

Journal of The American Society for  
**MASS SPECTROMETRY**



June 2017 / Volume 28 / Number 6 **Table of Contents**

**ASMS NEWS & VIEWS**

*i–ii*

ASMS News & Views  
Edited by Gavin Reid

**OBITUARY**

**983–985**

Jonathan W. Amy, March 3, 1923–December 4, 2016  
R. Graham Cooks

**FOCUS: HONORING R. GRAHAM COOKS' ELECTION TO THE NATIONAL ACADEMY OF SCIENCES: EDITORIAL**

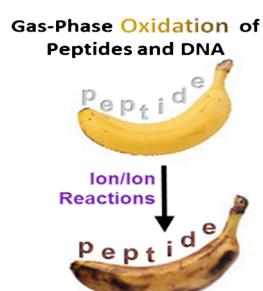
**986–990**

A Focus Honoring R. Graham Cooks' Election to the National Academy of Sciences  
M.L. Gross

**FOCUS: HONORING R. GRAHAM COOKS' ELECTION TO THE NATIONAL ACADEMY OF SCIENCES: ACCOUNT AND PERSPECTIVE**

**991–1004**

Gas-Phase Oxidation via Ion/Ion Reactions: Pathways and Applications  
A.L. Pilo, F. Zhao, and S.A. McLuckey



---

Instructions for authors for *The Journal of The American Society for Mass Spectrometry* can be found at [www.springer.com/13361](http://www.springer.com/13361)

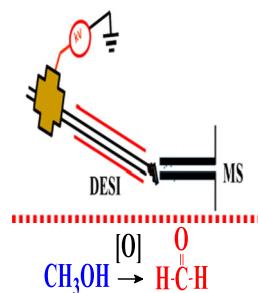
**Abstracted/Index in:** Academic OneFile, Academic Search, Chimica, CSA/Proquest, Current Abstracts, Current Contents/Physical, Chemical and Earth Sciences, EI-Compendex, EMBASE, Food Science and Technology Abstracts, Google Scholar, IBIDS, INIS Atomindex, Inspec, OCLC, PubMed/Medline, Science Citation Index, Science Citation Index Expanded (SciSearch), SCOPUS, and Summon by Serial Solutions.

Journal of the American Society for Mass Spectrometry (ISSN 1044-0305) is published monthly by Springer Science & Business Media, 233 Spring St, 6th Fl., New York, NY. Periodicals postage is pending at New York, NY and additional mailing offices. POSTMASTER: Send address changes to *Journal of The American Society for Mass Spectrometry*, Springer, 233 Spring Street, New York, NY 10013, USA.

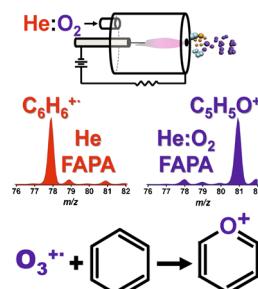
---

**FOCUS: HONORING R. GRAHAM COOKS' ELECTION TO THE NATIONAL ACADEMY OF SCIENCES: RESEARCH ARTICLES**
**1005–1012**

Online Monitoring of Methanol Electro-Oxidation Reactions by Ambient Mass Spectrometry  
*S. Cheng, Q. Wu, H.D. Dewald, and H. Chen*

**1013–1020**

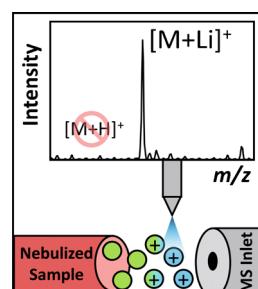
Formation of Pyrylium from Aromatic Systems with a Helium: Oxygen Flowing Atmospheric Pressure Afterglow (FAPA) Plasma Source  
*S.P. Badal, T.D. Ratcliff, Y. You, C.M. Breneman, and J.T. Shelley*

