SIMS Europe 2018

September 16 - 18, 2018

Conference Agenda

Session Overview

Date: Sunday, 16/Sep/2018

9:10am - 9:15am	**S1: Short Course: Welcome** Location: HS2
9:15am - 10:30am	S2: Short Course: Fundamentals Location: HS2 **Short Course: Fundamentals** **Albert Schnieders[1], Birgit Hagenhoff[2]** 1: CNM Technologies GmbH, Germany; 2: Tascon GmbH, Germany
10:30am - 11:00am	**S3: Coffee Break** Location: Exhibition Hall
11:00am - 12:30pm	S4: Short Course: Depth Profiling Location: HS2 **Short Course: Depth Profiling by Dynamic SIMS** **Patrick Philipp** Luxembourg Institute of Science and Technology, Luxembourg
12:30pm - 2:00pm	**S5: Lunch Break** Location: Exhibition Hall
2:00pm - 2:30pm	S6: Short Course: Laser-SNMS Location: HS2 **Short Course: Laser SNMS** **Andreas Pelster** IONTOF GmbH, Germany
2:30pm - 3:30pm	S7: Short Course: Application and Case Studies Location: HS2 **Shourt Course: Applications** **Daniel Breitenstein** Tason GmbH, Germany
3:30pm - 4:00pm	**S8: Coffee Break** Location: Exhibition Hall
4:00pm - 5:30pm	S9: Short Course: Multivariate Analysis Location: HS2 **Short Course: Navigating the Alphabet Soup of Multivariate Analysis: What, Why and How** **Bonnie J Tyler** University of Münster, Germany
5:30pm - 7:00pm	**S10: Get Together** Location: Exhibition Hall

Date: Monday, 17/Sep/2018

8:00am - 8:10am

M: Welcome
Location: HS1

8:10am - 8:30am

M1.1: Obituary
Location: HS1
Chair: **Uwe Karst**, University of Münster, Germany

Obituary: A Final Farewell to 4 SIMS Pioneers
Birgit Hagenhoff
Tascon GmbH, Germany

8:30am - 9:10am

M1.2: Invited
Location: HS1
Chair: **Emile A. Schweikert**, Texas A&M University, United States of America

Novel ion imaging applications in geosciences using large-geometry SIMS.
Martin Whitehouse
Swedish Museum of Natural History, Sweden

9:10am - 10:30am

M2.1: Fundamentals
Location: HS1
Chair: **Emile A. Schweikert**, Texas A&M University, United States of America

Nanoripple formation during cluster projectile bombardment of Au surface – an insight from the Molecular Dynamics Computer Simulations
Dawid Maciążek, Zbigniew Postawa
Jagiellonian University, Poland

Cluster-induced desorption/ionization investigated by means of molecular dynamics simulations – effect of polar cluster constituents on the desorption probability
Pascal Schneider, Michael Dürr
Justus-Liebig-Universität Giessen, Germany

40keV Water Cluster Primary Ion Beam and Orbital Ion Trapping
James Christopher Hood[1], Peter J Cumpson[1], Ian W Fletcher[1], Sadia Sheraz[2]
1: Surface Engineering and Analysis Laboratory (SEAL), School of Engineering, Newcastle University, Newcastle-upon-Tyne, U.K.; 2: Ionoptika Limited, Unit B6, Millbrook Close, Chandler's Ford, Eastleigh, Hampshire, U.K.

Molecular Dynamics of thin organic layer deposited on free-standing graphene bombarded with keV C_{60} projectiles
Mikołaj Gołuński, Zbigniew Postawa
Institute of Physics, Jagiellonian University, Poland

M2.2: Imaging
Location: HS2
Chair: **Uwe Karst**, University of Münster, Germany

A Time-of-Flight Backscatter and Secondary Ion Mass Spectrometer Add-on for thery in a Helium Ion Microscope
Nico Klingner, René Heller, Gregor Hlawacek, Johannes von Borany, Stefan Facsko
Institute for Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Bautzner Landstr. 400, 01328 Dresden, Germany

TOF-SIMS Analysis with High Lateral and High Mass Resolution in Parallel
Felix Kollmer[1], Anja Henss[2], Wolfgang Paul[1], Henrik Arlinghaus[1], Rudolf Möllers[1], Ewald Niehuis[1]
1: IONTOF GmbH, Germany; 2: Justus-Liebig University Giessen, Germany

Backscattered Ar_n^+ ions: A method to image surface mechanical properties?
Eva Pospisilova[1], Alexis Renaud[2], Bernard Nysten[1], Arnaud Delcorte[1]
1: Universite Catholique de Louvain, Belgium; 2: University of Mons, Belgium

Chemical imaging of buried interfaces in hybrid organic-inorganic devices using FIB-TOF-SIMS
Mariavitalia Tiddia[1,4], Ichiro Mihara[2], Guido Mula[1], Felix Kolmer[3], Martin P. Seah[4], Rasmus Havelund[4], Ian S. Gilmore[4]
1: Università degli Studi di Cagliari, Dipartimento di Fisica S. P. 8 Km 0.700, 09042 Monserrato (CA), Italy); 2: Kuraray CO., LTD., 2045-1, Sakazu, Kurashiki, Okayama, 710-0801, Japan; 3: ION-TOF GmbH, Heisenbergstr. 15, 48149 Münster, Germany; 4: National Physical Laboratory, Hampton Road, Teddington, TW11 0LW, United Kingdom

10:30am - 11:00am

M3: Coffee Break
Location: Exhibition Hall

11:00am - 11:40am

M4: Invited
Location: HS1
Chair: **Peter Sjövall**, RISE Research Institutes of Sweden, Sweden

Challenges in OLED Characterization
Nils Koenen
Merck KGaA, Germany

11:40am - 1:00pm

M5.1: Thin Organic Layers
Location: HS1
Chair: **Peter Sjövall**, RISE Research Institutes of Sweden, Sweden

