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## ATOMIC SPECTROMETRY UPDATES

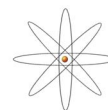
1730

### 2023 atomic spectrometry update – a review of advances in X-ray fluorescence spectrometry and its special applications

Christine Vanhoof, Jeffrey R. Bacon, Ursula E. A. Fittschen and Laszlo Vincze



Atomic  
Spectrometry  
Updates

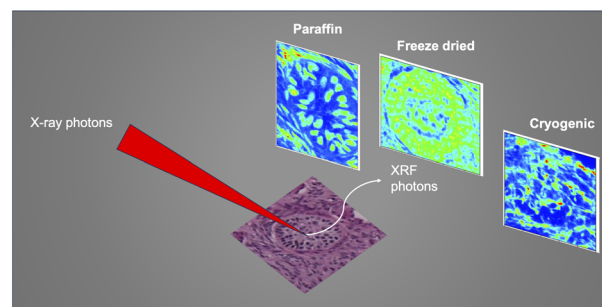


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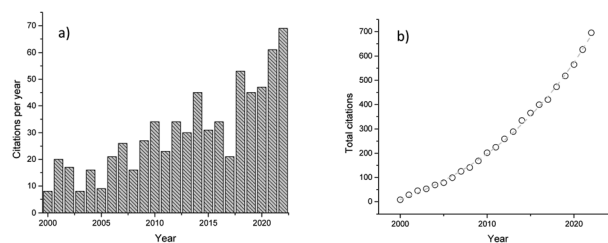


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Francesco Poggialini, Beatrice Campanella,  
Bruno Cocciaro, Giulia Lorenzetti, Vincenzo Palleschi\*  
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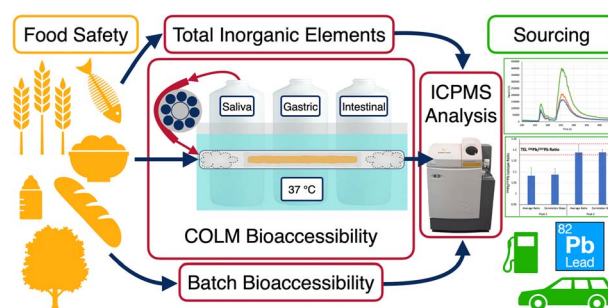


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The continuous on-line leaching method coupled to  
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risk assessment of food safety and for sourcing of  
elements: a tutorial review

Alastair Kierulf and Diane Beauchemin\*

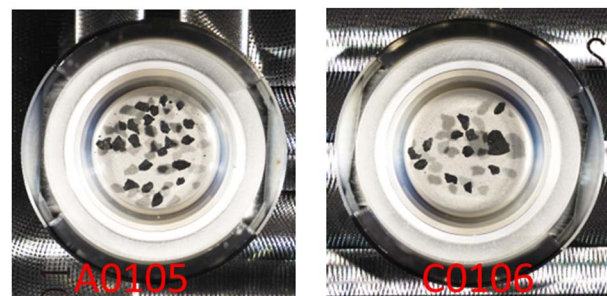


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Noble gas mass-spectrometry for extraterrestrial  
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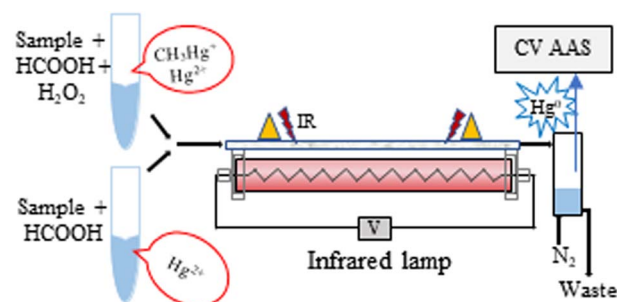
Alexander Meshik,\* Olga Pravdivtseva, Ryuji Okazaki,  
Kasumi Yogata, Toru Yada, Fumio Kitajima,  
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Satoshi Tanaka, Fuyuto Terui, Satoru Nakazawa,  
Seiichi Watanabe, Yuichi Tsuda and  
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Infrared radiation-assisted thermochemical vapor  
generation for mercury speciation by atomic  
absorption spectrometry

Victor Marques Campos, Jane Kelly Sousa Brito, Wladiana  
Oliveira Matos, Lívia Paulia D. Ribeiro and Gisele  
Simone Lopes\*



## PAPERS

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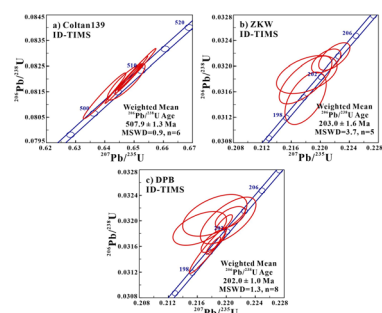
Time min	RD <sup>a</sup> μg kg <sup>-1</sup>	Sample RD*DF <sup>b</sup> μg kg <sup>-1</sup>	RSD	Sample + spike μg kg <sup>-1</sup>	RSD	Recovery %	RSD
0	1.09	109	1.3	11.01	1.3	99.2	2.9
30	0.95	95	6.1	10.30	6.1	93.5	0.5
60	0.97	97	5.4	10.65	5.4	96.7	1.9
90	1.03	103	5.2	10.61	5.2	95.8	3.7
120	0.91	91	5.6	9.94	5.6	90.4	1.9
150	1.00	100	3.3	10.13	3.3	91.2	1.1
180	1.06	106	0.5	10.95	0.5	98.9	1.2