**1021–1029**

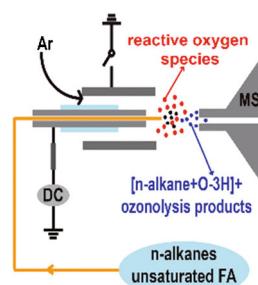
Charge-tagged N-heterocyclic carbenes (NHC): Direct transfer from ionic liquid solutions and long-lived nature in the gas phase  
*T.S. Rodrigues, D. Lesage, W.A. da Silva, R.B. Cole, G. Ebeling, J. Dupont, H.C.B. de Oliveira, M.N. Eberlin, and B.A.D. Neto*

**1030–1035**

Metal Cationization Extractive Electrospray Ionization Mass Spectrometry of Compounds Containing Multiple Oxygens  
*K.D. Swanson, S.E. Spencer, and G.L. Glish*

**1036–1047**

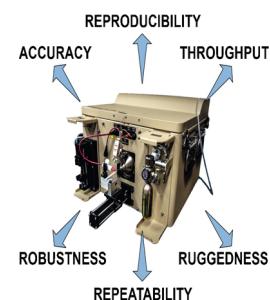
Investigation and Applications of In-Source Oxidation in Liquid Sampling-Atmospheric Pressure Afterglow Microplasma Ionization (LS-APAG) Source  
*X. Xie, Z. Wang, Y. Li, L. Zhan, and Z. Nie*



**1048–1059**

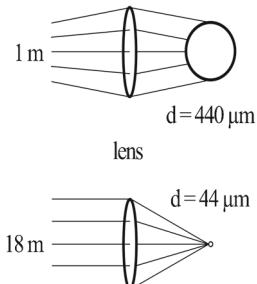
Analytical Validation of a Portable Mass Spectrometer Featuring Interchangeable, Ambient Ionization Sources for High Throughput Forensic Evidence Screening

Z.E. Lawton, A. Traub, W.L. Fatigante, J. Mancias, A.E. O'Leary, S.E. Hall, J.R. Wieland, H. Oberacher, M.C. Gizzi, and C.C. Mulligan

**1060–1065**

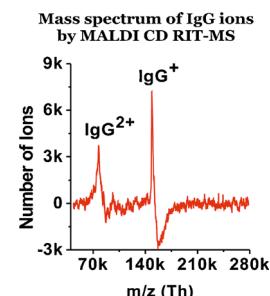
A Simple Method for Improving the Spatial Resolution in Infrared Laser Ablation Mass Spectrometry Imaging

J.-P. Hieto, A. Vaikkinen, S. Auno, H. Räikkönen, M. Haapala, G. Scotti, J. Kopra, P. Piepponen, and T.J. Kauppila

**1066–1078**

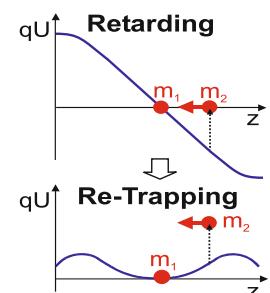
High Mass Ion Detection with Charge Detector Coupled to Rectilinear Ion Trap Mass Spectrometer

A.A. Patil, S.-W. Chou, P.-Y. Chang, C.-W. Lee, C.-Y. Cheng, M.-L. Chu, and W.-P. Peng

**1079–1090**

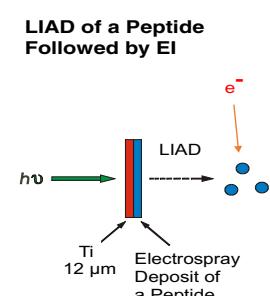
Isobar Separation in a Multiple-Reflection Time-of-Flight Mass Spectrometer by Mass-Selective Re-Trapping

T. Dickel, W.R. Plaß, W. Lippert, J. Lang, M.I. Yavor, H. Geissel, and C. Scheidenberger

**1091–1098**

Laser-Induced Acoustic Desorption/Electron Ionization of Amino Acids and Small Peptides