High mass-resolving power depth profiling of organic electronic devices using the 3D OrbiSIMS
Lidija Matjacic[1], Rasmus Havelund[1], Alexander Makarov[2], Soowhan Sul[3], Jae Cheol Lee[3], Vanina Cristaudo[1], Ian Gilmore[1]
1: National Physical Laboratory, United Kingdom; 2: Thermo Fisher Scientific, Bremen, Germany; 3: Samsung Advanced Institute of Technology, Yongin, Korea

Stabilization of dry protein coatings with compatible solutes
Manuela S. Killian[1,2], Adam J. Taylor[2], David G. Castner[2]
1: Friedrich-Alexander University, Erlangen, Germany; 2: NESAC/BIO, University of Washington, Seattle, USA

Analyzing Highlighter Inks Using Hybrid-SIMS and Multivariate Analysis
Karsten Lamann[1,3], Elke Tallarek[1], Daniel Breitenstein[1], Pirkl Alexander[2], Niehuis Ewald[2], Karst Uwe[3], Hagenhoff Birgit[1]
1: Tason GmbH, Mendelstr. 17, Münster 48149 Germany; 2: IONTOF GmbH, Heisenbergst. 15, 48149 Münster; 3: Institute of Inorganic and Analytical Chemistry, University of Münster, Corrensstr. 28/30, 48149 Münster

Ionization probabilities of organic material under C_{60} and GCIB bombardment
Lars Breuer[1], Andreas Wucher[1], Nicholas Winograd[2]
1: Universität Duisburg-Essen, Germany; 2: The Pennsylvania State University, USA

M5.2: Microelectronics
Location: HS2
Chair: **Tom Wirtz**, Luxembourg Institute of Science and Technology (LIST), Luxembourg

ToF-SIMS as a powerful tool in the journey of resolving challenges in HighTech industry
Vladimir Dmitrovic, Jos Philipsen
NXP Semicondustors, Netherlands, The

Determination of energy level alignment within organic photovoltaic devices using UV photoemission spectroscopy combined with Ar gas cluster ion beam sputtering
Mateusz Marek Marzec[1], Jakub Rysz[2], Paweł Dąbczyński[2], Andrzej Budkowski[2], Andrzej Bernasik[1,3]
1: Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Poland; 2: Smoluchowski Institute of Physics, Jagiellonian University, Poland; 3: Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Poland

In-situ measurement of ion redistribution and chemical equilibria shifts in operating thin-film electronic devices
Maciej Kawecki, Roland Hany, Matthias Diethelm, Sandra Jenatsch, Quirin Grossmann, Hans Josef Hug, Laetitia Bernard
Empa, Switzerland

Advanced semiconducting structure analysis with Self-Focusing SIMS and improved mass resolution in a Hybrid SIMS instrument
Alexis Franquet[1], Valentina Spampinato[1], Sven Kayser[2], Rasmus Havelund[3], Ian Gilmore[3], Wilfried Vandervorst[4], Paul van der Heide[1]
1: IMEC, MCA, Kapeldreef 75, 3001 Leuven, Belgium; 2: ION-TOF Gmbh, 48149 Muenster, Germany; 3: National Physical Laboratory, Teddington, Middlesex, TW11 OLW, UK; 4: IMEC, Kapeldreef 75, 3001 Leuven, Belgium , K.U.Leuven, Celestijnenlaan 200D, B-3001 Leuven, Belgium

1:00pm - 2:00pm

M6: Lunch Break
Location: Mensa am Ring

2:00pm - 2:40pm

M7: Invited
Location: HS1
Chair: **Rasmus Havelund**, National Physical Laboratory, United Kingdom

Spatial Metabolomics in Tissues and Single Cells
Theodore Alexandrov

European Molecular Biology Laboratory, Germany

2:40pm - 5:00pm

M8.1: Life Science I

Location: HS1
Chair: **Rasmus Havelund**, National Physical Laboratory, United Kingdom

Elucidation of Cellular Organelles and Biosynthetic Intermediates by TOF-SIMS Tandem MS Imaging

Gregory L Fisher[1], Corryn E Chini[2], Ben Johnson[3], Tingting Fu[4], David Touboul[4], Serge Della-Negra[5], Emeline Houël[6], Nadine Amusant[7], Christophe Duplais[6], Michael M Tamkun[3], Alain Brunelle[4], Mary L Kraft[2]
1: Physical Electronics, United States of America; 2: University of Illinois at Urbana-Champaign, United States of America; 3: Colorado State University, United States of America; 4: ICSN / CNRS, France; 5: IPN / CNRS, France; 6: CNRS, UMR EcoFoG, AgroParisTech, Cirad, INRA, France; 7: Cirad, UMR EcoFoG, AgroParisTech, CNRS, INRA, France

Quantitative 3D imaging of dopamine at sub-organelle level by NanoSIMS: across the large dense core vesicle structure in PC12 cells

Florent Penen[1], Mai Hoang-Philipsen[1,2], Aurélien Thomen[3], Michael Kurczy[4], Andrew, G. Ewing[3], Per Malmberg[1,2]
1: Department of Chemistry and Chemical Engineering, Chalmers University of Technology, Gothenburg SE-412 96, Sweden; 2: National Centre for Imaging Mass Spectrometry, Chalmers University of Technology and University of Gothenburg, Gothenburg SE-412 96, Sweden; 3: Chemistry and Molecular Biology, University of Gothenburg, SE-412 96, Sweden; 4: Cardiovascular and Renal Metabolism, Innovative Medicines and Early Development Biotech Unit, AstraZeneca, Mölndal SE-431 50, Sweden

Imaging of lipids in native human bone sections using ToF-SIMS, AP-SMALDI Orbitrap MS and Orbitrap-SIMS

