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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

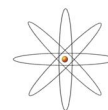
1629

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

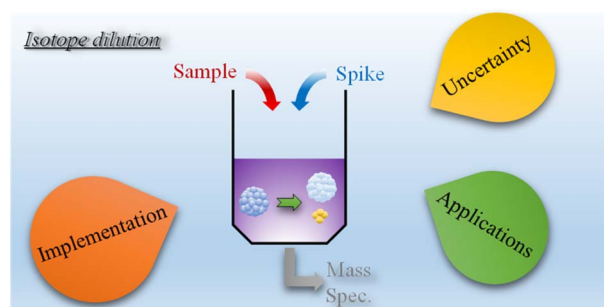


CRITICAL REVIEW

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



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**Fundamental questions
Elemental answers**

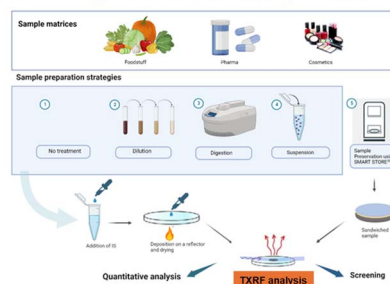
TUTORIAL REVIEW

1700

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

Eva Marguí,^{*} 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

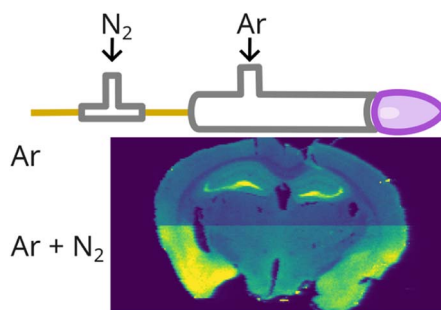


TECHNICAL NOTES

1720

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

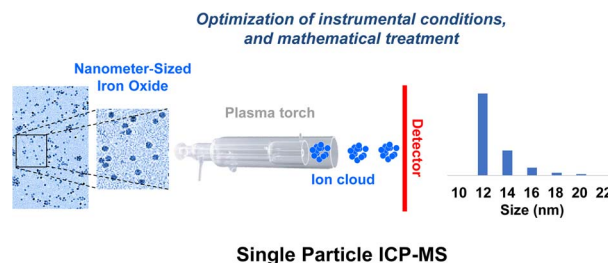
Monique G. Mello, Thomas E. Lockwood, Jonathan Wanagat, Mika T. Westerhausen and David P. Bishop^{*}



1726

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

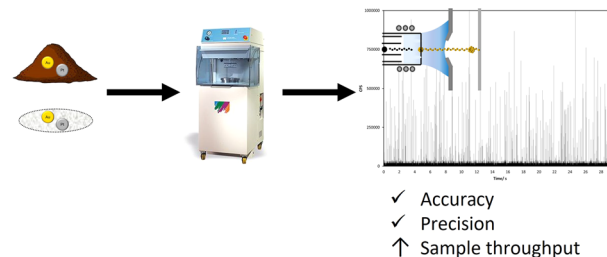
Marie Boutry, Jules Mistral, Paula Oliveira, Nadia Baskali-Bouregaa, Frédérique Bessueille-Barbier, Nicole Gilon, Catherine Ladavière and Linda Ayouni-Derouiche^{*}



1736

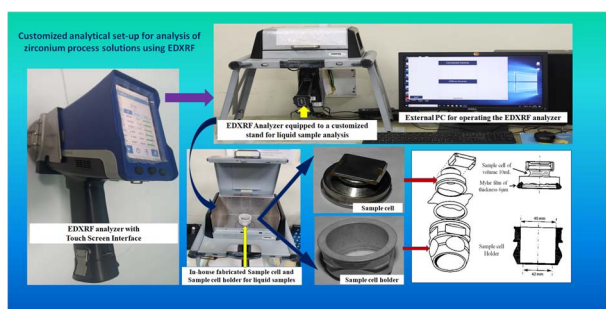
Standardization of microwave-assisted extraction procedures for characterizing non-labile metallic nanoparticles in environmental solid samples by means of single particle ICP-MS

Carlos Gómez-Pertusa,^{*} M. Carmen García-Poyo, Guillermo Grindlay, Ricardo Pedraza, M. Adela Yañez and Luis Gras



TECHNICAL NOTES

1741

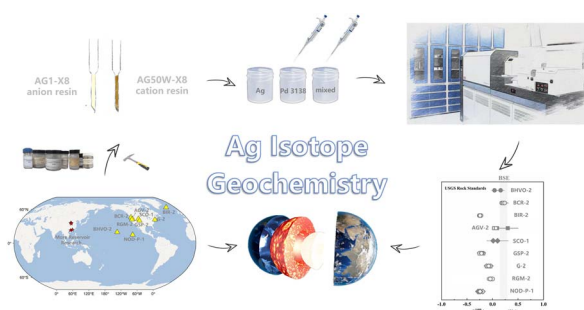


Development of a simple and rapid EDXRF method for quantification of ZrO₂ and HfO₂ in aqueous and organic process stream solutions generated from a zirconium extraction facility

