

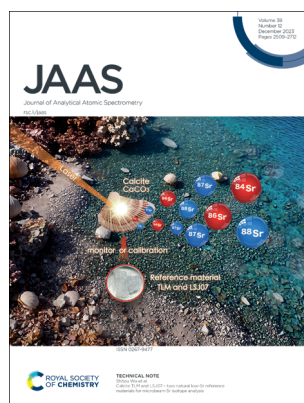
IN THIS ISSUE

ISSN 0267-9477 CODEN JASPE2 38(12) 2509–2712 (2023)



Cover

See Zongyu Hou, Zhe Wang *et al.*, pp. 2554–2561. Image reproduced by permission of Zhe Wang from *J. Anal. At. Spectrom.*, 2023, **38**, 2554.



Inside cover

See Shitou Wu *et al.*, pp. 2528–2537. Image reproduced by permission of Shitou Wu from *J. Anal. At. Spectrom.*, 2023, **38**, 2528.

PERSPECTIVE

2518

Swimming against the current – sacrificing unit mass resolution in ICP-MS to improve figures of merit

David Clases

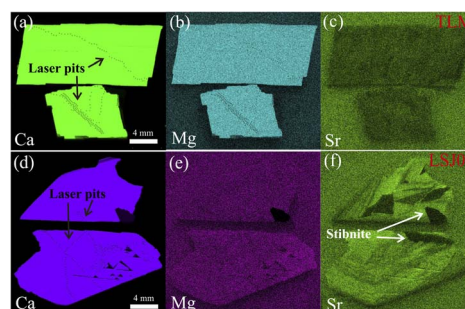


TECHNICAL NOTES

2528

Calcite TLM and LSJ07 – two natural low-Sr reference materials for microbeam Sr isotope analysis

Shitou Wu,* Yuehang Yang, Tianyi Li, Chao Huang, Zhian Bao, Youlian Li, Chaofeng Li, Lei Xu, Hao Wang, Liewen Xie, Jinhui Yang and Fuyuan Wu



Editorial Staff

Executive Editor

Rebecca Garton

Deputy Editor

Alice Smallwood

Editorial Production Manager

Sarah Whitehouse

Development Editor

Celeste Brady

Publishing Editors

Gabriel Clarke, Derya Kara-Fisher,
Emma Stephen, Ziva Whitelock

Publishing Assistant

Andrea Whiteside

Editorial Assistant

Leo Curtis

Publisher

Jeanne Andres

For queries about submitted articles please contact Sarah Whitehouse, Editorial production manager, in the first instance. E-mail jaas@rsc.org

For pre-submission queries please contact Rebecca Garton, Executive editor. E-mail jaas-rsc@rsc.org

Journal of Analytical Atomic Spectrometry (JAAS) (electronic: ISSN 1364-5544) is published 12 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £2531; US\$3447. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;

E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

JAAS

Journal of Analytical Atomic Spectrometry

rsc.li/jaas

Innovative research on the fundamental theory and application of spectrometric techniques.

Editorial Board

Chair

Heidi Goenaga-Infante, LGC, Middlesex

Members

Márcia Foster Mesko, Universidade Federal de Pelotas, Brazil
Gerardo Gamez, Texas Tech University, USA

Steve Hill, University of Plymouth, UK

Xiangeng Hou, Sichuan University, China

Bin Hu, Wuhan University, China

Björn Meermann, BAM, Germany

José Luis Todolí, University of Alicante, Spain

Frank Vanhaecke, University of Ghent, Belgium

Vassilia Zorba, Lawrence Berkeley National Laboratory, USA

Advisory Board

Marco Aurelio Zezzi Arruda, UNICAMP, Brazil
Ramon M. Barnes, University Research Institute for Analytical Chemistry, USA

Mathieu Baudet, University of Central Florida, USA
Annemie Bogaerts, University of Antwerp, Belgium

