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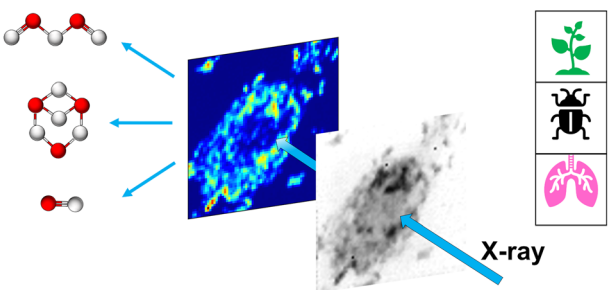

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Electrochemical wet-cell fabrication for *in situ* soft X-ray hyperspectral imaging of real-life ORR electrocatalysts

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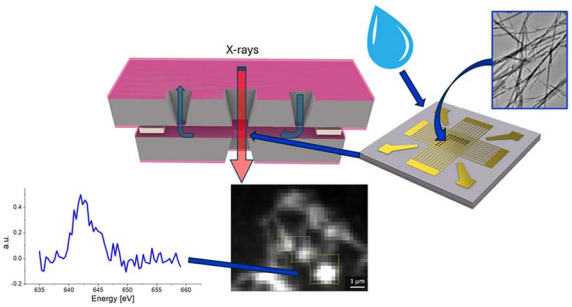

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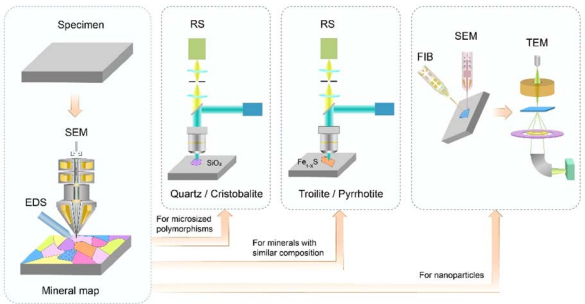
Xu Tang,* Lixin Gu, Di Zhang, Xiaoguang Li, Lihui Jia, Li Wang, Hengci Tian, Shuhui Cai, Wei Yang, Qiuli Li and Jinhua Li*



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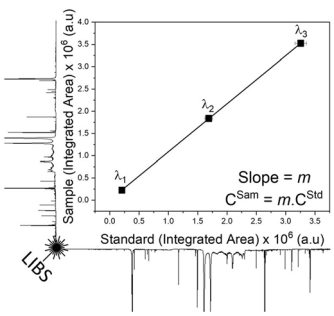
Partial matrix matching multi-energy calibration for direct quantification of Al, Fe, Li and Si in spodumene by laser-induced breakdown spectroscopy

João Manoel de Lima Júnior, Nícolas Pico de Azeredo, Juliana Naozuka, Carina Ulsen, George L. Donati and Cassiana Seimi Nomura*



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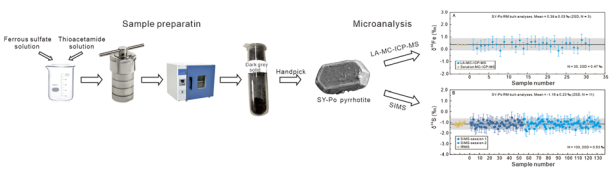
A new potential synthetic pyrrhotite reference material for Fe–S isotope microanalysis

Xiao-Yan Liu, Lei Chen,* Fu-De Zhao, Fei Huang, Qiu-Li Li, Hui-Min Yu and Xian-Hua Li



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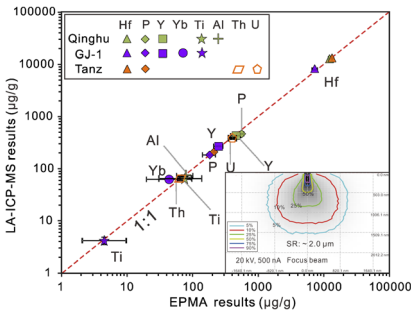

High-accuracy analyses of key minor and trace elements in zircon by electron probe microanalysis

Lihui Jia,* Yi Chen, Yu Li, Qian Mao, Hao Wang, Zeling Wang and Haojie Chen

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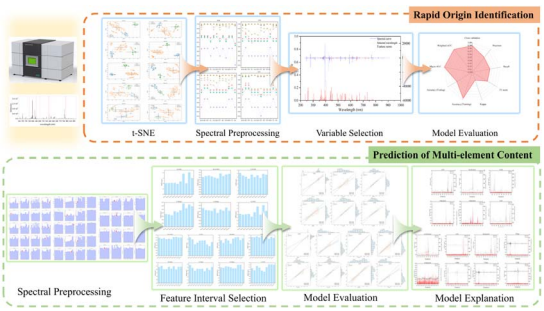

