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See Ran Hai *et al.*, pp. 3111–3119. Image reproduced by permission of Ran Hai from *J. Anal. At. Spectrom.*, 2025, **40**, 3111.



#### Inside cover

See Ali Safi *et al.*, pp. 3031–3043. Image reproduced by permission of Ali Safi from *J. Anal. At. Spectrom.*, 2025, **40**, 3031.

### EDITORIAL

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#### Lasers in Ghent – the 16<sup>th</sup> European Workshop on Laser Ablation

Thibaut Van Acker and Frank Vanhaecke

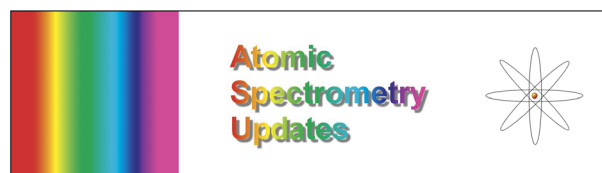


### ATOMIC SPECTROMETRY UPDATES

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#### Atomic spectrometry update: review of advances in the analysis of metals, chemicals and functional materials

Ayush Agarwal, Eduardo Bolea-Fernandez, Robert Clough,\* Andy Fisher, Bridget Gibson and Steve Hill



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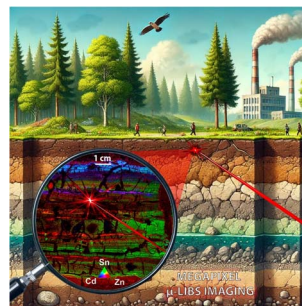
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### Ultrafast LIBS elemental imaging: a new tool for pedogenesis studies in highly polluted anthropogenic soils

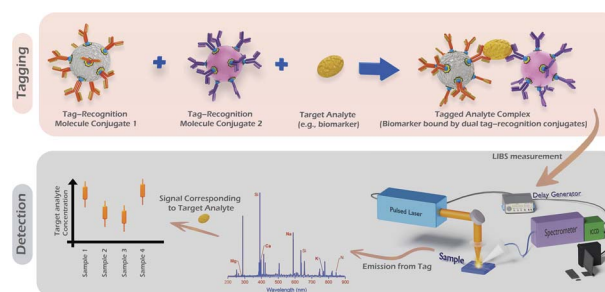
Clément Noel, Hermine Huot, César Alvarez-Llamas, Marc Offroy, Françoise Watteau, Ludovic Duponchel\* and Vincent Motto-Ros\*



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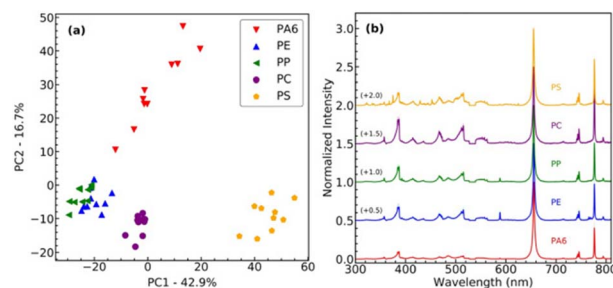
Ali Safi\* and Nouredine Melikechi



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### Laser ablation-based techniques for microplastic analysis: recent advances and applications

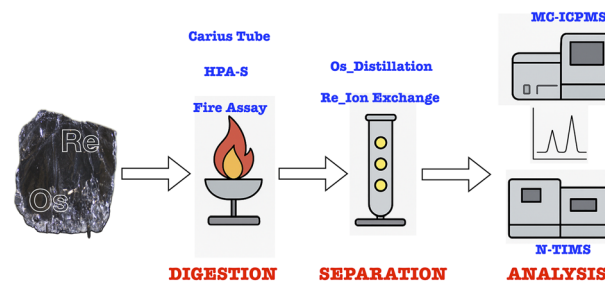
Pavlna Modlitbová, Lukas Brunnbauer, Gabriela Kalčíková, Aida Fazlić, Andreas Limbeck, Pavel Pořízka\* and Jozef Kaiser