José Broekaert, University of Hamburg, Germany

Marta Costas-Rodríguez, Ghent University, Belgium

George Donati, Wake Forest University, USA

Carsten Engelhard, University of Siegen, Germany

Joerg Feldmann, University of Graz, Austria

Alexander Gundlach-Graham, Iowa State University, USA

Detlef Günther, ETH Zürich, Switzerland

Wei Hang, Xiamen University, China

Gary M. Hieftje, Indiana University, USA

Takafumi Hirata, University of Tokyo, Japan

Zhaochu Hu, China University of Geosciences, China

Norbert Jakubowski, Federal Institute for Materials Research and Testing, Germany
Gunda Köllensperger, University of Vienna, Austria

David W. Koppenaal, Pacific Northwest National Laboratory, USA

Kerstin Leopold, University of Ulm, Germany

Kelvin Leung, Hong Kong Baptist University, Hong Kong, China

Lara Lobo, University of Oviedo, Spain

Yi Lv, Sichuan University, China

R. Kenneth Marcus, Clemson University, USA

Érico Marlon Moraes Flores, Universidade Vincent Motto-Ros, Claude Bernard University Lyon 1, France

Sohail Mushtaq, University of Bristol, UK

John W Olesik, Ohio State University, USA

Christophe Pécheyran, University of Pau and Pays de l'Adour, France

Spiros Pergantis, University of Crete, Greece

Jorge Pisonero, University of Oviedo, Spain

Steven Ray, State University of New York at Buffalo, USA

Mark Rehlkamp, Imperial College London, UK

Martín Resano, University of Zaragoza, Spain

Jacob Shelley, Rensselaer Polytechnic Institute, USA

Patricia Smichowski, National Atomic Energy Commission, Argentina

Ralph E. Sturgeon, National Research Council of Canada, Canada

Joanna Szpunar, CNRS EP 132, France

Johannes van Elteren, National Institute of Chemistry, Slovenia

Lu Yang, National Research Council Canada, Canada

Atomic Spectrometry Updates Editorial Board

J R Bacon, University of Strathclyde, UK

N Barlow, Sandwell General Hospital, UK

S Branch, Herbalife, UK

O Butler, Health & Safety Laboratory Buxton, UK

W R L Cairns, Institute for the Dynamics of Environmental Processes of the Italian CNR, Italy

S Carter, INEOS, UK

M R Cave, British Geological Survey, UK

O Cavoura, University of West Attica, Greece

R Clough, University of Plymouth, UK

J M Cook, British Geological Survey, UK

A Cross, Reading Scientific Service Limited (RSSI), UK

C M Davidson, University of Strathclyde, UK

L Ebdon, UK

H Evans, University of Plymouth, UK

A Fisher, University of Plymouth, UK

U Fittschen, Technical University of Clausthal, Germany

M Foulkes, University of Plymouth, UK

B Gibson, Intertek Sunbury, UK

C Harrington, SAS Trace Element Laboratory, Surrey Pathology Services, UK

S Hill, LGC, UK

S J Hill, University of Plymouth, UK

Y Madrid, Universidad Complutense de Madrid, Spain

R Mertz-Kraus, Johannes Gutenberg-Universität Mainz, Germany

M Patriarca, Istituto Superiore di Sanita, Italy

J Pisonero, University of Oviedo, Spain

A Robson, Manchester University NHS Foundation Trust, UK

B Russell, National Physical Laboratory, UK

M Sargent, LGC, UK

C M M Smith, St Ambrose High School, UK

A Taylor, Royal Surrey County Hospital, UK

R Taylor, University of Southampton, UK

J F Tyson, University of Massachusetts, USA

C Vanhoof, Flemish Institute for Technological Research (VITO), Belgium

L Vince, Ghent University, Belgium

M White, Health & Safety Laboratory, UK

*Members of the ASU Executive Committee

Information for Authors

Full details on how to submit material for publication in JAAS are given in the Instructions for Authors (available from <http://www.rsc.org/authors>). Submissions should be made via the journal's homepage: rsc.li/jaas

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023.

Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

Registered charity number: 207890



TECHNICAL NOTES

2538

Automated standard dilution analysis using a four-port switching valve for fast inductively coupled plasma optical emission spectrometry determination

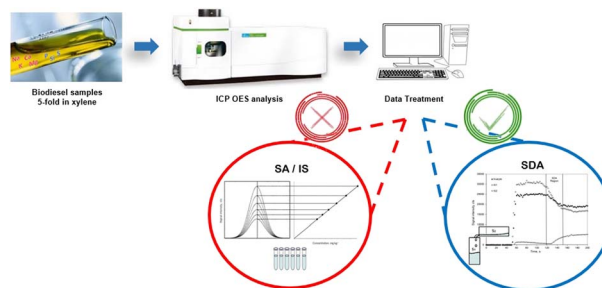
Jesse R. Ingham, Bradley T. Jones and George L. Donati*



2547

Standard dilution analysis (SDA) as a powerful tool for elemental determination in biodiesel by inductively coupled plasma optical emission spectrometry (ICP OES)

Vitor Cornaqui P. Marrocos,* Jefferson R. de Souza and Tatiana D. Saint Pierre

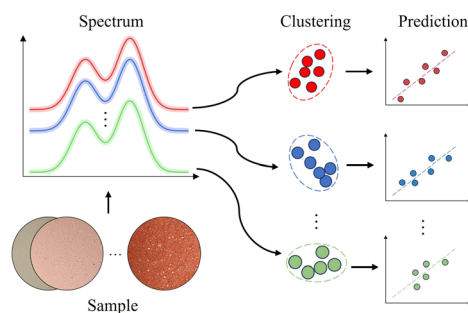


PAPERS

2554

Improving quantitative analysis of cement elements in laser-induced breakdown spectroscopy through combining matrix matching with regression

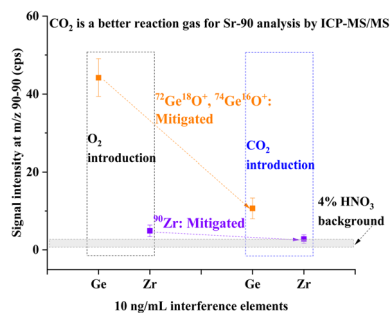
Chenwei Zhang, Weiran Song, Zongyu Hou* and Zhe Wang*



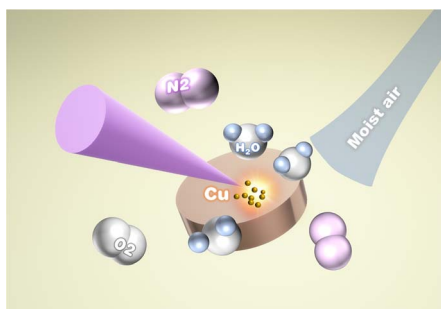
2562

⁹⁰Sr bioassay in small-volume urine by ICP-MS/MS with CO₂ as the reaction gas

Guosheng Yang,* Hirofumi Tazoe, Eunjoo Kim, Jian Zheng, Munehiko Kowatari and Osamu Kurihara



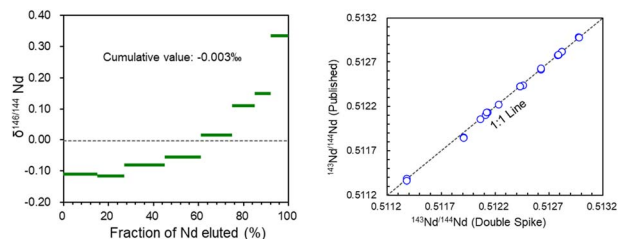
2571



The influences of ambient humidity on laser-induced breakdown spectroscopy

Jiacen Liu, Zongyu Hou* and Zhe Wang*

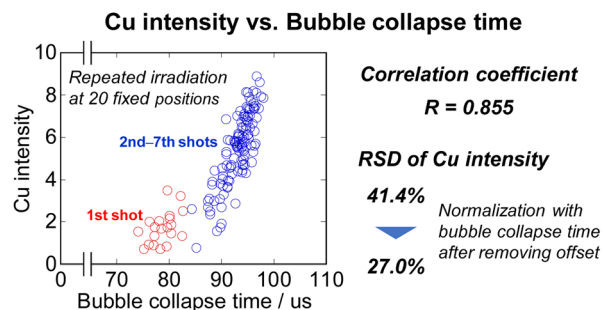
2581



Simultaneously obtaining stable and radiogenic Nd isotope ratios through a single DGA column using double spike TIMS