Rapid origin traceability and multi-element quantification of *Hypericum perforatum* L. using LIBS combined with machine learning methods

Zhiyong Zhang, Wennan Nie, Guangpu Fang, Jiahe Qian, Hongxia Gan, Jingchao Chen and Wenlong Li*

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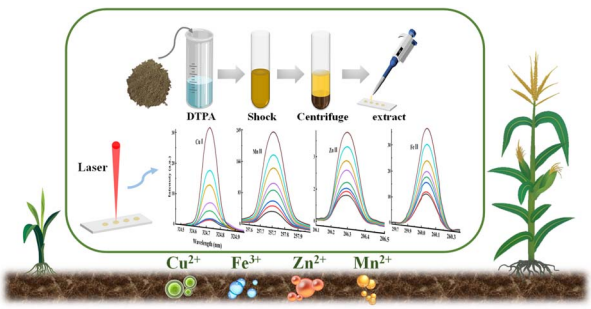

The rapid detection of bioavailable micronutrients Cu/Fe/Zn/Mn in soil using laser-induced breakdown spectroscopy combined with solid–liquid–solid transformation

Yangrui Li, Zhizheng Shi, Leizi Jiao, Ning Liu, Zhen Xing, Shixiang Ma, Hongwu Tian* and Daming Dong*

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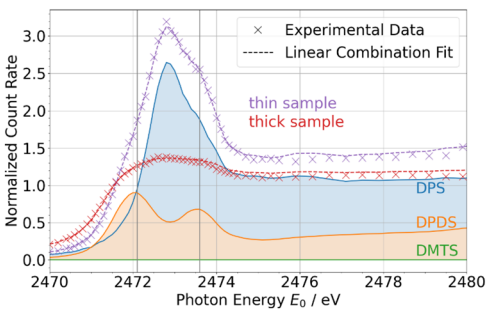

Quantification of the sulfur strand length distribution in organo-sulfur cathode materials with X-ray absorption spectrometry

Konstantin Skudler,* Rukiya Matsidik, Hongfei Yang, Michael Walter, Michael Sommer and Matthias Müller*

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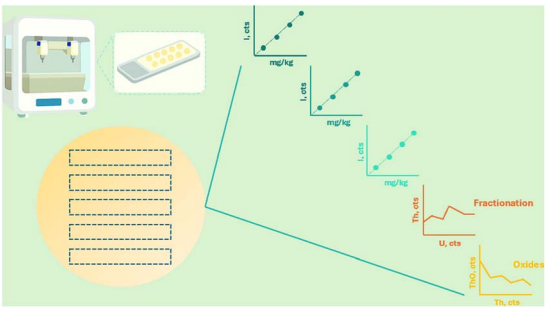
Towards improved workflows for the production and metrological characterization of LA-ICP-MS calibration standards for quantitative bioimaging

Kharmen Billimoria, Paula Menero-Valdes,* William Lee, Alex Shard and Heidi Goenaga Infante



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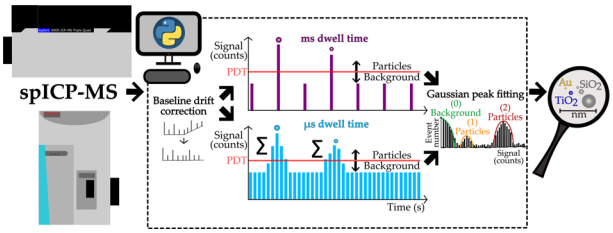
Improved single particle ICP-MS assessment using a novel Python-based data processing algorithm (Sparta) for nanoparticle quantification

Steffen Hellmann,* Teba Gil-Díaz, Mario Corte-Rodríguez, Dirk Merten, María Montes-Bayón and Thorsten Schäfer*