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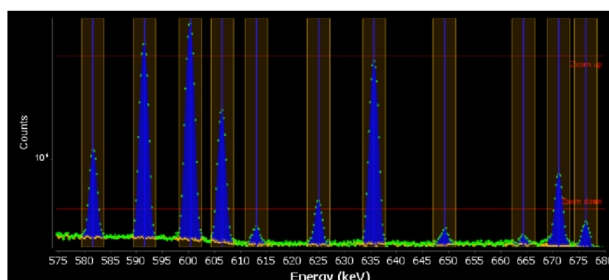
### Rhenium and osmium analysis in soil and rock samples: a review of ultra-trace detection methods

Ashok Kumar Maurya\* and Ashish Kumar Pandey



## TUTORIAL REVIEW

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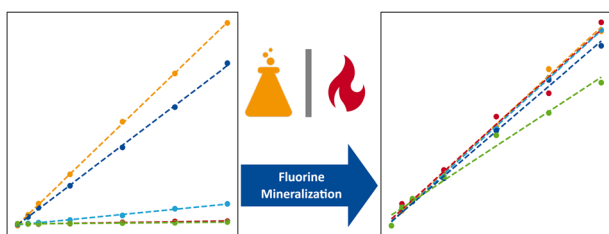


### Multi-method approaches for gamma spectrometry software: calibration, peak analysis, and corrections

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

## TECHNICAL NOTES

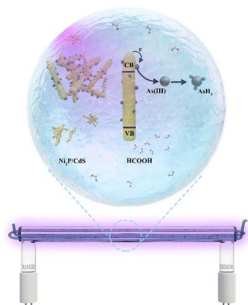
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### Combining fluorine-specific graphite furnace-molecular absorption spectrometry with mineralization approaches

Alexander Köhler, Marco Biel, Pascal Stopper, Svenja Berit Seiffert and Matthias Schmitt\*

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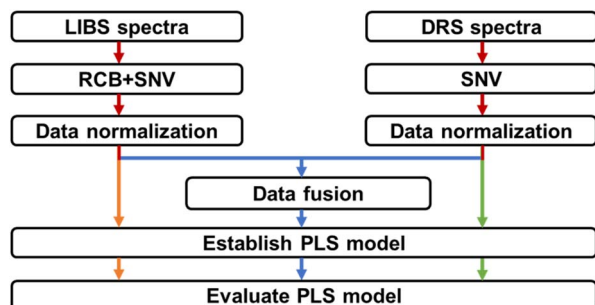


### Determination of trace arsenic using noble metal-free Ni<sub>2</sub>P/CdS composites for photochemical vapor generation for sample introduction into ICP-MS

Lu Zhang, Yuqi Li, Hanjiao Chen\* and Xiandeng Hou\*

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### Data fusion of laser-induced breakdown spectroscopy and diffuse reflectance spectroscopy for improved quantitative analysis of EAST-like plasma-facing materials

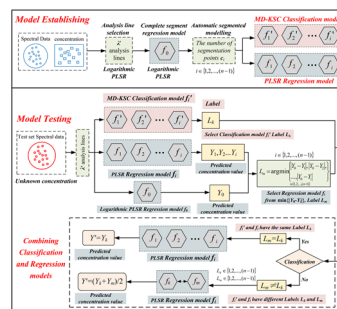
Jianping Mu, Ran Hai,\* Yupeng Yang, Mingzhe Zhao, Cong Li, Ding Wu and Hongbin Ding



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## Enhancing LIBS analysis accuracy of C element in low-carbon alloy steel by automatic segmented modelling with nonlinear-regression-based spectral line selection and Mahalanobis distance kernel space classification

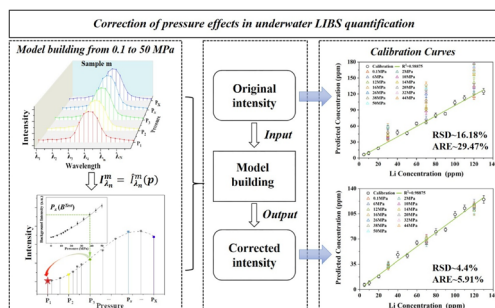
Shiheng Zhang, Hui Lu, Jianhong Yang,\* Fu Chang, Zhanxiang Wang, Yongqi Zhang and Baojia Du



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## Quantification of underwater LIBS at varying ambient pressures towards deep-sea applications