Kaija Schaepe[1,2], Dhaka R. Bhandari[3], Janina Werner[4], Anja Henss[1], Alexander Pirkl[5], Matthias Kleine-Boymann[5], Elena Neumann[6], Sabine Wenisch[4], Bernhard Spengler[3], Jürgen Janek[1], Marcus Rohnke[1]
1: Institute of Physical Chemistry, Justus Liebig University Giessen, Heinrich-Buff-Ring 17, 35392 Giessen, Germany; 2: BAM—Bundesanstalt für Materialforschung und –prüfung, Division 6.1 Surface Analysis and Interfacial Chemistry, Unter den Eichen 44-46, 12203 Berlin, Germany.; 3: Institute of Inorganic and Analytical Chemistry, Justus Liebig University Giessen, Heinrich-Buff-Ring 17, 35392 Giessen, Germany; 4: Department of Veterinary Clinical Sciences, Small Animal Clinic c/o Institute of Veterinary-Anatomy, -Histology and -Embryology, Justus Liebig University Giessen, Frankfurter Strasse 98, 35392 Giessen, Germany; 5: IONTOF GmbH, Heisenbergstr.15, 48149 Münster, Germany; 6: Department of Internal Medicine and Rheumatology, Justus Liebig University Giessen, Kerckhoff-Clinic, Benekestrasse 2-8, 61231 Bad Nauheim, Germany.

TOF-SIMS technique as a tool to analyze changes in lipid profiles of muscle tissue from broilers.

Magdalena Elżbieta Marzec[1], Dorota Wojtysiak[2], Katarzyna Połtowicz[3], Joanna Nowak[3], Roman Pedrys[4]
1: Politechnika Krakowska, Podchorążych 1, 30-084 Krakow, Poland; 2: Agricultural University of Krakow, Al. Mickiewicza 24/28, 30-059 Krakow, Poland; 3: National Research Institute of Animal Production, 32-083 Balice, Poland; 4: Jagiellonian University, S. Łojasiewicza 11, 30-348 Krakow, Poland

ToF-SIMS Imaging for Clinical Applications

Tae G Lee
KRISS, Korea, Republic of (South Korea)

Imaging lipid and protein organization in neuronal membranes with secondary ion mass spectrometry

Nhu Thi Ngoc Phan[1,2], Paola Agüí Gonzalez[1], Bao Guobin[1], Maria Angela Gomes de Castro[1], Silvio O. Rizzoli[1]
1: University of Goettingen Medical Center, Institute of Neuro- and Sensory Physiology, Germany; 2: University of Gothenburg, Department of Chemistry and Molecular Biology, Sweden

ToF-SIMS imaging of cosmetic and pharmaceutical compounds following *ex vivo* skin permeation

Jatin Mistry[1], Nichola Starr[1,2], Jake Hicks[2], David A. Barrett[1], David J. Scurr[1]
1: Advanced Materials and Healthcare Technologies Division, School of Pharmacy, The University of Nottingham, Nottingham, NG7 2RD, UK; 2: Walgreens Boots Alliance, Thane Road, NG90 1BS, Nottingham, UK

M8.2: Depth Profiling

Location: HS2
Chair: **Patrick Philipp**, Luxembourg Institute of Science and Technology, Luxembourg

Soft depth-profiling of mixed peptide/lipid samples by means of cluster induced desorption/ionization mass spectrometry – High depth resolution and low matrix effect

Andre Portz[1], Satoka Aoyagi[2], Michael Dürr[1]
1: Justus Liebig University Giessen, Giessen, Germany; 2: Seikei University, Tokyo, Japan

Molecular interaction characterisation of buried organic-inorganic interfaces by ToF-SIMS using argon cluster ions for depth profiling combined with in-situ AFM

Kristof Marcoen[1], Mélanie Gauvin[2], Nathalie Van Den Bossche[2], Marie-Laure Abel[3], John F. Watts[3], Herman Terryn[1,4], Tom Hauffman[1]
1: Vrije Universiteit Brussel, Department of Materials and Chemistry, Research Group Electrochemical and Surface Engineering, Pleinlaan 2, 1050 Brussels, Belgium; 2: OCAS NV, President John F. Kennedylaan 3, 9060 Zelzate, Belgium; 3: University of Surrey, Department of Mechanical Engineering Sciences, GU2 7XH Guildford, Surrey, UK; 4: Delft University of Technology, Department of Materials Science and Engineering, Mekelweg 2, 2628CD Delft, The Netherlands

Depth profiling intrinsically hybrid layers and organic/inorganic stacks by variable-size argon clusters: a ToF-SIMS and XPS study.

Yan Busby[1], Céline Noël[1], Alexis Franquet[2], Valentina Spampinato[2], Antonio Agresti[3], Sara Pescetelli[3], Aldo Di Carlo[3], Alexandre Felten[1], Laurent Houssiau[1]
1: Laboratoire Interdisciplinaire de Spectroscopie Electronique (LISE), Namur Institute of Structured Matter, University of Namur, rue de Bruxelles 61, B-5000 Namur, Belgium; 2: Imec, Kapeldreef 75, B-3001 Leuven, Belgium; 3: Centre for Hybrid and Organic Solar Energy (CHOSE), University of Rome Tor Vergata, 00133 Rome, Italy

Small area depth profiling with the NanoSIMS 50L

François Horréard, François Hillion, Céline Defouilloy
CAMECA, France

Depth profiling of multilayered stacks by low-energy monatomic beams: achievements and challenges for the analysis of modern devices.