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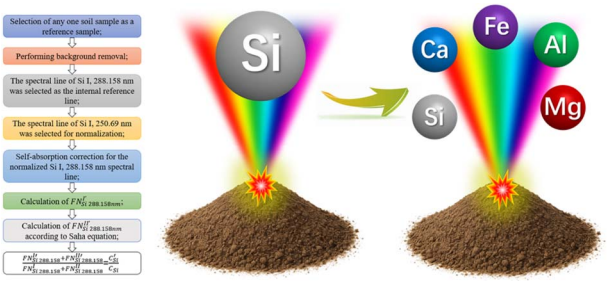
Multi-element determination in soil using laser-induced breakdown spectroscopy with only one internal reference element by one-point calibration

Nan Zhao, Zeren Luo, Bin Wang, Ruitao Lin, Shaofeng Zheng, Shixiang Ma, Kuohu Li,* Erlong Jiang, Jiaming Li* and Qingmao Zhang



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Hidra aeschynite-(Y): a potential natural reference material for microbeam Pb–Pb and Lu–Hf geochronology

Bo Yang, Xiao-Xiao Ling, Yu Liu, Zhao-Xue Wang, Zhu-Yin Chu, Shi-Tou Wu,* Hao Wang, Yue-Heng Yang and Xian-Hua Li

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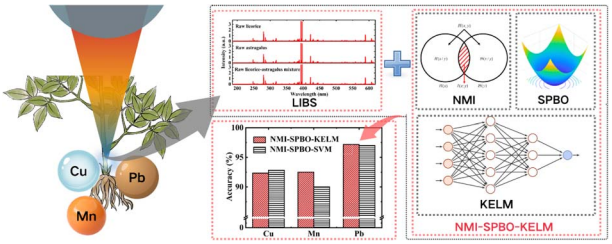

Highly accurate classification of herbals relying on toxic elements *via* laser-induced breakdown spectroscopy and chemometrics

Chenwei Zhu,* Qizhong Pan, Zhanjian Lin and Xiangyou Li

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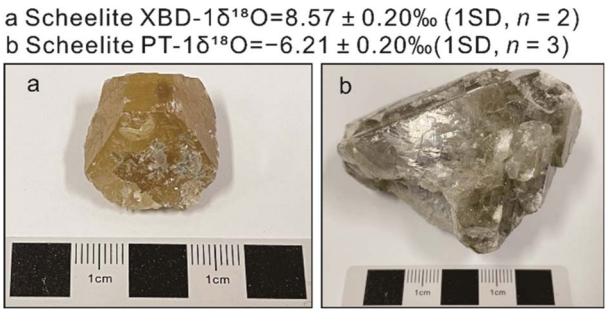

XBD-1 and PT-1 scheelites: potential reference materials for SIMS oxygen isotope analysis

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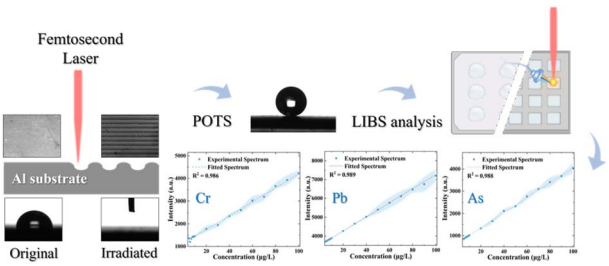

Enhanced toxic trace element detection in water using LIBS combined with a femtosecond laser-engineered hydrophobic–hydrophilic structured substrate

Gangrong Fu, Rubo Chen, Yue Li, Jie Wu, Shutong Wang, Guoliang Deng,* Hao Zhou,* Hong Zhao and Shouhuan Zhou

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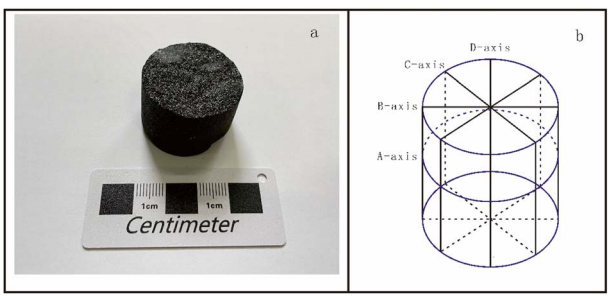

Natural chromite as a reference material for LA-ICP-MS analyses: development and calibration