T.M. Jarrell, B.C. Owen, J.S. Riedeman, B.M. Prentice, C.J. Pulliam, J. Max, and H.I. Kenttämaa

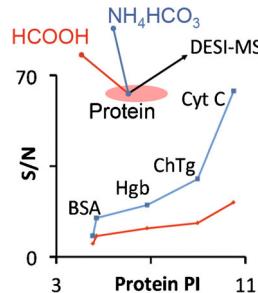


**1099–1108**

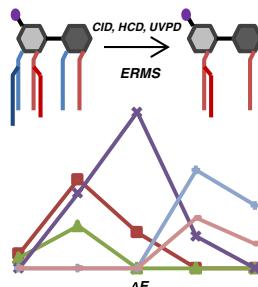
Assigning Peptide Disulfide Linkage Pattern Among Regio-Isomers via Methoxy Addition to Disulfide and Tandem Mass Spectrometry  
*K.L. Durand, L. Tan, C.A. Stinson, C.B. Love-Nkansah, X. Ma, and Y. Xia*

**1109–1117**

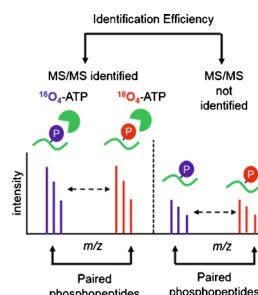
Ammonium Bicarbonate Addition Improves the Detection of Proteins by Desorption Electrospray Ionization Mass Spectrometry  
*E. Honarvar and A.R. Venter*

**1118–1126**

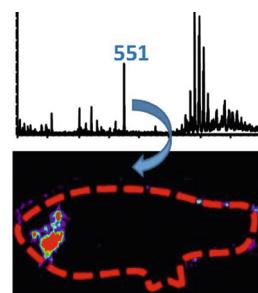
Characterization of Lipid A Variants by Energy-Resolved Mass Spectrometry: Impact of Acyl Chains  
*C.M. Crittenden, L.D. Akin, L.J. Morrison, M.S. Trent, and J.S. Brodbelt*

**1127–1135**

Estimating the Efficiency of Phosphopeptide Identification by Tandem Mass Spectrometry  
*C.-C. Hsu, L. Xue, J.V. Arrington, P. Wang, J.S. Paez Paez, Y. Zhou, J.-K. Zhu, and W.A. Tao*

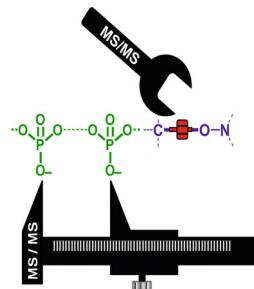
**1136–1148**

Monitoring Toxic Ionic Liquids in Zebrafish (*Danio rerio*) with Desorption Electrospray Ionization Mass Spectrometry Imaging (DESI-MSI)  
*C.J. Perez, A. Tata, M.L. de Campos, C. Peng, and D.R. Ifa*

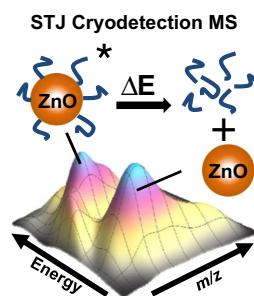


**1149–1159**

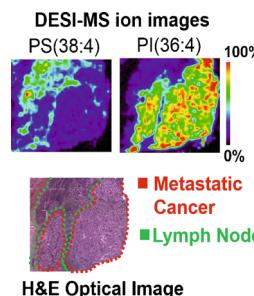
MS/MS-Assisted Design of Sequence-Controlled Synthetic Polymers for Improved Reading of Encoded Information  
*L. Charles, G. Cavallo, V. Monnier, L. Oswald, R. Szweda, and J.-F. Lutz*