Laurent Houssiau, Céline Noël, Yan Busby
University of Namur, Belgium

3D imagining of boron nitride films with atomic depth resolution

Paweł Piotr Michałowski, Piotr Caban, Jacek Baranowski
Institute of Electronic Materials Technology (ITME), Poland

Quantifying oxygen diffusion across zirconium carbide/zirconium oxide intermediate layer using an ^{18}O tracer technique

Claudia Gasparrini[1], Richard J Chater[1], Renaud Podor[2], Denis Horlait[1,3], William E Lee[1,4]
1: Imperial College London, United Kingdom; 2: Institut de Chimie Séparative de Marcoule, France; 3: CNRS, Centre d'Etudes Nucléaires de Bordeaux-Gradignan, France; 4: Nuclear Futures Institute, Bangor University, United Kingdom

5:00pm - 7:00pm

M9: Poster Session

Location: Poster Area

Development of a charge-implicit ReaxFF potential for modelling high-energy collisions in C/H/O systems

Michal Kanski[1], Dawid Maciazek[1], Barbara J. Garrison[2], Adri C.T. van Duin[3], Zbigniew Postawa[1]
1: Institute of Physics, Jagiellonian University, Lojasiewicza 11, 30-348 Krakow, Poland; 2: Department of Chemistry, Penn State University, 104 Chemistry Building, University Park, Pennsylvania 16802, United States; 3: Department of Mechanical and Nuclear Engineering, Penn State University, University Park, Pennsylvania 16802, United States

Impact *of the molecular weight on the depth profiling of polymer thin films: case study with low energy Cs+ as sputtering primary ion.*

Amal Ben Hadj Mabrouk[1], Marc Veillerot[1], Denis Mariolle[1], Antoine Chateauminois[2]
1: Univ. Grenoble Alpes, F-38000 Grenoble, France CEA, LETI, MINATEC Campus, F-38054 Grenoble, France; 2: Soft Matter Science and Engineering Laboratory (SIMM), PSL Research University, UPMC Univ Paris 06, ESPCI Paris, CNRS, 10 rue Vauquelin

Enhancement of sensitivity for organic fragments and molecules using large gas cluster Laser-SNMS

Marcel Heeger, Thorsten Adolphs, Bonnie J. Tyler, Andreas Pelster, Heinrich F. Arlinghaus
University of Muenster, Germany

Metabolic imaging using argon gas cluster ion beams – optimal sputtering conditions for low fragmentation

Vanina Cristaudo[1], Lidija Matjačić[1], Rasmus Havelund[1], Yulia Panina[1,2], Mariia Yuneva[2], Ian Gilmore[1]
1: National Centre of Excellence in Mass Spectrometry Imaging, National Physical Laboratory, Hampton Road, Teddington, TW11 0LW, UK; 2: Oncogenes and Tumour Metabolism Lab, The Francis Crick Institute, 1 Midland Road, London, NW1 1AT, UK

SIMS investigations of formation and unimolecular decay processes of $Si_nO_m^-$ clusters under ion sputtering

Sergey Maksimov[1,2], Nariman Dzhemilev[2], Sergey Kovalenko[2], Oskar Tukfatullin[2], Sherali Khozhiev[2,3]
1: Institute of Chemistry and Physics of Polymers, Academy of Sciences of the Republic of Uzbekistan, Uzbekistan; 2: Arifov Institute of ion-plasma and laser technologies, Academy of Sciences of the Republic of Uzbekistan; Uzbekistan; 3: Tashkent State Technical University named after Islam Karimov

IMPLANTATION ON Si AND SiO_x BY LOW ENERGY CESIUM IONS

Utkir Sharopov, Bakhtiyar Atabaev, Ruzmat Djabbarganov, Feruz Khudayqulov, Ikrom Mirzakhmedov
Ion plazma & lazer Technology Institute, Uzbekistan

Influence of deformation fields on the sputtering rate in AlN/GaN superlattices

Tomash Sabov, Oleksandr Dubikovskyi, Oleksandr Kosulya, Oleksii Liubchenko
Lashkarev Institute of Semiconductor Physics NAS of Ukraine

Influence of the substrate temperature on the ionization probability

Yannik Moryson, Marcus Rohnke
Justus-Liebig-Universität Gießen, Germany

Thermal effects in low energy ion irradiation of solids

Yuriy Kudriavtsev
CINVESTAV-IPN, Mexico

The conductivity of polymer layered systems modified with halogen salts of d-type metals.

Paweł Mateusz Dąbczyński[1], Agnieszka Pawłowska[1], Magdalena Ceglarska[1], Anna Dłubacz[1], Mateusz Marek Marzec[2], Anna Majcher[1], Wojciech Tomczyk[1], Monika Marzec[1], Andrzej Bernasik[2,3], Andrzej Budkowski[1], Jakub Rysz[1]
1: M. Smoluchowski Institute of Physics, Jagiellonian University, Łojasiewicza 11, 30-348 Kraków, Poland; 2: Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, al. Mickiewicza 30, 30-049 Kraków, Poland; 3: Faculty of Physics and Applied Computer Science , AGH University of Science and Technology, al. Mickiewicza 30, 30-049 Kraków, Poland

Study of organic samples using ME-SIMS prepared with a Knudsen-type matrix coater

Thorsten Adolphs, Martin Körsgen, Bonnie J. Tyler, Marcel Heeger, Heinrich F. Arlinghaus
University of Muenster, Germany

Preliminary performance results for a new UHV SIMS, '*High5*', with simultaneous positive and negative SIMS & ICP oxygen plasma source

Richard John Chater[1], Sarah Fearn[1], Graham Cooke[2], Noel Smith[3], Ainara Aguadero[1]
1: Imperial College London, United Kingdom; 2: Hiden Analytical Ltd, Warrington, United Kingdom; 3: Oregon-Physics, Beaverton, OR 97006, USA

Ion-beam sectioning, nano-scale 3D material reconstruction and '*in-operando*' processing in a UHV dual SIMS detector ion microscope

Richard John Chater[1], Sarah Fearn[1], Ainara Aguadero[1], Graham Cooke[2], Noel Smith[3]
1: Imperial College London, United Kingdom; 2: Hiden Analytical, Warrington, United Kingdom; 3: Oregon Physics, Beaverton, Oregoin, USA

Latest Developments in Cluster Beam Technology for ToF SIMS: Towards Greater Spatial Resolution, Improved Ion Yields, and Faster Etch Rates!