Dan Chen, Zhihui Dai,* Liemeng Chen, Zhenhui Hou, Dengfeng Li and Tingguang Lan

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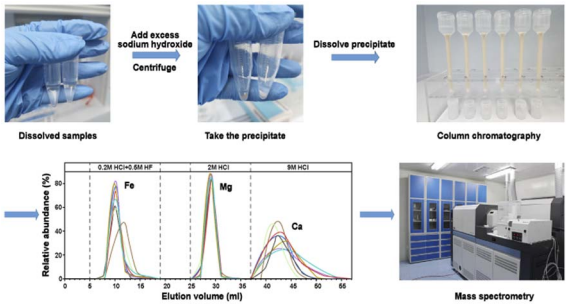
A rapid method for separating magnesium, iron and calcium from low-Mg rocks for precise measurement *via* MC-ICP-MS

Zhao-Ya Li, Xing-Hao Zhang, Guo-Chao Sun,* Hai-Ou Gu, Qiong-Xia Xia,* Li-Qun Dai, Jin-Jing Huo and Zi-Fu Zhao



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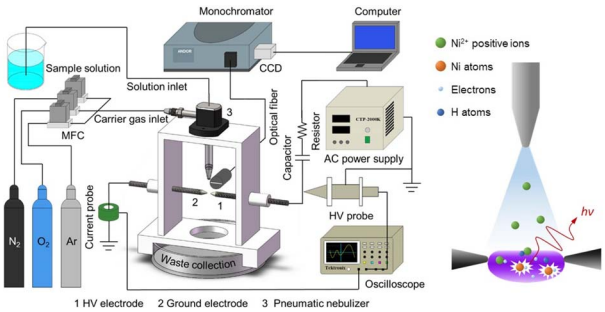
AC needle-to-needle bare electrode discharge with nebulized sample injection for elemental analysis

Hao Yuan, Shu-Qi Li, Jian-Ping Liang,* Zhao-Lun Cui, De-Zheng Yang* and Rajdeep Singh Rawat



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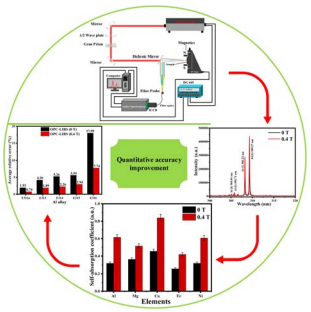
Improving the quantitative accuracy of one-point calibration LIBS based on magnetic confinement of self-absorption correction

Rana Muhammad Shahbaz, Qiuyun Wang, Hailong Yu,* Yinping Dou, Xun Gao* and Jingquan Lin



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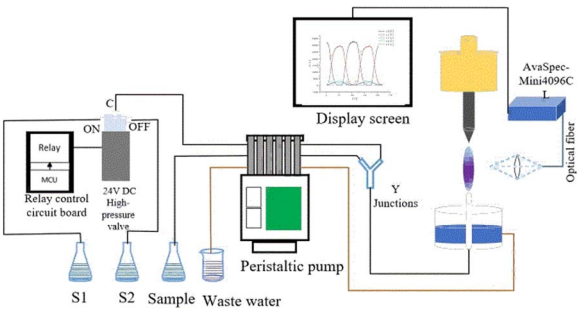
Solution cathode glow discharge-atomic emission spectrometry using automated standard dilution analysis for the determination of Ca, Fe, and Zn in glucose oral solution

Biyong Zhang, Peichao Zheng,* Jinmei Wang,* Xuanyu Luo, Jialong Li, Junhao Xiang, Lianbo Guo, Hongwu Tian and Daming Dong



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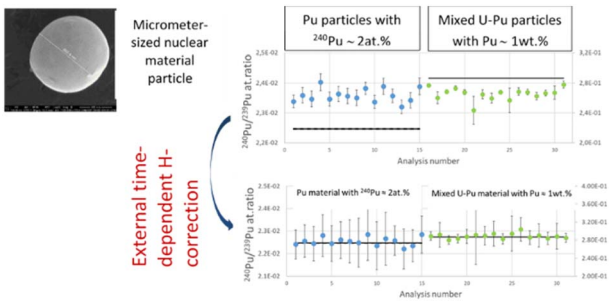

Time-dependent hydride correction for accurate ^{240}Pu/^{239}Pu isotopic ratio measurements in μm-sized Pu-bearing particles using large geometry-secondary ion mass spectrometry

Anne-Laure Fauré* and Manon Cornaton

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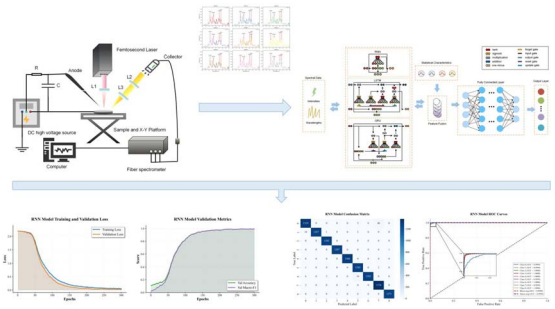