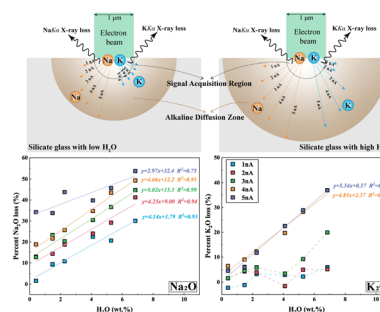
Boyang Xue, Ye Tian,\* Tie Li, Ying Li, Ziwen Jia, Yuan Lu, Jinjia Guo, Chao Chen, Zhangjun Wang and Ronger Zheng



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## High spatial resolution electron probe analysis of H<sub>2</sub>O-bearing aluminosilicate glasses

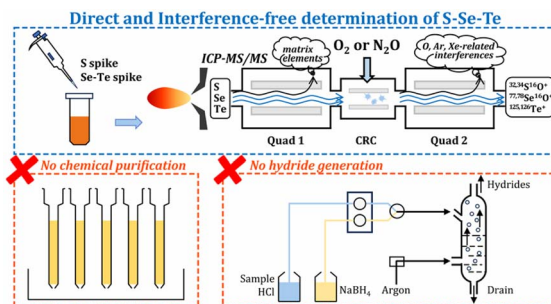
Cong Tu, Xiao-Ying Gao,\* Oleg G. Safonov, Ting-Ting Xiao, Vasily O. Yapaskurt and Wan-Cai Li



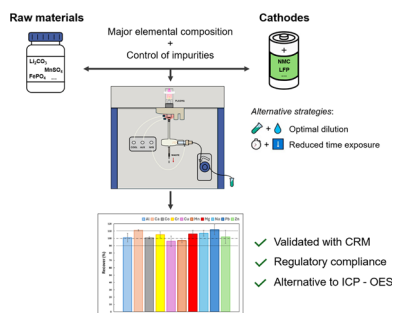
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## Accurate determination of sulfur, selenium and tellurium in geological reference materials by isotope dilution inductively coupled plasma-tandem mass spectrometry (ID-ICP-MS/MS)

Jiawei Li, Keqing Zong,\* Zaicong Wang, Zongqi Zou, Tao He, Jiyao Sun, Jie Lin, Wen Zhang, Ming Li, Zhaochu Hu and Yongsheng Liu



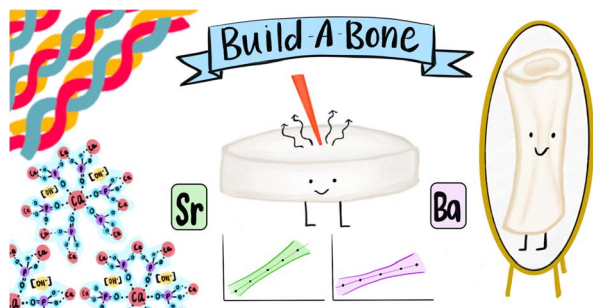
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### Innovations in battery material quality control: microwave-sustained inductively coupled atmospheric-pressure plasma optical emission spectroscopy (MICAP OES) for elemental analysis

Jorge Pérez-Vázquez, Raquel Serrano,\*  
Guillermo Grindlay, Luis Gras and Juan Mora

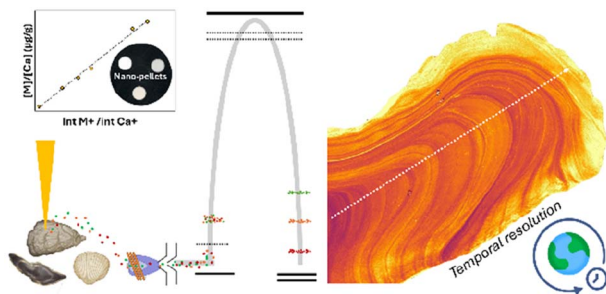
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### Build-a-bone: development of a matrix-matched reference material for quantitative analysis of bone with portable LIBS