**1160–1165**

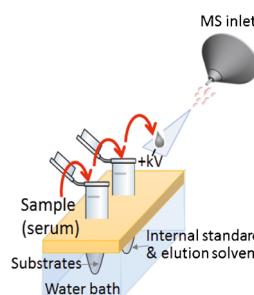
Characterization of ZnO Nanoparticles using Superconducting Tunnel Junction Cryodetection Mass Spectrometry  
*L.D. Plath, Z. Wang, J. Yan, K. Matyjaszewski, and M.E. Bier*

**1166–1174**

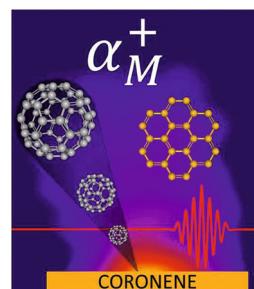
Detection of Metastatic Breast and Thyroid Cancer in Lymph Nodes by Desorption Electrospray Ionization Mass Spectrometry Imaging  
*J. Zhang, C.L. Feider, C. Nagi, W. Yu, S.A. Carter, J. Suliburk, H.S.T. Cao, and L.S. Eberlin*

**1175–1181**

Ambient Ionization Mass Spectrometry Measurement of Aminotransferase Activity  
*X. Yan, X. Li, C. Zhang, Y. Xu, and R.G. Cooks*

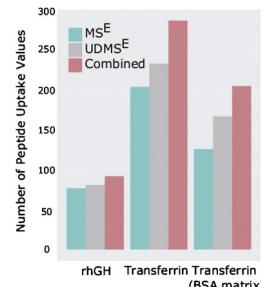
**RESEARCH ARTICLES****1182–1191**

On the SIMS Ionization Probability of Organic Molecules  
*N.J. Popczun, L. Breuer, A. Wucher, and N. Winograd*

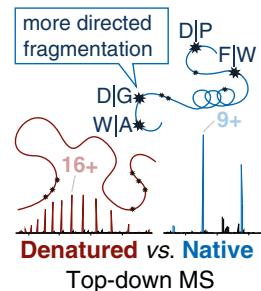


**1192–1202**

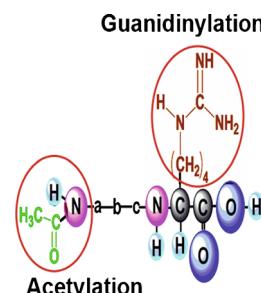
Online Hydrogen-Deuterium Exchange Traveling Wave Ion Mobility Mass Spectrometry (HDX-IM-MS): a Systematic Evaluation  
A. Cryar, K. Groves, and M. Quaglia

**1203–1215**

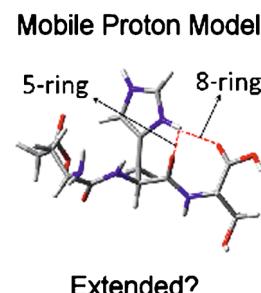
Defining Gas-Phase Fragmentation Propensities of Intact Proteins During Native Top-Down Mass Spectrometry  
N.A. Haverland, O.S. Skinner, R.T. Fellers, A.A. Tariq, B.P. Early, R.D. LeDuc, L. Fornelli, P.D. Compton, and N.L. Kelleher

**1216–1226**

Combinatorial Labeling Method for Improving Peptide Fragmentation in Mass Spectrometry  
B. Kuchibhotla, S.R. Kola, J.V. Medicherla, S.V. Cherukuvada, V.M. Dhople, and M.R. Nalam

**1227–1235**

Quantum Chemical Mass Spectrometry: Verification and Extension of the Mobile Proton Model for Histidine  
J. Cautereels and F. Blockhuys

**1236–1241**

Differential Fragmentation of Mobility-Selected Glycans via Ultraviolet Photodissociation and Ion Mobility-Mass Spectrometry  
K.A. Morrison and B.H. Clowers