Deep recurrent neural networks with spectral-statistical fusion for industrial-grade steel alloy classification using femtosecond laser-ablation spark-induced breakdown spectroscopy

Kaiqiang Que, Xiaoyong He,* Tingrui Liang, Zhenman Gao and Xi Wu*

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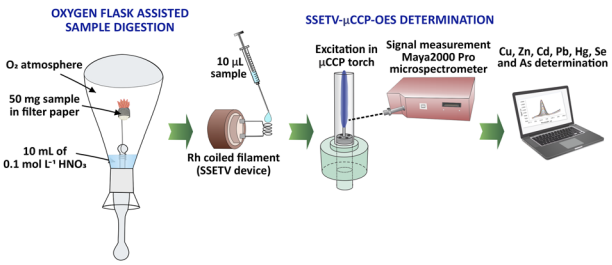

Cost-effective oxygen flask combustion and electrothermal vaporization capacitively coupled plasma microtorch optical emission spectrometry as a green and white method for multielemental determination in food

Augustin Catalin Mot, Adrian-Ioan Dudu, Tiberiu Frentiu, Dorin Petreus, Erika-Andrea Levei, Zamfira Stupar, Maria Frentiu and Eniko Covaci*

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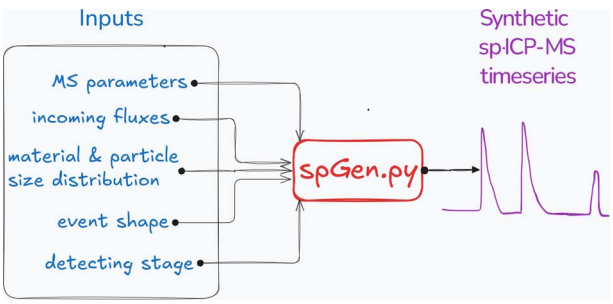

Synthetic generation of single-channel single particle ICP-MS time scans

Pierre-Emmanuel Peyneau,* Léonard Seydoux and Mickaël Tharaud

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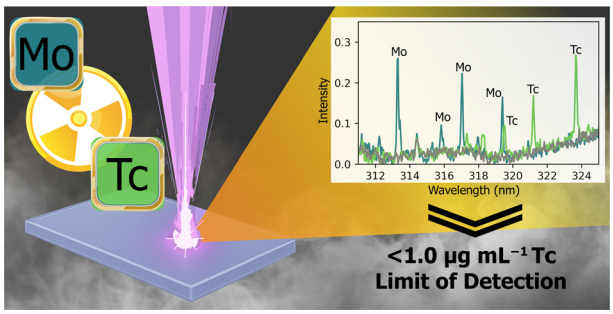
Detection and quantification of trace technetium in the presence of molybdenum using laser-induced breakdown spectroscopy

Hunter B. Andrews,* Zachary Murphy, Mauro Martinez, John Lucchi, Vasileios Anagnostopoulos and Matthieu Baudelet*



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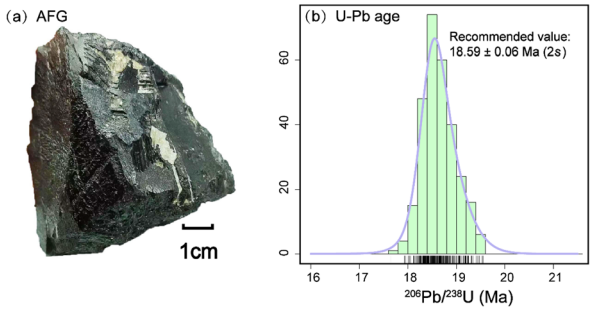
AFG – a new Cenozoic columbite–tantalite natural reference material for LA-ICP-MS U–Pb geochronology

Liyuan Qing, Tao Luo,* Jiarun Tu, Wen Zhang, Hongtao Shen, Xiaodong Deng and Zhaochu Hu



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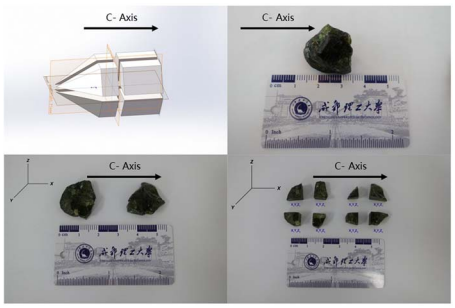
OLG: a new potential reference material for apatite (U–Th)/He dating