Kristen M. Livingston, Amanda T. Williams  
and Matthieu Baudet\*

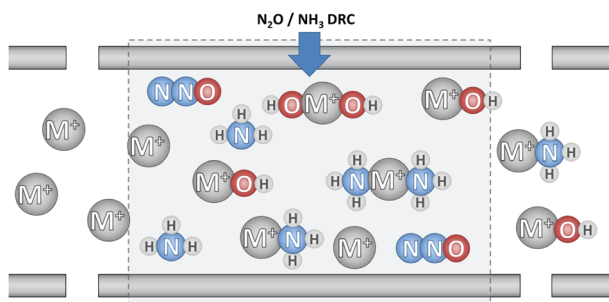
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### LA-ICP-TOF-MS for quantitative mapping of biogenic carbonate samples using matrix-matched nanoparticulate pressed powder pellets

Ana Lores-Padin,\* Thibaut Van Acker, Niels J. de Winter,  
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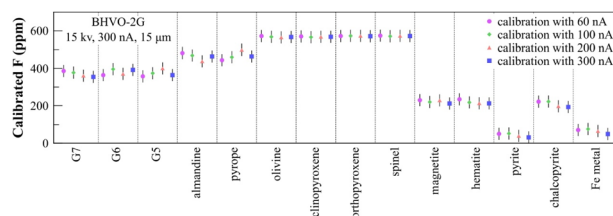
Shaun T. Lancaster,\* Ben Russell, Thomas Prohaska  
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### A refined electron probe microanalysis protocol for accurate quantification of F and Cl in mafic silicate glasses

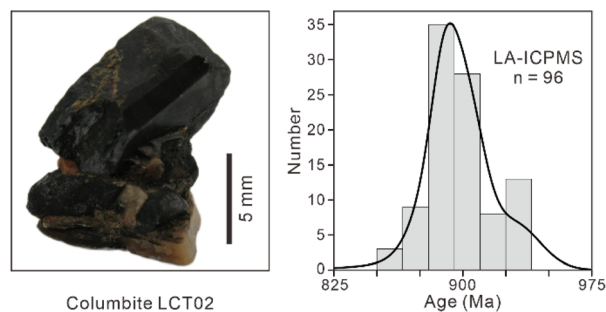
Peng-Li He,<sup>\*</sup> Xiao-Long Huang, Yan-Qiang Zhang, Wen-Hua Lu, Ying-Zhuo Liu and Yang Yu



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### LCT02: a new natural reference material for U–Pb isotopic microanalysis of columbite

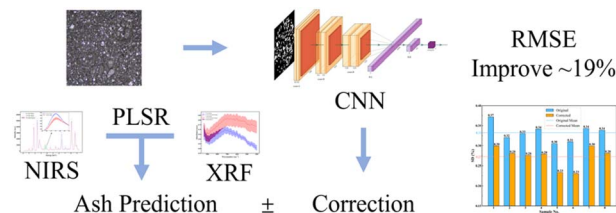
Zhi Chen, Xiao-Xiao Ling,<sup>\*</sup> Shi-Tou Wu, Sandra L. Kamo, Yu Liu, Di Zhang, Qiu-Li Li and Xian-Hua Li



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### Image deep learning-driven granularity effect correction: a novel approach to improve the accuracy of NIRS-XRF coal quality analysis

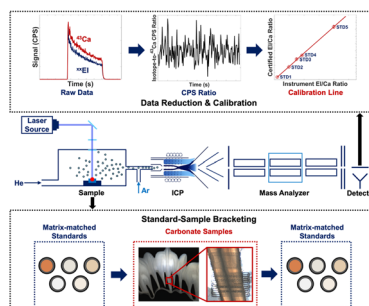
Jiaxin Yin, Rui Gao, Jiaxun Li, Yang Zhao, Zhihui Tian, Junxiao Wang, Yan Zhang, Peihua Zhang, Lei Zhang,<sup>\*</sup> Wangbao Yin<sup>\*</sup> and Suotang Jia



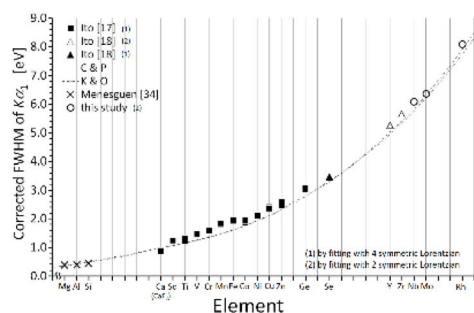
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### Accurate high-resolution LA-ICP-MS determination of trace element contents in carbonates with matrix-matched standards