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

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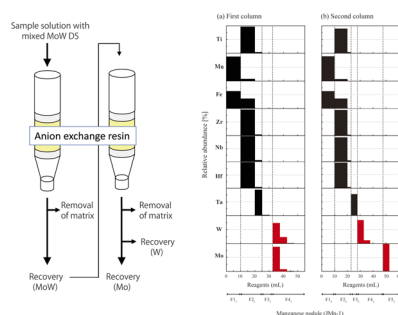
1750



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*

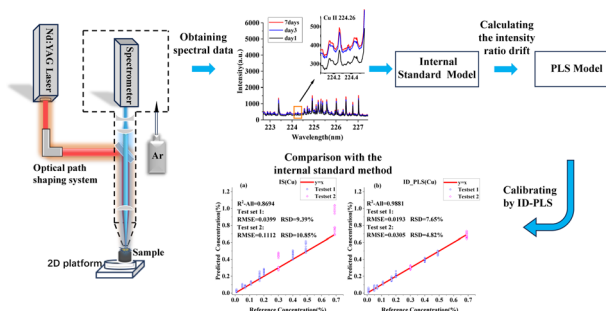
1759



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

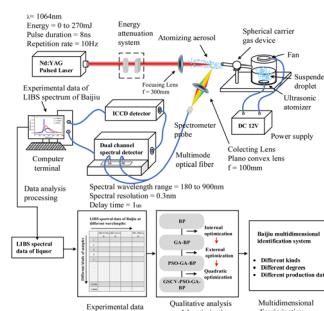
Yang Zhou, Lanxiang Sun,* Yang Li, Yong Xin, Wei Dong and Jinchi Wang



1789

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

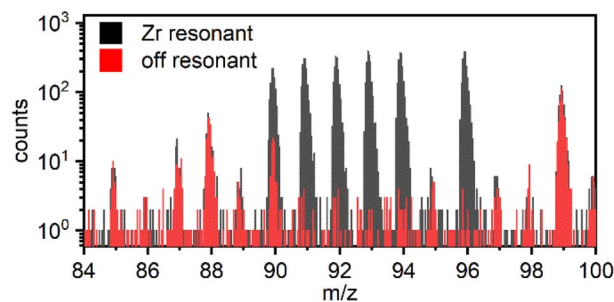
Haoyu Jin, Xiaojian Hao,* Nan Li, Ying Han, Biming Mo and Shuyi Zhang



1803

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

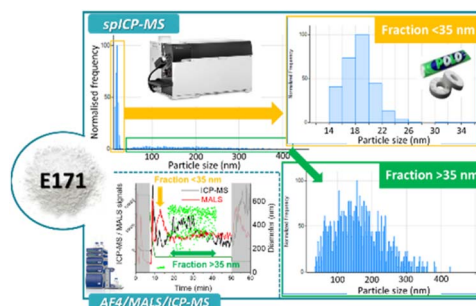
Manuel Raiwa,* Michael Savina, Danielle Ziva Shulaker, Autumn Roberts and Brett Isselhardt



1813

The potential of a multi-method platform centred on ICP-MS to provide new insights into the size-resolved quantification of TiO₂ particles in food

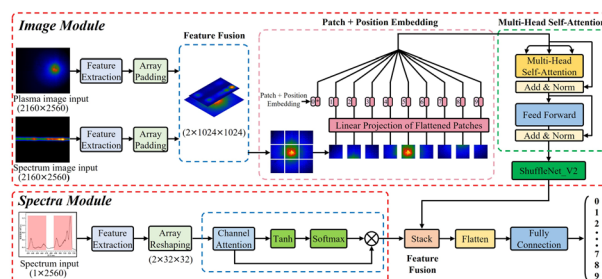
David Ojeda, Dorota Bartczak, Malvinder Singh, Paul Hancock and Heidi Goenaga-Infante*



1824

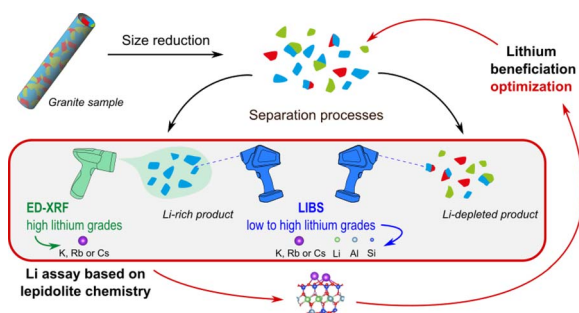
Air pressure prediction model based on the fusion of laser-induced plasma images and spectra

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



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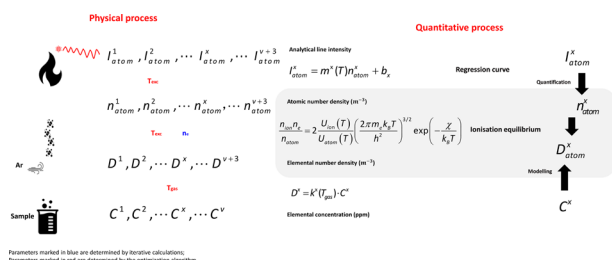
1838



