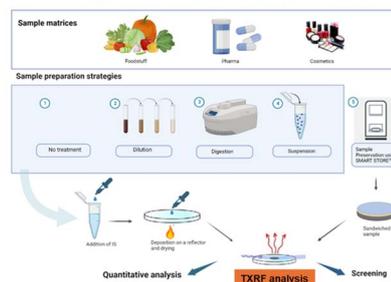
## TUTORIAL REVIEW

1700

### An overview of the applications of total reflection X-ray fluorescence spectrometry in food, cosmetics, and pharmaceutical research

Eva Marguí,<sup>\*</sup> Diane Eichert, Jasna Jablan, Fabjola Bilo, Laura E. Depero, Ana Pejović-Milić, Armin Gross, Haegen Stosnach, Aldona Kubala-Kukuś, Dariusz Banaś and Laura Borgese

#### Overview of TXRF applications in food, cosmetics, and pharmaceutical research

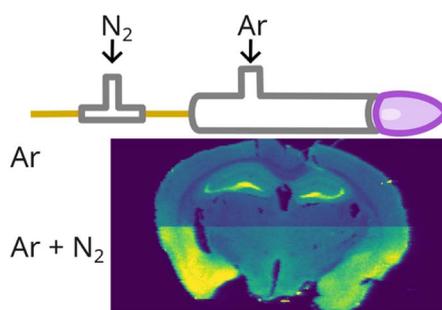


## TECHNICAL NOTES

1720

### Improvement in the sensitivity of LA-ICP-MS bioimaging by addition of nitrogen to the argon carrier gas

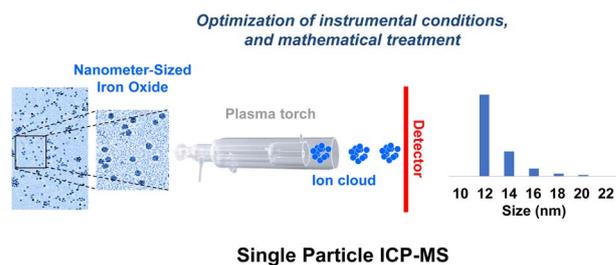
Monique G. Mello, Thomas E. Lockwood, Jonathan Wanagat, Mika T. Westerhausen and David P. Bishop<sup>\*</sup>



1726

### Development of a methodology for analyzing nanometer-sized iron oxide by the single particle ICP-MS technique

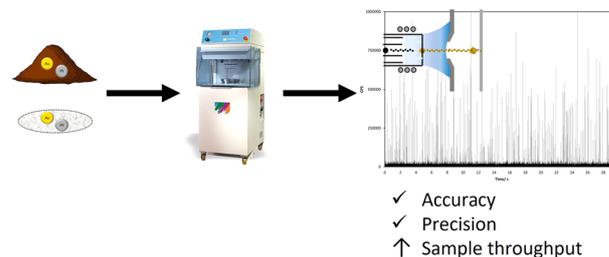
Marie Boutry, Jules Mistral, Paula Oliveira, Nadia Baskali-Bouregaa, Frédérique Bessueille-Barbier, Nicole Gilon, Catherine Ladavière and Linda Ayouni-Derouiche<sup>\*</sup>



1736

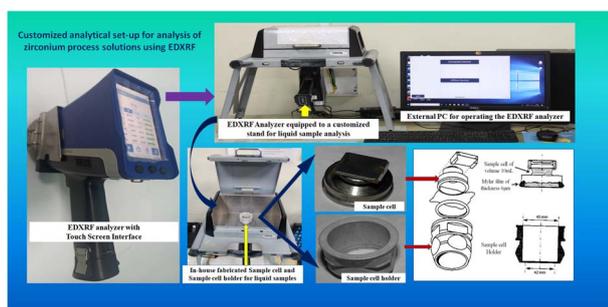
### Standardization of microwave-assisted extraction procedures for characterizing non-labile metallic nanoparticles in environmental solid samples by means of single particle ICP-MS

Carlos Gómez-Pertusa,<sup>\*</sup> M. Carmen García-Poyo, Guillermo Grindlay, Ricardo Pedraza, M. Adela Yañez and Luis Gras



## TECHNICAL NOTES

1741

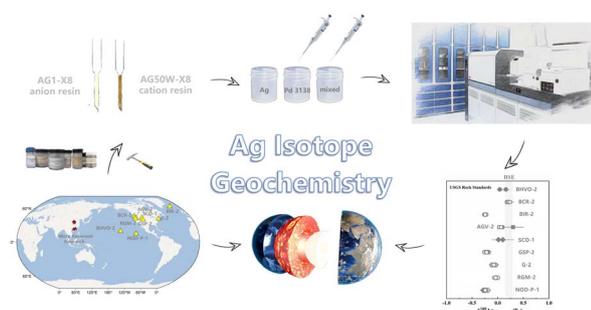


### Development of a simple and rapid EDXRF method for quantification of $ZrO_2$ and $HfO_2$ in aqueous and organic process stream solutions generated from a zirconium extraction facility