Allen Bellew, Paul Blenkinsopp
Ionoptika Limited, United Kingdom

III-V compound analysis using the CAMECA IMS 7f-Auto

Paula Peres[1], Seo-Youn Choi[1], François Desse[1], Shiro Miwa[2]
1: CAMECA France; 2: CAMECA Japan

A correlative study of implanted FDSOI by TOF-SIMS and MEIS

François Pierre[1], Lucien Penlap Woguia[1], Denis Jalabert[2], Jean-Paul Barnes[1]
1: Univ. Grenoble Alpes, CEA, LETI, DTSI, SCMC, F-38000 Grenoble.; 2: Univ. Grenoble Alpes, CEA, INAC, MEM, LEMMA, F-38000 Grenoble.

DIFFUSION OF DEFECTS TO SURFACE AT CLEANING SILICON WAFERS

Utkir Sharopov, Bakhtiyar Atabaev, Ruzmat Djabbarganov, Feruz Khudayqulov, Ikrom Mirzakhmedov
Ion plazma & lazer Technology Institute, Academy of Sciences of the Republic of Uzbekistan, Tashkent

Novel p-type anodic NiO sponges for photocatalytic applications

Benedikt F. Winhard, Farzaneh Ahmadloo, Manuela S. Killian
Friedrich-Alexander University, Erlangen, Germany

ToF-SIMS analysis of meso-porous silicon samples: surface modifications and chemical response changes when exposed to different ions beams

Marc Veillerot, Riccardo Scarazzini, Vincent Jousseaume, Frédéric Gaillard
Univ. Grenoble Alpes, CEA, LETI, DTSI, SCMC, F-38000 Grenoble

Temperature-dependent SIMS depth profiling of InGaN multilayers

Juraj Karlovský[1,2], Michal Potoček[1,2], Petr Bábor[1,2]
1: Institute of Physical Engineering, Faculty of Mechanical Engineering, Brno University of Technology, Technická 2896/2, Brno, 616 69, Czech Republic; 2: CEITEC - Central European Institute of Technology, Brno University of Technology, Brno, 616 00, Czech Republic

SIMS measurements of InAs/InAsSb type II superlattice

Urszula Chodorow[1], Paweł Piotr Michałowski[2], Krystian Michalczewski[1,3], Piotr Martyniuk[1]
1: Military University of Technology, Poland; 2: Institute of Electronic Materials Technology, Poland; 3: VIGO SYSTEM S.A., Poland

Accurate determination of matrix composition of topological insulator $Pb_{1-x}Sn_xSe$ by SIMS

Rafał Jakiela[1], Marta Galicka[1], Piotr Dziawa[1], Gunther Springholz[3], Adam Barcz[1,2]
1: Institute of Physics, Polish Academy of Sciences, Poland; 2: Institute of Electron Technology, Poland; 3: Institute for Semiconductor and Solid State Physics, Johannes Kepler Universität, Austria

Real 3D depth profiling of heterogeneous microelectronic structures using a combined ToF-SIMS*/in-situ* SPM tool.

Alexis Franquet[1], Valentina Spampinato[1], Wilfried Vandervorst[1,2], Paul van der Heide[2]
1: imec, Belgium; 2: Instituut voor Kern- en Stralingsfysica, K. U. Leuven, Leuven, Belgium.

3D-Imaging of $Cu(In,Ga)Se_2$ Grain Boundaries by Time-of-Flight-Secondary Ion Mass Spectrometry

Wolfram Hempel, Jonas Hanisch, Theresa Magorian Friedlmeier, Michael Powalla
Zentrum f. Sonnenenergie- und Wasserstoff-Forschung BW, Germany

Parallel Ion-Electron Spectrometry (PIES): Merging strengths of Secondary Ion Mass Spectrometry and Transmission Electron Microscopy

Alisa Pshenova, Tom Wirtz, Santhana Eswara
Luxembourg Institute of Science and Technology (LIST)

SIMS and Resonant Laser-SNMS measurements on Pyrite Particles Contacted with ^{239}Pu

Felix Berg, Daniela Schönenbach, Pascal Schönberg, Markus Breckheimer, Raphael Haas, Samer Amayri, Tobias Reich
Johannes Gutenberg-Universität Mainz, Germany

Characterization of DLC using ToF-SIMS and RBS/ERD

Alexandre Felten, Julien L. Colaux, Pierre Louette
SIAM platform, University of namur, Namur, Belgium

Setup and Characterization of a Resonant Laser-SNMS System for Conductive and Non-Conductive Plutonium Samples

Daniela Schönenbach, Pascal Schönberg, Felix Berg, Raphael Haas, Tobias Reich
Johannes Gutenberg-University Mainz, Germany

ToF-SIMS, XPS and XRR study of Al:HfO_2/TiN interface for MIM capacitors

Enrica Ravizza[1], Rossella Piagge[1], Simona Spadoni[1], Silvia Vangelista[1], Alessio Lamperti[2]
1: ST Microelectronics, Via C. Olivetti 2, Agrate Brianza, MB I-20864, Italy; 2: CNR-IMM - MDM Laboratory, Via C. Olivetti 2, Agrate Brianza, MB I-20864, Italy

ToFSIMS and other surface spectroscopies applied to the study of ancient artefacts: further studies on Alexandrian tetradrachms from the time of the Julio-Claudian dynasty

Rana N.S. Sodhi[1], Peter Brodersen[1], Sal Boccia[1], Amandina Anastassiades[2], Cristiana Zaccagnino[3]

1: Ontario Centre for the Characterisation of Advanced Materials, University of Toronto, Canada; 2: Dept. Art History & Art Conservation, Queen's University, Canada; 3: Classics/Languages, Literatures & Cultures, Queen's University, Canada

