

## IN THIS ISSUE

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### Cover

See H. B. Andrews *et al.*, pp. 689–699. Image reproduced by permission of H. B. Andrews from *J. Anal. At. Spectrom.*, 2025, **40**, 689.

## ATOMIC SPECTROMETRY UPDATES

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### Atomic spectrometry update: review of advances in the analysis of clinical and biological materials, foods and beverages

Marina Patriarca,\* Nicola Barlow, Alan Cross, Sarah Hill, David Milde and Julian Tyson

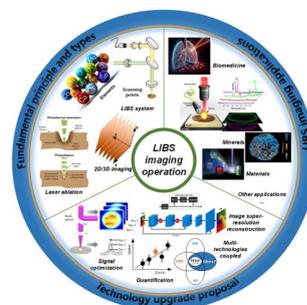


## TUTORIAL REVIEW

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### Recent advances in chemical composition imaging operation based on laser-induced breakdown spectroscopy

Shangyong Zhao, Yuchen Zhao, Yujia Dai, Ziyuan Liu, Zongyu Hou, Xun Gao and Zhe Wang\*



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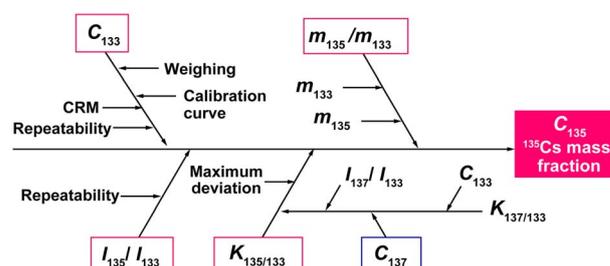
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## TECHNICAL NOTE

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SI-traceable quantification of  $^{135}\text{Cs}$  in  $^{137}\text{Cs}$  solution for  $^{135}\text{Cs}$  standardization

Shiho Asai,\* Taiyo Tajima, Aya Sakaguchi, Yasushi Sato, Hideki Harano and Katsuhiko Shirono

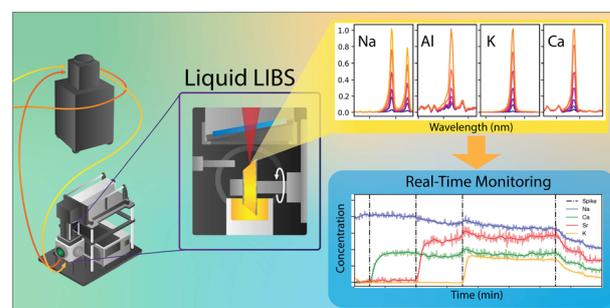


## PAPERS

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## Real-time elemental analysis of liquids for process monitoring using laser-induced breakdown spectroscopy with a liquid wheel sampling approach

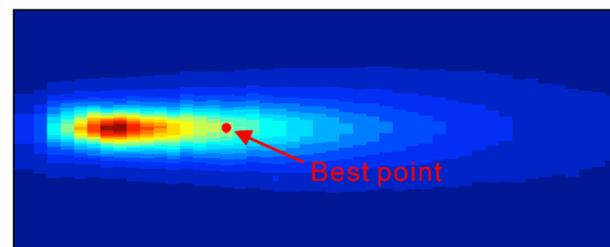
H. B. Andrews,\* Z. B. Kitzhaber, B. T. Manard, M. Z. Martin and L. R. Sadergaski



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## In situ carbon isotope analysis of diamonds using LA-MC-ICP-MS inspired by the distribution of ions and isotope ratios in ICP

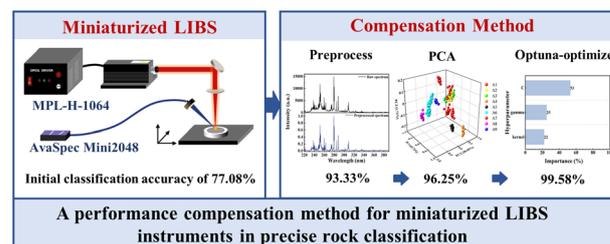
Yi-Ming Huo, Zhi-Yong Zhu,\* Chang-Fu Fan, Yu-Wei She, Jia-Long Hao and Xiang-Kun Zhu



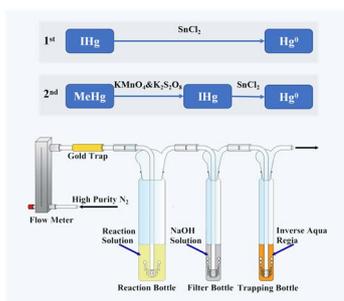
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## A performance compensation method for miniaturized LIBS instruments in precise rock classification