Y. Balaji Rao,\* S. NVMS Gupta, P. V. Nagendra Kumar and Dinesh Srivastava

## PAPERS

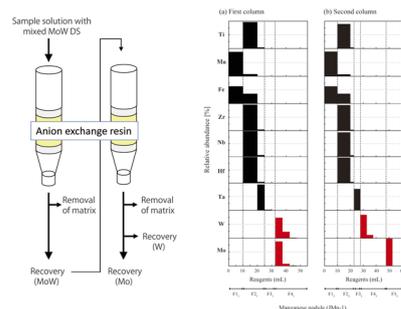
1750



### High-precision measurement of Ag isotopes for silicate rocks by MC-ICP-MS

Yuan Fang, Qiu-Yu Wen, Zi-Cong Xiao, Hui-Min Yu and Fang Huang\*

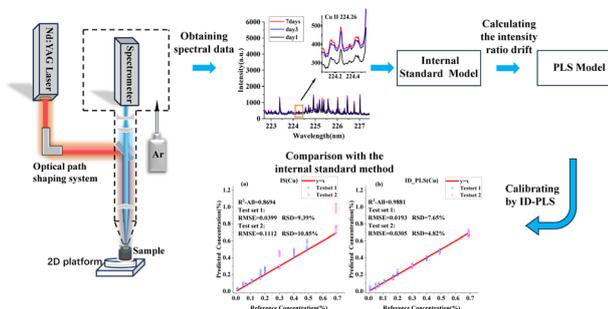
1759



### High-precision stable isotope measurements of tungsten and molybdenum in single sample aliquots combined with optimized separation for mixed double spikes

Teruhiko Kashiwabara,\* Yusuke Fukami, Sayuri Kubo, Ayako Watakabe, Minako Kurisu, Satoshi Tokeshi, Tsuyoshi Iizuka and Katsuhiko Suzuki

1778



### Combination of the internal standard and dominant factor PLS for improving long-term stability of LIBS measurements

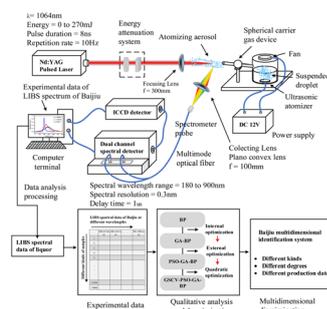
Yang Zhou, Lanxiang Sun,\* Yang Li, Yong Xin, Wei Dong and Jinchi Wang



1789

## High precision and fast classification of different dimensions of Baijiu using an OptGSCV quadratic optimization network combined with AS-LIBS

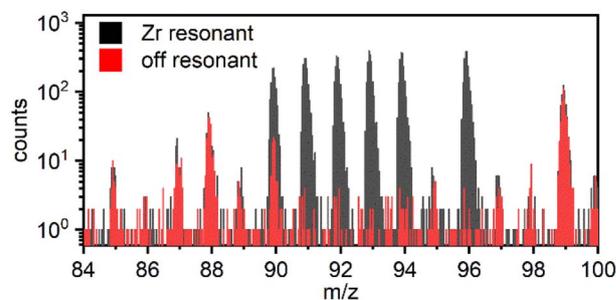
Haoyu Jin, Xiaojian Hao,\* Nan Li, Ying Han, Biming Mo and Shuyi Zhang



1803

## Zirconium analysis in microscopic spent nuclear fuel samples by resonance ionization mass spectrometry

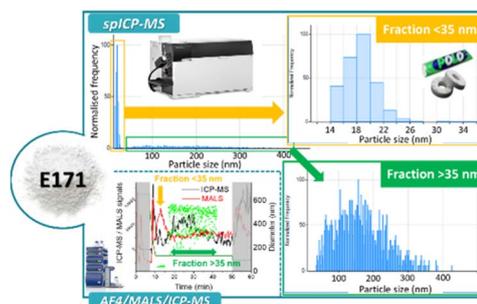
Manuel Raiwa,\* Michael Savina, Danielle Ziva Shulaker, Autumn Roberts and Brett Isselhardt



1813

## The potential of a multi-method platform centred on ICP-MS to provide new insights into the size-resolved quantification of TiO<sub>2</sub> particles in food

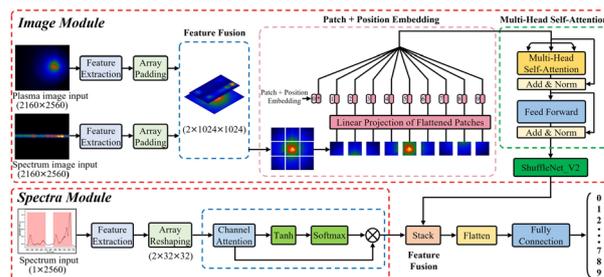
David Ojeda, Dorota Bartczak, Malvinder Singh, Paul Hancock and Heidi Goenaga-Infante\*