Diffusion Experiments and Phase Formation in the Al-Cu-System with ToF-SIMS and XRD

Andreas Amsüss[1], Werner Robl[2], Herbert Hutter[1]
1: TU Wien, Austria; 2: Infineon Technologies AG, Regensburg, Germany

FIBSIMS investigation of Solid State Lithium battery failure

Federico Pesci, Rowena Brugge, Orla Hekselman, Andrea Cavallaro, Richard John Chater, Ainara Aguadero
Imperial College London, United Kingdom

ToF-SIMS Study on Li Metal Electrodes

Anja Henss, Svenja Otto, Urmimala Maitra, Marcus Rohnke, Daniel Schroeder, Juergen Janek
Institute of Physical Chemistry and Centre for Material Research, Justus Liebig University of Giessen

Detailed analysis of organometallic perovskite solar cells with ToF-SIMS using four different sputter sources

Jonas Hanisch, Tina Wahl, Moritz Schultes, Wolfram Hempel, Erik Ahlswede
Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Germany

Unsupervised analysis of full hybrid OLEDs by ToF-SIMS coupled with wavelet-PCA

Céline Noël[1], Nunzio Tuccitto[2], Yan Busby[1], Manuel Auer[3], Antonino Licciardello[2], Emil List-Kratochvil[4], Laurent Houssiau[1]
1: University of Namur, Belgium; 2: University of Catania, Italy; 3: Institut für Oberflächentechnologien und Photonik, Austria; 4: Humboldt-Universität zu Berlin, Germany

Analysis of deuterium in austenitic stainless steel AISI 304L by Time-of-Flight Secondary Ion Mass Spectrometry

Andreas Röhsler, Oded Sobol, Thomas Böllinghaus, Wolfgang E.S. Unger
Federal Institute for Materials Research and Testing, Germany

COMPOSITION AND MORPHOLOGY OF THE SURFACE OF CaF_2 WITH NANOSIZED Si PHASES

Dilnoza Artikbaevna Tashmukhamedova, Maxsuna Baxodirovna Yusupjonova, Gulmira Xolmuratovna Allayorova, Baltohadja Ermatovich Umirzakov
Tashkent state technical university, Uzbekistan

Determination of trace concentrations of transmuted stable nuclides in neutron fluence detectors using SIMS

Jan Lorincik, Petr Homola, Ladislav Viererbl, Vit Klupak, Zdena Lahodova, Klara Rezankova, Kristina Sihelska
Research Center Rez, Czech Republic

Sputtering derived artefacts in austenitic steel during Time-of-Flight Secondary Ion Mass Spectrometry analyses

Andreas Röhsler, Oded Sobol, Gert Nolze, Thomas Böllinghaus, Wolfgang Unger
BAM - Federal Institute for Materials Research and Testing, Germany

Focused ion beam specimen preparation of microtensiles for unirradiated and irradiated ferritic steel

Claudia Gasparrini[1], Albert D Smith[2], Jack Donoghue[2], Richard J Chater[1], Matthew Rogers[2], Nick Riddle[3], Philipp Frankel[2], M Grace Burke[2], Mark R Wenman[1]
1: Imperial College London, United Kingdom; 2: Manchester University, United Kingdom; 3: Rolls-Royce, United Kingdom

ToF-SIMS characterization of conductive molecular wires assembled onto oxide substrates

Alessandra Bombace, Nunzio Tuccitto, Andrea Valenti, Alberto Torrisi, Antonino Licciardello
University of Catania, Italy

Advanced SIMS analysis to enable next generation Additive Manufacturing

Gustavo F. Trindade, Richard Hague, Clive J. Roberts
University of Nottingham, United Kingdom

3D Localization of Spinel and Sodium Contamination in Alumina by TOF-SIMS

Petr Bábor[1,2], Radek Holeňák[1], Tomáš Spusta[2], Michal Potoček[1,2], David Salamon[2]
1: Institute of Physical Engineering, Faculty of Mechanical Engineering, Brno University of Technology, Technická 2896/2, Brno, 616 69, Czech Republic; 2: CEITEC - Central European Institute of Technology, Brno University of Technology, Brno, 616 00, Czech Republic

SIMS investigation of silver dendrites formed by electromigration

Jonas Neumeier, Bjoern Luerßen, Matthias Elm, Jürgen Janek, Marcus Rohnke
Justus-Liebig University Giessen, Germany

TOF $SIMS^5$ application for quantitative analyses of water in geological objects

Sergei Simakin[1], Alexander Rudy[1,2], Evgenii Kozlov[2]
1: Institute of Physics and Technology of RAS, Yaroslavl Branch, Russian Federation; 2: P.G. Demidov Yaroslavl State University, Russian Federation

The effect of carbon and boron content on environmental cracking resistance along grain boundaries in Co/Ni superalloys.

Lucy Rhiannon Reynolds, Bantounas Ioannis, Chater Richard, Hardy Mark, Dye David
Imperial College London, United Kingdom

Universial Indicator Paper as Model System for Hybrid-SIMS Experiments

Daniel Breitenstein[1], Lamann Karsten[1,3], Dinter Adelina-Elisa[3], Tallarek Elke[1], Pirkl Alexander[2], Niehuis Ewald[2], Karst Uwe[3], Hagenhoff Birgit[1]
1: Tascon GmbH, Mendelstraße 17, 48149 Münster; 2: IONTOF GmbH, Heisenbergstr. 15, 48149 Münster; 3: Institute of Inorganic and Analytical Chemistry, University of Münster, Corrensstr. 28/30, 48149 Münster

Using TOF-SIMS for researching nanoparticles

Tatyana Kravchuk
Technion - Israel Institute of Technology, Israel

Spatially resolved measurement of surface area changes in laser-structured dye / TiO_2 nanoparticles films employing time-of-flight secondary ion mass spectrometry