Yuting Fu, Jing Chen, Biye Liu, Beibei Hu, Xueying Jin, Guang Yang\* and Huihui Sun\*



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### A dual-stage purge-trap protocol to separate species-specific mercury from marine biota for precise isotopic analysis

Songjing Li, Ruoyu Sun,\* Xiaowei Chen, Wei Zhang, Mei Meng, Yi Liu, Wang Zheng and Jiubin Chen

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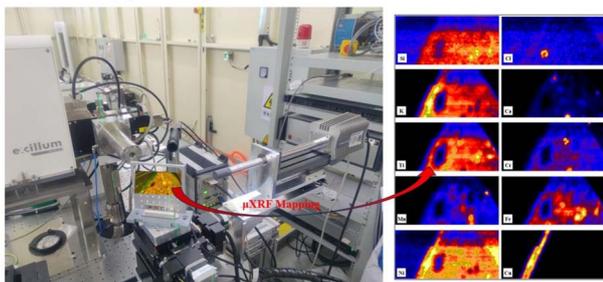


### Second version of the open-source software GSA for gamma-ray spectrum analysis

Lahcen El Amri,\* Hamid Amsil, Omar El Bounagui, Abdelouahed Chetaïne, Brahim Elmokhtari, Hamid Bounouira and Abdessamad Didi

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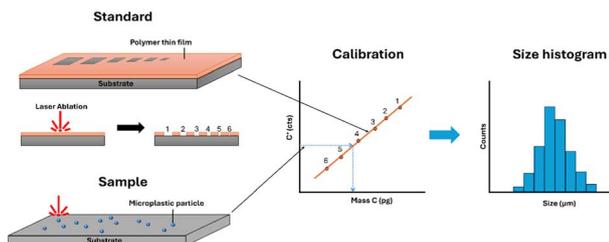
A lab-based micro X-ray fluorescence spectrometer



### A lab-based micro-X-ray fluorescence spectrometer with high photon flux and spatial resolution for ancient ceramic research

Xiao-Sheng Lin, Miao-Miao Wang, Miao Shu, Chao-Yang Li, Hai-Jing Li, Xu Wang,\* Chun-Zhen Yang\* and Rui Si\*

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### Novel calibration approach for particle size analysis of microplastics by laser ablation single particle-ICP-MS

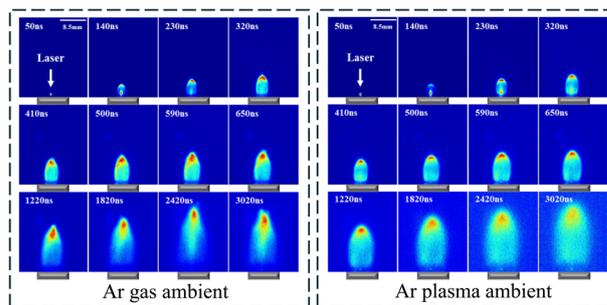
Lukas Brunnbauer,\* Laura Kronlachner, Elias Foisner and Andreas Limbeck\*



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### Spatio-temporal evolution of laser ablation W plasma under low-pressure Ar gas and Ar plasma ambients

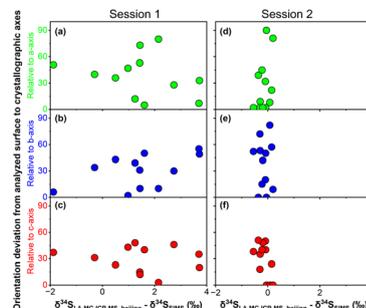
Boliang Men, Cong Li,\* Qi He, Hongmin Qu, Shiming Liu, Longfei Li, Huace Wu, Zhonglin He, Jielin Shi, Ding Wu, Ran Hai, Xingwei Wu and Hongbin Ding



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### No significant crystal orientation effect during sulfur isotope analysis of marcasite using SIMS

Rucao Li,\* Jinyu Yan, Jianwei Yu, Xiao-Lei Wang, Tao Yang, Shengping Qian, Chengming Wang\* and Haiyang Xian

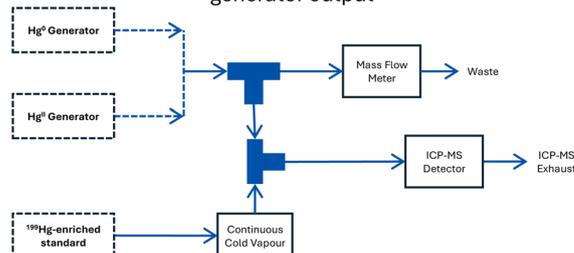


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### An isotope dilution approach for validating the output of mercury gas generators for mercury pollution monitoring

Sophie Page, Philip J. H. Dunn,\* Panayot Petrov, Sreekanth Vijayakumaran Nair, Igor Živković, Milena Horvat, Warren T. Corns and Heidi Goenaga-Infante\*