Jie Hu, Yuntao Tian, Xiaoming Shen, Zhiwu Li,* Qiqi Song and Chenghao Wei



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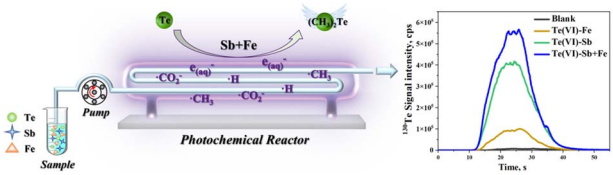
Highly efficient photochemical vapor generation of tellurium: effects of antimony and ferric ions

Weiwen Huang, Ying Yu, Liang Dong, Xiuqin Deng, Xinyi Zhao, Liwei Liu* and Ying Gao*



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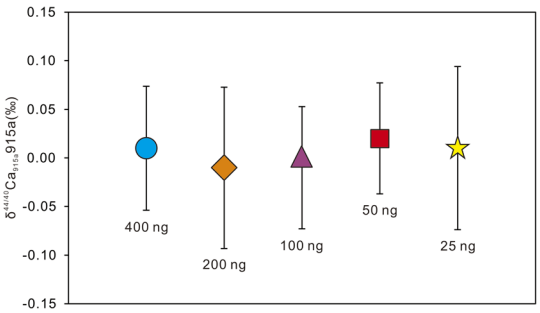

A high-sensitivity loading method using tantalum (Ta) gel for high-precision Ca isotope measurement by TIMS

Xiong Yang, Shixin Gao, Da Wang,* Xin Li, Fang Liu, Wenke Wang, Zhengjie Zhao and Zhaofeng Zhang

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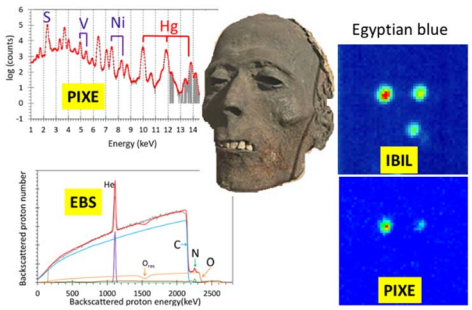

Tracing the *post-mortem* history of Egyptian mummies using nuclear microprobe analysis of trace metal elements and mineral dust particles

Didier Gourier,* Océane Anduze, Quentin Lemasson, Laurent Pichon, Thomas Calligaro, Agnès Lattuati-Derieux and Laurent Binet

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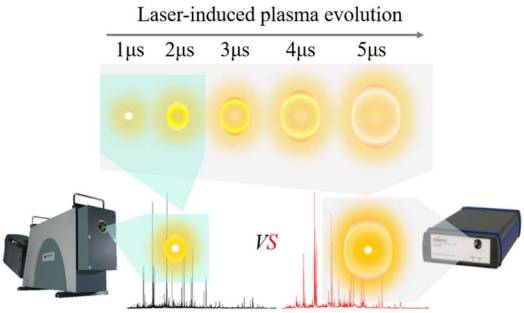

Investigating the impact and mechanisms of integration time on LIBS repeatability and plasma parameter inversion results

Chao Li, Yunfeng Bi,* Zhongyi Bao, Tao Zhang, Caijie Liu, Meili Guo and Man Wang

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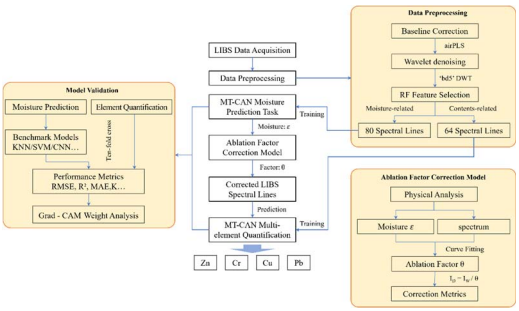

***In situ* multi-element soil analysis using laser-induced breakdown spectroscopy (LIBS)**

Minghui Gu, Huansong Huang, Qingbin Jiao,* Ding Ma, Yuxing Xu, Chao Liu, Jiguo Li, Xin Zhang, Mingyu Yang, Liang Xu, Sijia Jiang, Hong Li, Jiahui Qi, Junbo Zang and Xin Tan*