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

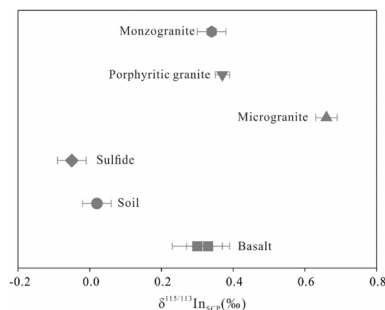
1854



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*

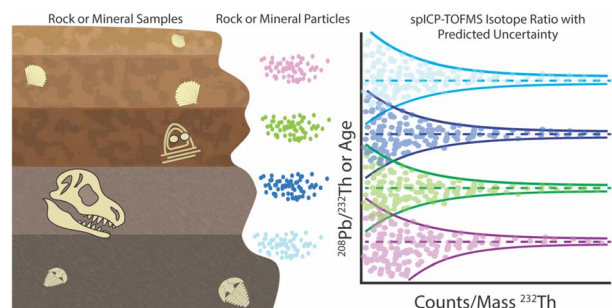
1867



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*

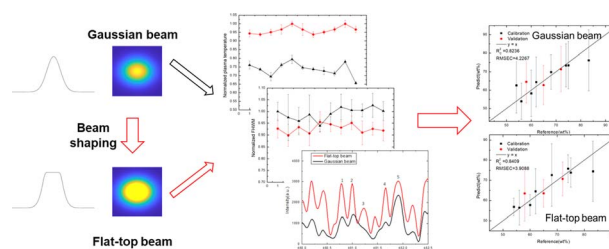


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1885

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

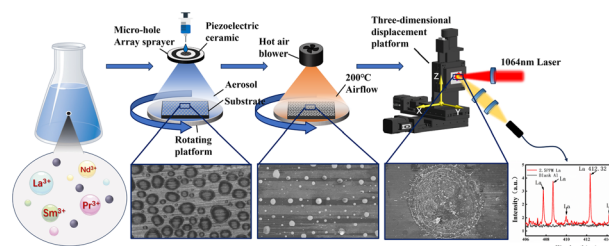
Jianxun Ji, Zongyu Hou, Weiran Song, Xiang Yu and Zhe Wang*



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

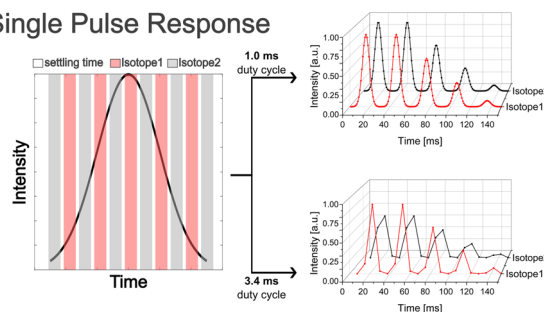


1903

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*

Single Pulse Response

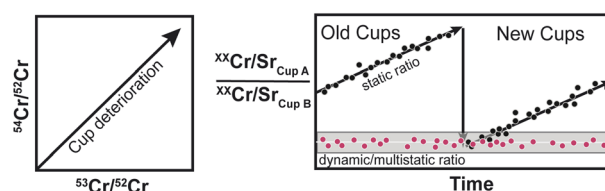


1910

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

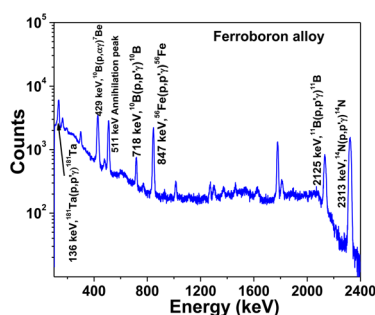
Jonas M. Schneider* and Thorsten Kleine

Effects of cup deterioration by TIMS



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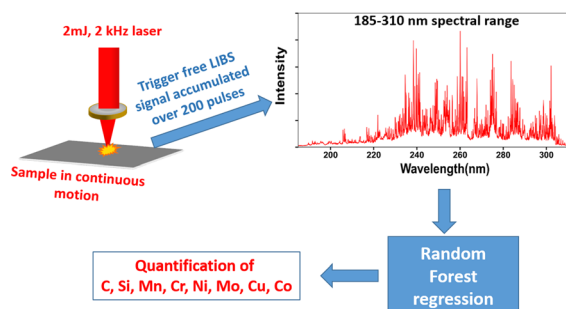
1919



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

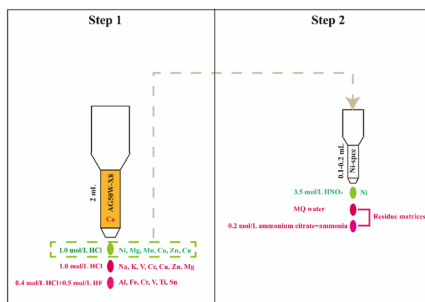
1927



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

CORRECTION

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