<sup>a</sup> Raw data, <sup>b</sup> dilution factor

### Determination of chlorine in Hf precursors by high-resolution inductively coupled plasma mass spectrometry

Hanul Lee, Seongkyong Joo and Dongchul Suh\*

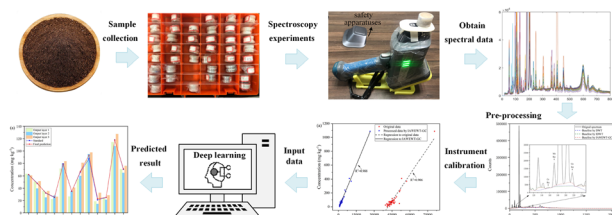
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### Characterization of reference materials for *in situ* U–Pb dating of columbite group minerals by LA-ICP-MS

Ming Yang, Yue-Heng Yang,\* Rolf L. Romer, Xu-Dong Che, Ru-Cheng Wang, Fu-Yuan Wu, Guang-Chun Fei, Yun Deng and Tao Wu

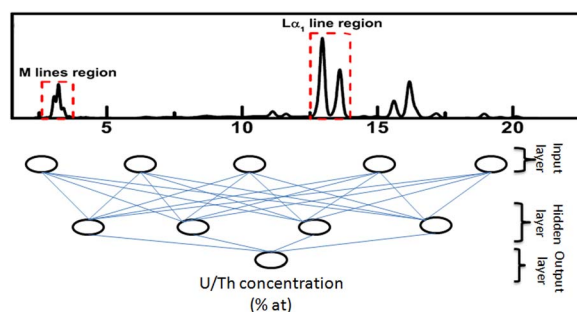
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### Quantitative analysis of heavy metals in soil via hierarchical deep neural networks with X-ray fluorescence spectroscopy

Wanqi Yang, Fusheng Li,\* Shubin Lyu, Qinglun Zhang and Yanchun Zhao

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### An X-ray fluorescence and machine learning based methodology for the direct non-destructive compositional analysis of (Th<sub>1-x</sub>U<sub>x</sub>)O<sub>2</sub> fuel pellets

Buddhadev Kanrar,\* Kaushik Sanyal, Arnab Sarkar and Rajesh V. Pai

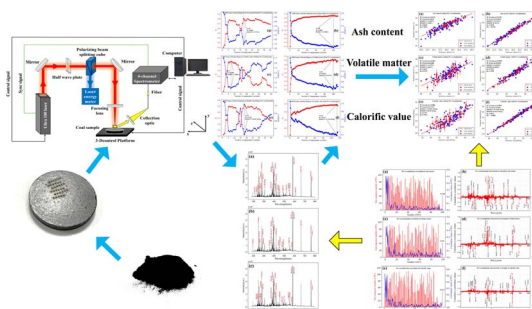


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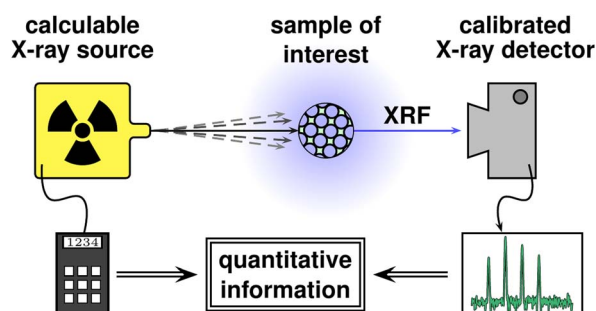
Shengen Zhu, Wenhao Zhang,\* Guangdong Song,\* Yadong Li, Binxin Hu, Feng Zhu, Hua Zhang, Yubin Wei, Tengfei Sun and Jing Tang



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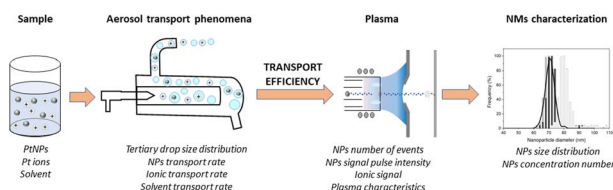
André Wählich,\* Malte Wansleben, Rainer Unterumsberger, Yves Kayser and Burkhard Beckhoff



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### Unraveling the role of aerosol transport on nanomaterial characterization by means single particle inductively coupled plasma mass spectrometry

Daniel Torregrosa, Guillermo Grindlay, Luis Gras and Juan Mora



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### Titanium and titanium oxides at the K- and L-edges: comparing theoretical calculations to X-ray absorption and X-ray emission measurements

Karina Bzheumikhova,\* John Vinson, Rainer Unterumsberger, Malte Wansleben, Claudia Zech, Kai Schöler, Yves Kayser, Philipp Hönicke and Burkhard Beckhoff