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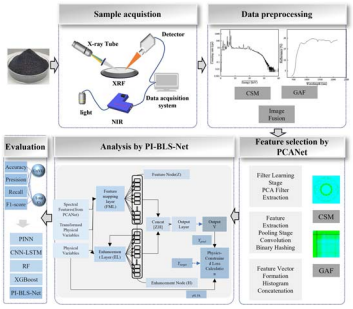
Combining a physics-informed broad learning system and multimodal spectral fusion for accurate analysis of chromium speciation in tailings

Qingya Wang, Shubin Lyu, Haoyu Zou and Fusheng Li*



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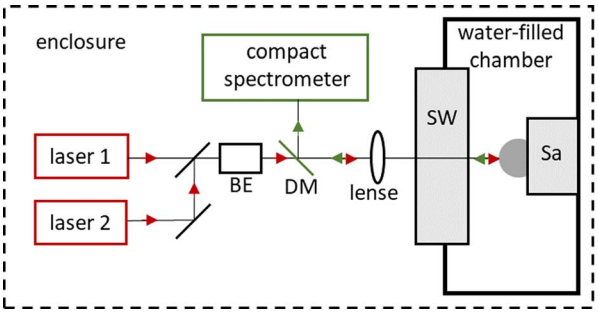
Determination of elemental concentrations in underwater LIBS plasmas using spectral simulation for copper–zinc alloys

Marion Henkel,* Michelle Siemens, Benjamin Emde, Jörg Hermsdorf and Diego Gonzalez



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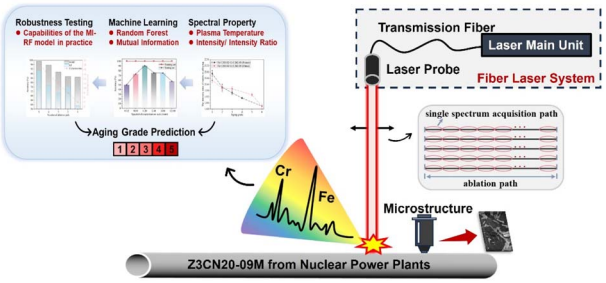
Aging grade estimation of Z3CN20-09M steel from nuclear power plants using LIBS based on fiber laser ablation combined with mutual information-random forest

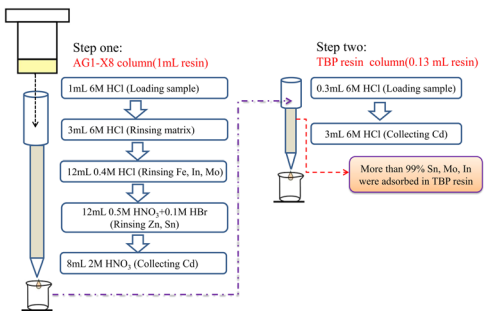
Qi Yang, Jinna Mei,* Sijie Feng, Yuhua Hang, Weizhe Ma, Chengjun Li, Huaiqing Qin, Fangjie Shi, Zhimin Lu, Chao Ye and Shunchun Yao*



460

Purification scheme with AG1-X8 and TBP resins for Cd isotopic composition determination by double-spike thermal ionization mass spectrometry

Chao-Feng Li,* Zhu-Yin Chu and Peng Peng



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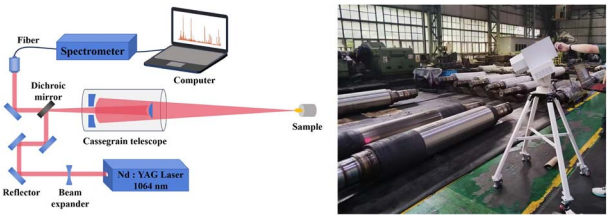

A multi-distance shared calibration curve for quantitative analysis of manganese in high-manganese steel based on a portable remote LIBS instrument

Yue Tang, Haodong Wu, Kaiming Sha, Zixin Zhang, Mengjiao Zhu, Linjie Luo, Adil Shahbaz, Guanghui Niu, Qingyu Lin* and Yixiang Duan

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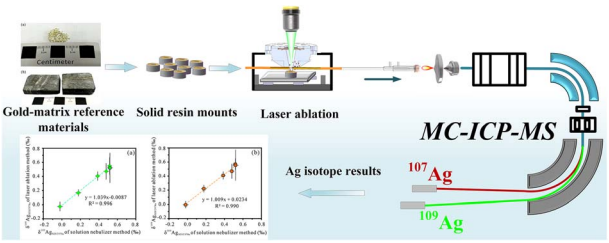