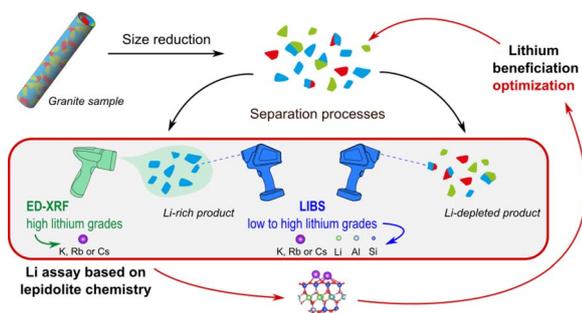
1824

## Air pressure prediction model based on the fusion of laser-induced plasma images and spectra

W. Ke, H. C. Luo, S. M. Lv, H. Yuan,\* X. H. Wang, A. J. Yang, J. F. Chu, D. X. Liu and M. Z. Rong



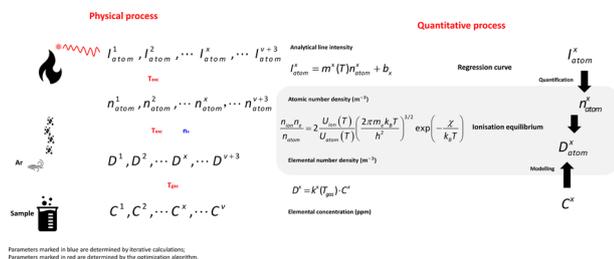
1838



### Quantification of lithium using handheld instruments: application of LIBS and XRF spectroscopy to assay the lithium content of mineral processing products

C. Korbel,\* N. Mezoued, B. Demeusy, C. Fabre,\* J. Cauzid, I. V. Filippova and L. O. Filippov

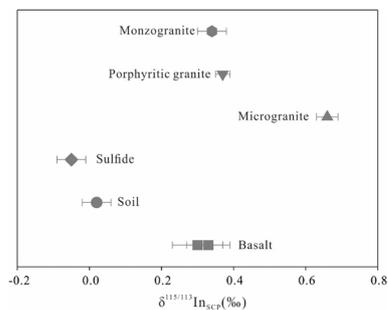
1854



### The Saha ionisation equilibrium shift correction model applied to MPT-OES for analysing complex matrix samples: an example for brine samples

Haoze Wei, Zongjun Zhu, Rongyao Wang, Dengjie Yu, Wei Jin\* and Bingwen Yu\*

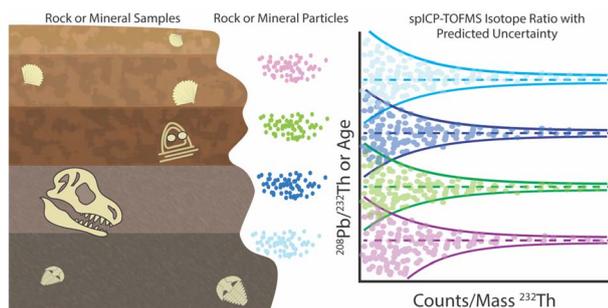
1867



### Determination of indium isotopic ratios of geostandards with different matrices by multi-collector inductively coupled plasma mass spectrometry (MC-ICP-MS)

Chuanwei Zhu, Yunzhu Wu, Zerui Liu, Meifu Zhou, Guangshu Yang, Yuxu Zhang and Hanjie Wen\*

1874



### Isotopic ratio analysis of individual sub-micron particles via spICP-TOFMS

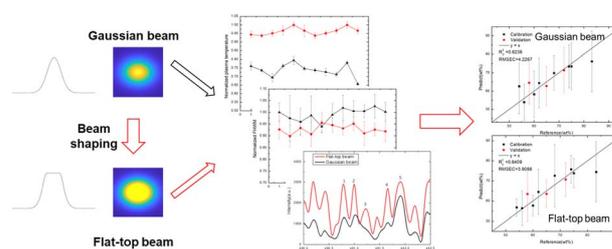
Sarah E. Szakas and Alexander Gundlach-Graham\*



1885

### Quantitative performance improvement using beam shaping plasma modulation for uranium detection in di-uranate using laser-induced breakdown spectroscopy