Fang Liu,* Xin Li,* Hong Yang, Qingyao Peng, Jiaojiao Wu and Zhaofeng Zhang

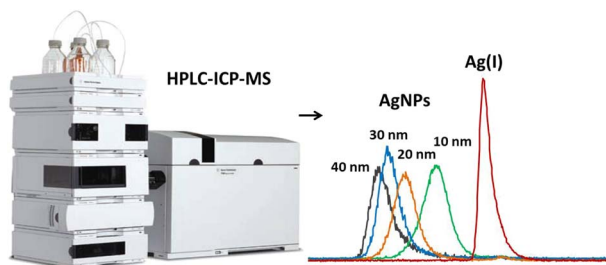
2590



Effect of repeated irradiation on laser-induced breakdown spectroscopy of copper immersed in a sodium chloride aqueous solution and normalization with bubble collapse time

Ayumu Matsumoto,* Yusuke Shimazu, Shinji Yae and Tetsuo Sakka

2598



Selection of chromatographic separation conditions for reliable monitoring of the transformation of AgNPs/Ag(I) species by HPLC-ICP-MS in surface water and green algae cells

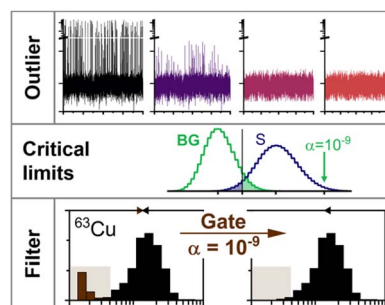
Julita Malejko, Weronika Liszewska and Beata Godlewska-Żytkiewicz*



2607

Improving detection thresholds and robust event filtering in single-particle and single-cell ICP-MS analysis

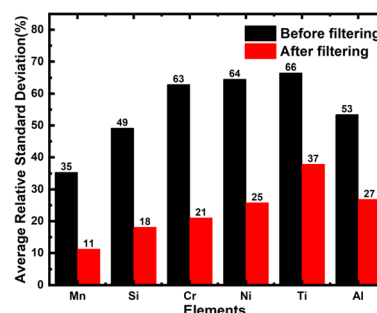
Matthias Elinkmann,* Sarah Reuter, Michael Holtkamp, Steffen Heuckeroth, Alexander Köhrer, Katharina Kronenberg, Michael Sperling, Oliver Rubner, C. Derrick Quarles, Jr, Michael Hippler and Uwe Karst



2619

Long-term reproducibility detection method for quantitative LIBS using Kalman filtering

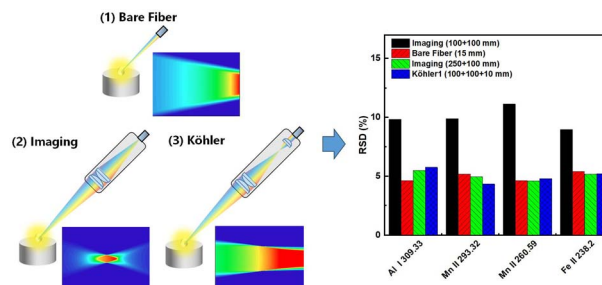
Ying Lu, Li Liu, Zechuan Wu, Zhishuai Xu, Ziyi Zhao, Zhongqi Hao,* Jiulin Shi and Xingdao He



2625

Spectral stability improvement through wide fields of view collection optics in laser-induced breakdown spectroscopy applications

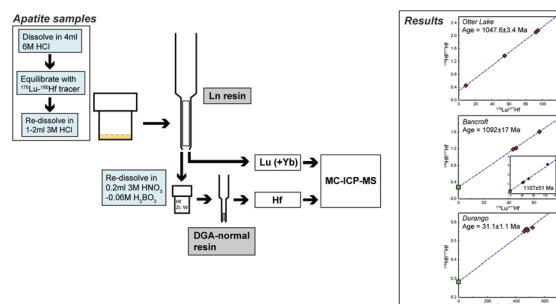
Guangda Wang, Ying Zeng, Lianbo Guo,* Shenglin Li and Zhenlin Hu*