Lina Schade[1,2], Steffen Franzka[1,2,3], Elke Tallarek[4], Sven Kayser[5], Nils Hartmann[1,2,3]
1: Department of Chemistry, University of Duisburg-Essen, Germany; 2: Center for Nanointegration Duisburg-Essen (CENIDE), University of Duisburg-Essen, Germany; 3: Interdisciplinary Center for Analytics on the Nanoscale (ICAN), University of Duisburg-Essen, Germany; 4: Tascon GmbH, Münster, Germany; 5: IONTOF GmbH, Münster Germany

ELECTRONIC AND OPTICAL PROPERTIES OF $NiSi_2$/Si NANOFILMS

Dilnoza Artikbaevna Tashmukhamedova, Jahongirbek Shuxratek ugli Sodiqjanov, Nodira Moylievna Mustafoyeva, Allanazar Qarshievich Tashatov
Tashkent state technical university, Uzbekistan

Migration of Ni from sub-nanometric layer to thicker oxide layers : attempts to access to the composition profile by ToF-SIMS

Justine Mathilde Voronkoff[1], Thierry Cretin[2], Hervé Montigaud[1]
1: Surface du Verre et Interfaces UMR 125 CNRS/Saint-Gobain, Aubervilliers, France; 2: Saint-Gobain Recherche, Aubervilliers, France

Surface analysis of Representative Test (nano)-Materials distributed by the JRC Nanomaterials Repository.

Giulio Cotogno, Giacomo Ceccone, Douglas Gilliland, Dora Mehn, Jessica Ponti
European Commission, Joint Research Centre (JRC), JRC Directorate F - Health, Consumers and Reference Materials, Unit F2 Consumers Products Safety, TP 125, via Enrico Fermi 2749, 21027 Ispra (VA) - Italy

Optimisation of sample preparation for characterisation of engineered nanomaterials using ToF-SIMS under close to real-life conditions

Yves U. Hachenberger[1], Philipp Reichardt[1], Jutta Tentschert[1], Harald Jungnickel[1], Peter Laux[1], Pietro Benettoni[2], Stephan Wagner[2], Hryhoriy Stryhanyuk[2], Giacomo Ceccone[3], Douglas Gilliland[3], Markus Schneider[4], Kaija Schäpe[4], Thomas Heinrich[4], Wolfgang E.S. Unger[4], Andreas Luch[1]
1: German Federal Institute for Risk Assessment, Germany; 2: Helmholtz Center for Environmental Research, Leipzig, Germany; 3: European Commission Joint Research Centre, Ispra, Italy; 4: Federal Institute for Materials Research and Testing, Berlin, Germany

Study on protein adsorption to thin layers of poly(butyl methacrylate)

Kamil Awsiuk[1], Joanna Raczkowska[1], Yurij Stetsyshyn[2], Natalia Janiszewska[1], Ostap Lishchynskyi[2], Katarzyna Gajos[1], Andrzej Budkowski[1]
1: Smoluchowski Institute of Physics, Jagiellonian University, Poland; 2: Lviv Polytechnic National University, Ukraine

Molecular ToF-SIMS Imaging of Artificial Lipid Membranes Using a Discriminant Analysis Based Algorithm

Rainer Kassenböhmer[1], Marcel Heeger[1], Mridula Dwivedi[2], Martin Koersgen[1], Bonnie J. Tyler[1], Hans-Joachim Galla[2], Heinrich F. Arlinghaus[1]
1: Physikalisches Institut, Westfälische Wilhelms-Universität Münster, Germany; 2: Institut für Biochemie, Westfälische Wilhelms-Universität Münster, Germany

Cluster SIMS of Liquid and Soft Materials with 3D Carbon Nano-frames

Stanislav V. Verkhoturov[1,2], Dmitriy S. Verkhoturov[2], Jian Tan[3], Gang Yang[3], Jevon Phandi[3], Choongho Yu[3], Andreas A. Polycarpou[3], Emile A. Schweikert[2]
1: Material Characterization Facility,Texas A&M University,College Station, TX 77843, USA; 2: Deparment of Chemistry, Texas A&M University,College Station, TX 77843, USA; 3: Department of Mechanical Engineering, Texas A&M University,College Station, TX 77843, USA

Detection of Inorganic Nanoparticles in Lung Tissue Sections

Veith Lothar[1,3], Daniel Breitenstein[1], Vennemann Antje[2], Hagenhoff Birgit[1], Wiemann Martin[2]
1: Tascon GmbH, Mendelstraße 17, 48149 Münster; 2: IBE Institute for Lung Health gGmbH, Mendelstrasse 11, 48149 Münster; 3: meanwhile: Max Planck Institute for Polymer Research, Ackermannweg 10 - D-55128 Mainz

Chemical Mapping of Drug Permeation through Microneedle Channels using ToF-SIMS

Akmal Sabri[1], Jane Ogilvie[2], John McKenna[3], Volha Shpadaruk[3], Joel Segal[4], David Scurr[1], Maria Marlow[1]
1: Advanced Materials and Healthcare Technologies Group, School of Pharmacy, University of Nottingham, NG7 2RD, Nottingham, UK; 2: Walgreens Boots Alliance, Thane Road, Nottingham, NG90 1BS; 3: Leicester Royal Infirmary, University Hospitals of Leicester Dermatology Department, Infirmary Square, Leicester LE1 5WW; 4: Department of Mechanical, Materials and Manufacturing Engineering, Faculty of Engineering, University of Nottingham, Nottingham, NG8 1BB

Three-dimensional reconstruction of a structured organic multilayer system using a TOF-SIMS and atomic force microscopy

Tobias Heckhoff, Andreas Wucher
Universität Duisburg-Essen, Germany

NanoSIMS combined with electron microscopy and X-ray techniques to study the impact of cadmium on carbon assimilation in the mixotrophic micro-alga *Chlamydomonas reinhardtii*