Zhekai Tang, Sang Chen,<sup>\*</sup> Derong Zhao, Tianhui Zhang, Yuncong Ge, Zhuohang Li, Ruifeng Zhang and Lei Zhou



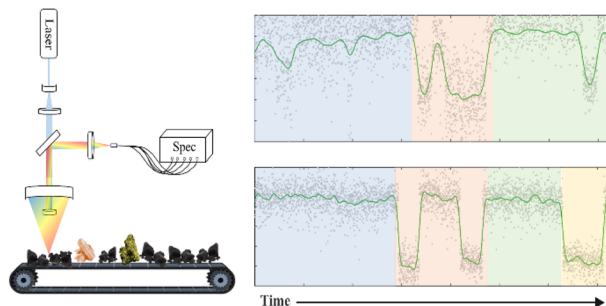
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### X-ray spectroscopic evaluation of $K$ -, $L_2$ -, and $L_3$ -level widths in Zr, Nb, Mo, and Rh

Yoshiaki Ito, Tatsunori Tochio, Michiru Yamashita, Sei Fukushima, Łukasz Syrocki, Katarzyna Śtabkowska, Marek Polasik, José Pires Marques and Fernando Parente\*

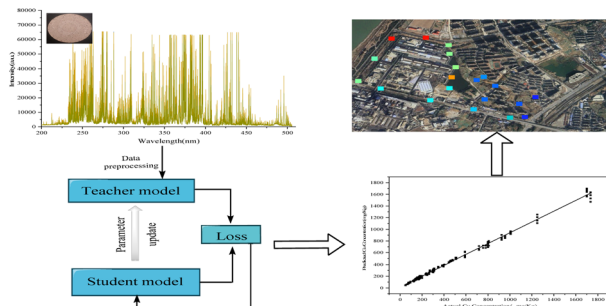
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### Calibration and application of a large-scale LIBS project based on transfer learning in the online quantitative analysis of coal

An Li, Xinyu Zhang, Xiaodong Liu, Haohan Sun and Ruibin Liu\*

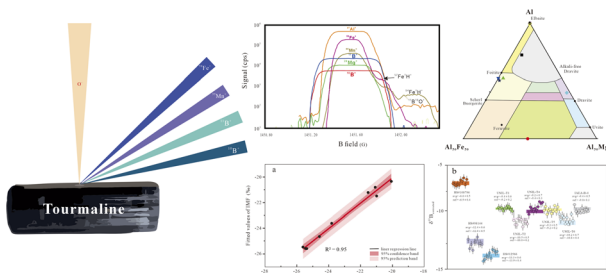
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### Semi-supervised graph learning for spatial mapping of heavy metal concentrations in smelter-adjacent soils using a mobile LIBS device

Yanhong Gu, Zhen Li, Shichao Jin, Zhao Cheng\* and Fudong Nian\*

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### Online correction of matrix effects for boron isotope analysis in tourmaline using nano-secondary-ion mass spectrometry

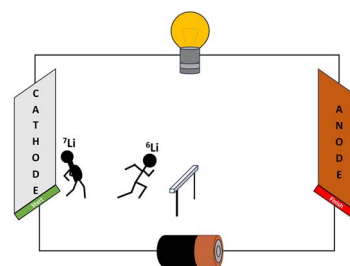
Shaohua Dong, Youwei Chen,\* Jian-Feng Gao, Xianwu Bi and Ruizhong Hu



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### Exploring age-induced lithium isotope fractionation in lithium-ion batteries using microwave-induced cold nitrogen plasma mass spectrometry

Dalia Morcillo, Alexander Winckelmann, Marcus Oelze, Robert Leonhardt, Anita Schmidt, Silke Richter, Sebastian Recknagel, Jochen Vogl, Ulrich Panne and Carlos Abad\*



Who will win the hurdles race in a Li-ion battery?  
<sup>6</sup>Li or <sup>7</sup>Li?

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### Morphology–spectral correlations of laser-induced Al plasma with plate wall spatial confinement

Hailong Yu, Qiuyun Wang, Xun Gao,\* Xingsheng Wang and Jingquan Lin\*