Development of gold reference materials for *in situ* Ag isotopic analysis

Zhian Bao, Deyi Peng, Peng Liu,* Yongfei Tian, Chunlei Zong and Honglin Yuan

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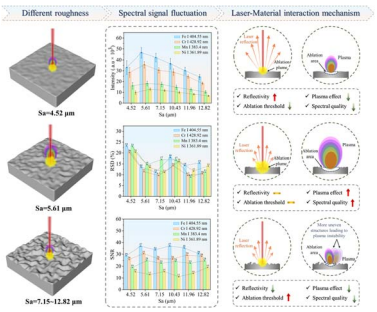

Laser-induced breakdown spectroscopy (LIBS) of LPBF-fabricated alloy steel: effect of surface roughness and the laser–material interaction mechanism

Tian Huang, Xinzhou Zhang, Liwen Cao, Tao Zhu, Changqiu Chen, Qian Liu, Jing Zhao, Shuke Huang, Ming Huang, Xianfeng Shen* and Zhihui Xia*

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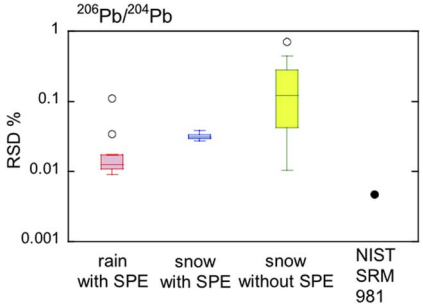

High precision Pb isotope ratio analysis of wet depositions with low Pb concentration using multi-collector type inductively coupled plasma mass spectrometry and solid phase extraction

Yuhei Yamamoto,* Shun-ichi Tokoro, Ryoich Nakada, Kazuya Nagaishi, Yoichi Kikuchi, Jun Nishimoto and Shoji Imai

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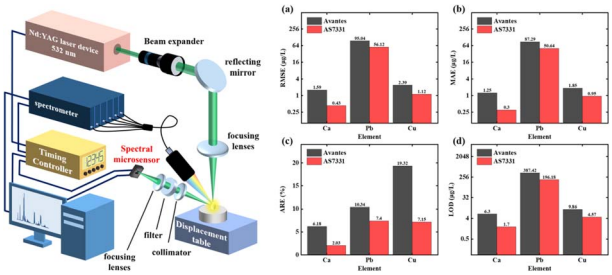
A spectral microsensor applied in LIBS for heavy metal detection in water

Zixiao Wang, Honghua Ma, Weihua Huang, Lianbo Guo* and Wen Cheng*



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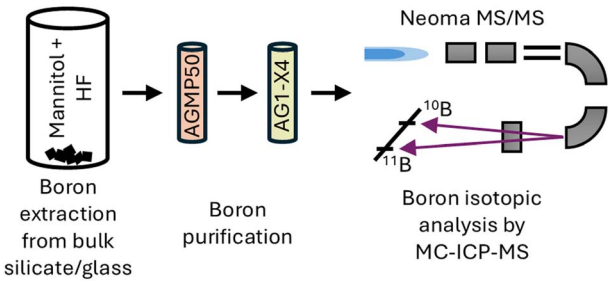
Boron isotopic analysis in bulk silicate materials using the Neoma MS/MS MC-ICP-MS

Sean R. Scott,* Matthew A. Coble, Natalie E. Sievers, Kirby P. Hobbs, Tyler D. Schlieder and Mindy M. Zimmer



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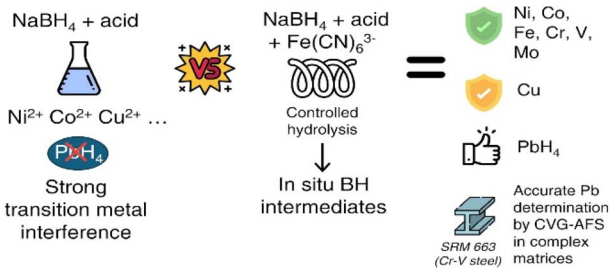
Combined effect of borohydride hydrolysis and chemical additives on lead determination by CVG in the presence of transition metals

Massimo Onor, Beatrice Campanella,* Emanuela Pitzalis and Alessandro D'Ulivo