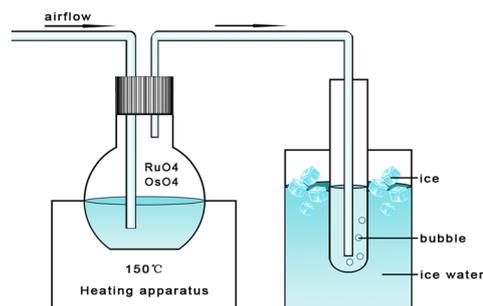
#### Online IDMS quantification of Hg generator output



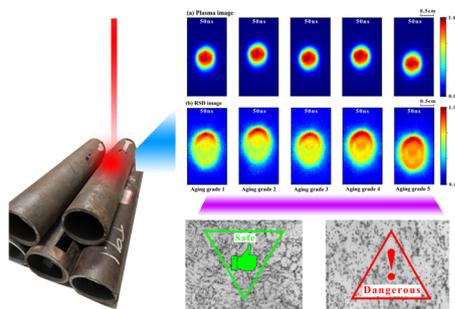
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### Determination of Ru and Os with enhanced sensitivity and Rh, Pd, Pt and Ir at sub ng g<sup>-1</sup> levels in geological samples by ICP-MS

Qishuai Huang,\* Yali Sun\* and Shouqian Zhao



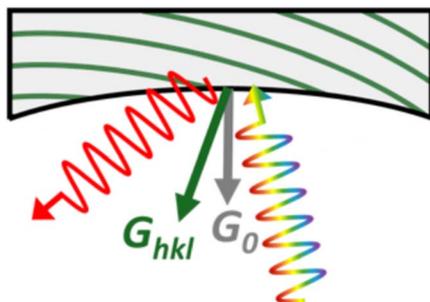
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### Plasma evolution investigation and aging grade evaluation of heat resistant steel based on laser induced plasma images

Junbin Cai, Meirong Dong,\* Feiqiang Tang, Kaiqing Chen, Zhichun Li, Weijie Li, Shunchun Yao and Jidong Lu

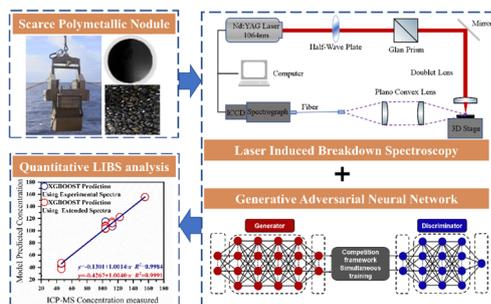
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### hklhop: a selection tool for asymmetric reflections of spherically bent crystal analyzers for high resolution X-ray spectroscopy

Jared E. Abramson, Yeu Chen and Gerald T. Seidler\*

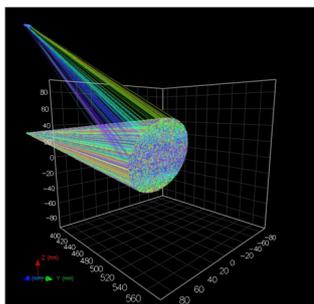
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### Data augmentation using GANN in the quantitative LIBS analysis of scarce samples: a case study on polymetallic nodules from 5000 m ocean depth

Jie Ren, Suming Jiang, Chen Sun, Zhenggang Li, Yanhui Dong, Ling Chen, Xibin Han, Jin Yu and Wendong Wu\*

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### A ray tracing survey of asymmetric operation of the X-ray Rowland circle using spherically bent crystal analyzers

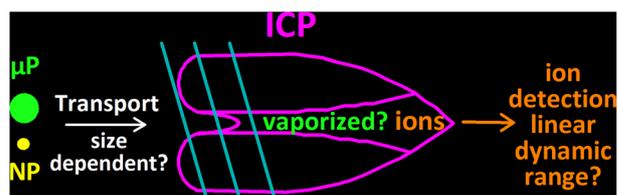
Yeu Chen, Anthony J. Gironda, Yaxin Shen, André D. Taylor and Gerald T. Seidler\*



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### Challenges in measuring nanoparticles and microparticles by single particle ICP-QMS and ICP-TOFMS: size-dependent transport efficiency and limited linear dynamic range