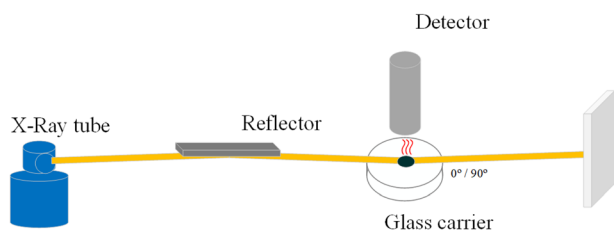
2636

An optimized chromatography method and MC-ICP-MS technique for apatite Lu–Hf geochronology

Chao Zhang,* Tsai-Wei Chen and Jeffrey D. Vervoort



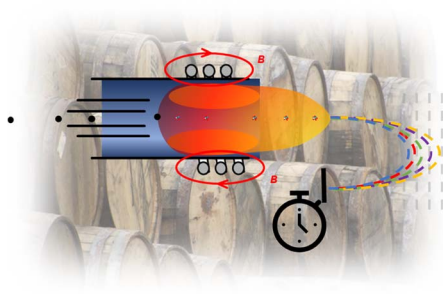
2648



Exploratory studies on total reflection X-ray fluorescence spectrometry combined with slurry sampling for the multi-element analysis of copper-nickel sulfide ore

Yongsheng Zhang, Yaxiong He, Hui Chen, Shuolei Wei, Guanqing Mo, Tao Xu* and Jian Yuan*

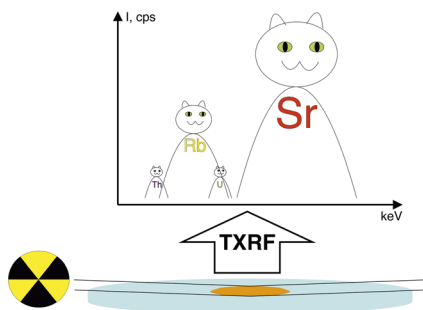
2656



Non-target analysis and characterisation of nanoparticles in spirits via single particle ICP-TOF-MS

Raquel Gonzalez de Vega, Thomas E. Lockwood, Lhiam Paton, Lukas Schlatt and David Clases*

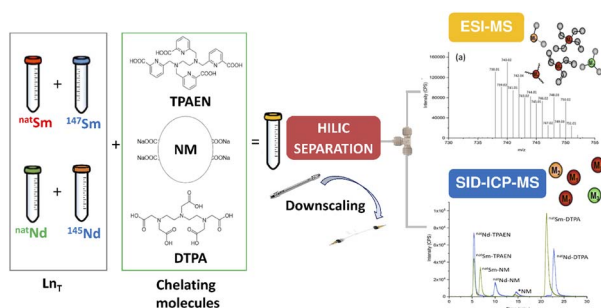
2664



Total-reflection X-ray fluorescence determination of thorium and uranium in the presence of interfering elements in solid geological objects of natural and technogenic origin

Timur F. Akhmetzhanov, Tatiana Y. Cherkashina,* Alena N. Zhilicheva, Victor M. Chubarov and Galina V. Pashkova

2674



Developing and downscaling a method by HILIC coupled simultaneously to ESIMS and ICPMS to determine the affinity of lanthanide chelating molecules using specific isotope dilution

Marina Amaral Saraiva, Pascal E. Reiller, Cécile Marie and Carole Bresson*

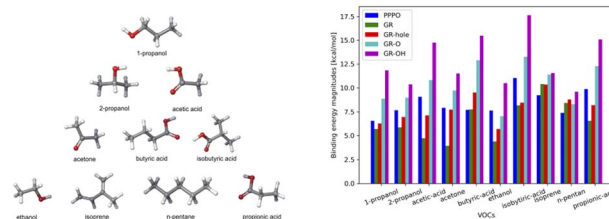


2691

Multiscale modeling of VOC–graphene nanostructure interactions: designing new sorbents for portable mass spectrometric applications

Stevan Armaković,^{*} Milena Aleksić, Stamatios Giannoukos and Boris Brkić^{*}

Binding between VOC molecules and graphene derivatives



2703

Experimental determination of total M shell and subshell X-ray production cross sections for uranium by proton impact

Mariano Bonifacio, Sergio Gabriel Suárez, Tabatha Pamela Rodríguez Cabello, Andrés Sepúlveda Peñaloza, Jorge Carlos Trincavelli and Pablo Daniel Pérez^{*}