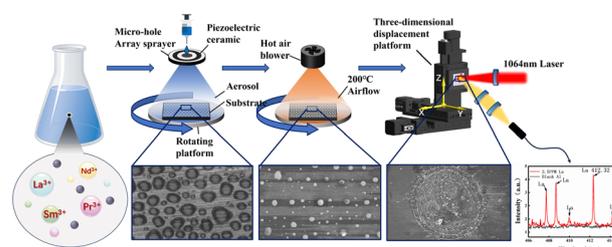
Jianxun Ji, Zongyu Hou, Weiran Song, Xiang Yu and Zhe Wang\*



1895

### Preparing microparticles on an elementary substrate using a micro-hole array sprayer to assist LIBS: a highly sensitive trace rare earth element detection method for aqueous solution analysis

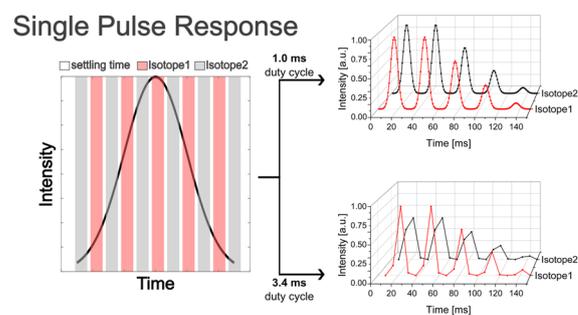
Kezeng Pan, Jiamin Li, Shilei Zhong,\* Changhong Zhang, Yiping Wang, Yuanyuan Xue and Gongyi Xue



1903

### Quantitative depth profile analysis using short single pulse responses in LA-ICP-Q-MS experiments

Maximilian Podsednik, Florian Fahrnberger, David Ken Gibbs, Birgit Achleitner, Silvia Larisegger, Michael Nelhiebel, Herbert Hutter and Andreas Limbeck\*

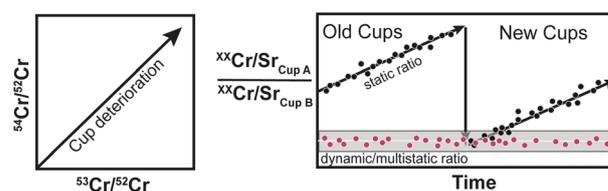


1910

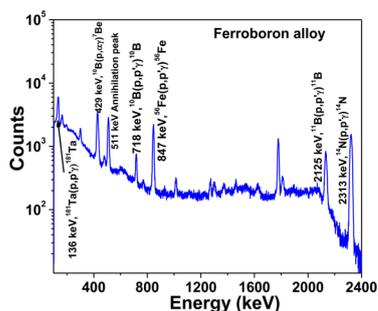
### Effects of Faraday cup deterioration on Sr and Cr isotope analyses by thermal ionization mass spectrometry

Jonas M. Schneider\* and Thorsten Kleine

### Effects of cup deterioration by TIMS



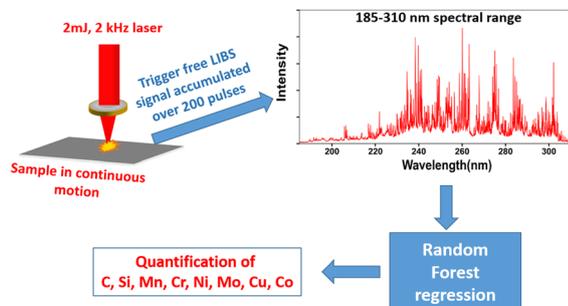
1919



### Characterization of ferroboron alloys by simultaneously quantifying Fe and B mass fractions and isotopic compositions of B by external particle induced gamma-ray emission method

Sk Wasim Raja,\* R. Acharya, Akash Dileep Gandhi and J. B. Singh

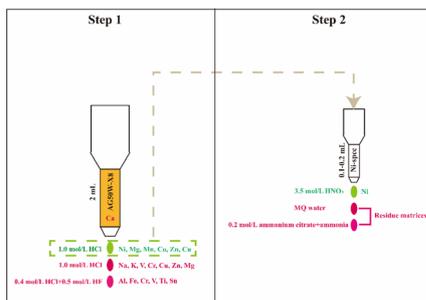
1927



### Trigger-free LIBS using kHz and a few mJ laser in combination with random forest regression for the quantitative analysis of steel elements

S. Ahlawat,\* A. Singh, S. Sahu, P. K. Mukhopadhyay, R. Arya and S. K. Dixit

1938



### A two-step chromatographic purification method for Ni for its isotopic analysis by MC-ICP-MS

Lingke Li, Fei Wu,\* Yongsheng Liu, Tao He, Jie Lin, Wen Zhang, Rui Li, Haihong Chen, Keqing Zong, Zhen Zeng and Zhaochu Hu

1948

### Correction: Development of a multi-isotopic (Pb, Fe, Cu) analytical protocol in gold matrices for ancient coin provenance studies

Louise de Palaminy,\* Franck Poitrasson, Sandrine Baron, Maryse Blet-Lemarquand and Loïc Perrière