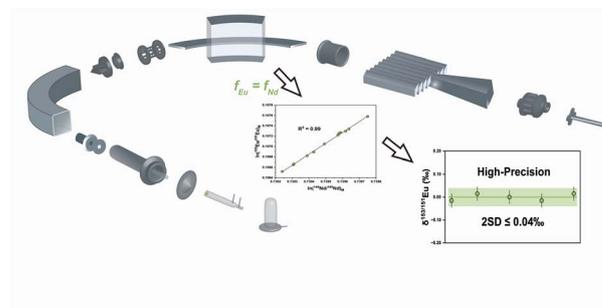
Madeleine Lomax-Vogt, Lucas M. Carter, Jonas Wielinski, Stanislav Kutuzov, Gregory V. Lowry, Ryan Sullivan, Paolo Gabrielli and John W. Olesik\*



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### High-precision measurement of Eu isotopes enabled by Nd internal normalization

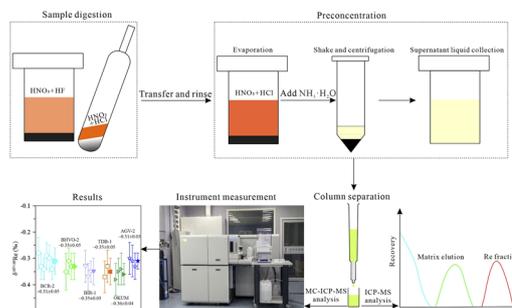
Hao Wu, Jiang-Hao Bai,\* Xi-Rong Liang, Xi-Bin Lu, Yong-Ying Li, Yi-Nan Deng, Ye Zhao and Gang-Jian Wei\*



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### High intermediate precision rhenium isotopic measurements in geological samples

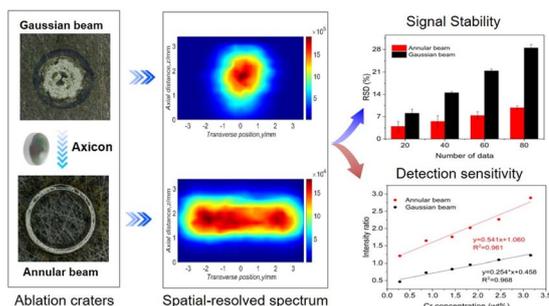
Jinhua Liu, Lian Zhou, Xiang Wang, Jianwei Li, Thomas J. Algeo and Xiaodong Deng\*



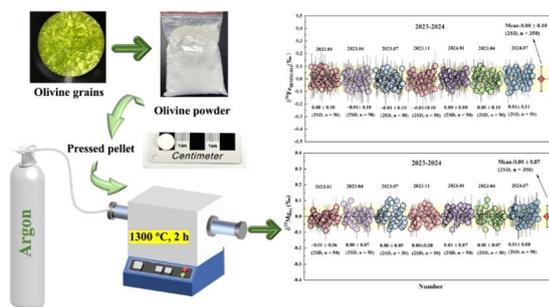
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### Analytical-performance enhancement of laser-induced breakdown spectroscopy using an annular laser beam

Bo Dai, Jingge Wang,\* Mianyun Ye, Yonghao Han and Hehe Li



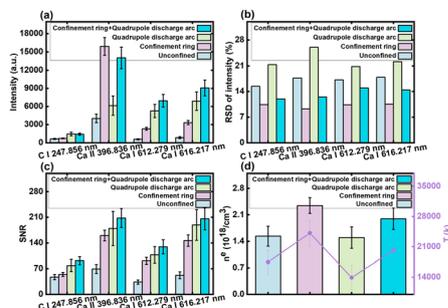
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### Synthesis of a new olivine reference material by a novel method for *in situ* iron and magnesium isotope analyses using laser ablation MC-ICP-MS

Xianli Zeng, Ming Li,\* Wen Zhang,\* Hongyun Jin, Yongsheng Liu, Zhaochu Hu, Tao Luo, Shengjun Yang, Zhenyan Liu and Jingyuan Wang

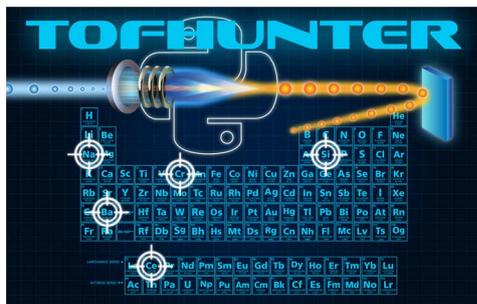
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### Accuracy enhancement of laser-induced breakdown spectroscopy using a combination of a confinement ring and quadrupole discharge arc

Kaiqiang Yu, Yeping Ren, Xiaodong Liu, Xiaoning Yang, Haohan Sun, An Li, Yumei Wu, Caihao Ding, Xianshuang Wang\* and Ruibin Liu\*

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### TOFHunter—unlocking rapid untargeted screening of inductively coupled plasma–time-of-flight–mass spectrometry data

Hunter B. Andrews,\* Lyndsey Hendriks, Sawyer B. Irvine, Daniel R. Dunlap and Benjamin T. Manard