Florent Penen[1], Marie-Pierre Isaure[1], Dirk Dobritzsch[2], Hiram Castillo-Michel[3], Etienne Gontier[4], Philippe Le Coustumer[1,4,5], Julien Malherbe[1], Dirk Schaumlöffel[1]
1: CNRS / Université de Pau et des Pays de l'Adour / E2S UPPA, Institut des Sciences Analytiques et de Physico-Chimie pour l'Environnement et les, Matériaux, UMR 5254, 64000 Pau, France; 2: Martin-Luther-Universität Halle-Wittenberg, Institute for Biochemistry and Biotechnology, Plant Biochemistry, Tanford Protein Centre, Kurt-Mothes-Str. 3a, 06120 Halle (Saale), Germany; 3: ID21 Beamline, European Synchrotron Radiation Facility (ESRF), BP220, 38043 Grenoble, France; 4: Université de Bordeaux, Bordeaux Imaging Center UMS 3420 CNRS - US4 INSERM, Pôle d'imagerie électronique, 146 rue Léo Saignat, 33076 Bordeaux, France; 5: Université de Bordeaux, UF Sciences de la Terre et Environnement, Allée G. Saint-Hillaire, 33615 Pessac, France

The physicochemical fingerprint of *Necator americanus*

Veeren Chauhan, David Scurr, Thomas Christie, Gary Telford, Jonathan Aylott, David Pritchard
School of Pharmacy, University of Nottingham, NG7 2RD, United Kingdom

Visualizing Carbon and Nitrogen exchange at the cellular scale in the ectomycorrhizal symbiosis using NanoSIMS

Werner Mayerhofer[1], Arno Schintlmeister[1,2], Marlies Dietrich[1], Stefan Gorka[1], Siegfried Reipert[3], Marieluise Weidinger[3], Andreas Richter[1], Dagmar Woebken[1], Christina Kaiser[1]
1: Department of Microbiology and Ecosystem Science, University of Vienna, Austria; 2: Large-Instrument Facility for Advanced Isotope Research, University of Vienna, Austria; 3: Core Facility of Cell Imaging and Ultrastructure Research (CIUS), University of Vienna, Austria

Using room temperature and cryogenic 3D OrbiSIMS to understand the regulation of *Drosophila* cuticular lipids

Clare L. Newell[1,2], Ian S. Gilmore[2], Alex P. Gould[1]
1: The Francis Crick Institute, 1 Midland Road, London, NW1 1AT, UK; 2: National Centre for Excellence in Mass Spectrometry Imaging, National Physical Laboratory, Teddington, TW11 0LW, UK

Specific target imaging of lipids and proteins of cellular plasma membrane using nanoSIMS

Paola Agüi-Gonzalez[1], Nhu T.N Phan[1,2], Silvio O. Rizzoli[1]
1: Institute of Neuro- and Sensory Physiology, University of Goettingen Medical Center, Goettingen, Germany; 2: Department of Chemistry and Molecular Biology, University of Gothenburg, Gothenburg, Sweden

Characterization of animal fibre: investigation and differentiation of different fibres species using secondary ion mass spectrometry

Jean-Luc Vorng[1], Elzbieta Gurdak[1], Spencer, A Thomas[1], James, H Hinchliffe[2], David, K Mallin[3], Ian, S Gilmore[1]
1: National Physical Laboratory, Hampton road Teddington TW11 0LW United kingdom; 2: Z. Hinchliffe & sons LTD. Hartcliffe Mills Denby Dale, Huddersfield HD 8 8QL United Kingdom; 3: Cashmere Fibres International Limited, Park view Mills, Raymond Street, West Yorkshire, BD5 8 DT, England

Isotopic Labelling of Biological Materials for Secondary Ion Mass Spectrometry Imaging

Selda Kabatas[1,2], Kim-Ann Saal[2], Felipe Opazo[1,2], Ulf Diederichsen[3], Silvio O. Rizzoli[1,2]
1: Center for Biostructural Imaging of Neurodegeneration, University Medical Center Göttingen, Germany; 2: Department of Neuro- and Sensory Physiology, University Medical Center Göttingen, Germany; 3: Institute of Organic and Biomolecular Chemistry, Georg-August-University Göttingen, Germany

Classification of engineered Titania Nanomaterials via Surface Analysis using Principal Component Analysis (PCA) assisted Time-of-Flight Secondary Ion Mass Spectrometry (ToF-SIMS)

Markus Schneider, Thomas Heinrich, Kaija Schaepe, Wolfgang E. S. Unger
BAM, Department 6.1 – Surface Analysis and Interfacial Chemistry, Unter den Eichen 44-46, 12203 Berlin

Extracting latent chemical information from ToF-SIMS data arising from chemical imaging

Nunzio Tuccitto, Alessandra Bombace, Alberto Torrisi, Giacomo Capizzi, Antonino Licciardello
University of Catania, Italy

The Use of PCA as a Daily Analysis Tool in ToF-SIMS

Birgit Hagenhoff[1], Danica Heller[2], Rik ter Veen[1]
1: Tascon GmbH, Münster, Germany; 2: Infineon Technologies, Warstein, Germany

Spectra Superposition – A tool to simplify peak selection in sets of high resolution spectra

Henrik Arlinghaus[1], Daniel Graham[2], Ewald Niehuis[1]
1: IONTOF GmbH, Germany; 2: University of Washington

Identification of Unknown Contaminants in Industrial Applications Using MS/MS in Combination with High Resolution Mass

Alexander Pirkl, Sven Kayser, Henrik Arlinghaus, Julia Zakel, Derk Rading, Rudolf Moellers, Ewald Niehuis
IONTOF GmbH, Germany

7:00pm - 10:00pm **M10: Barbecue**
Location: **Balcony Area in Front of Institute**

Date: Tuesday, 18/Sep/2018

8:30am - 9:10am

T1: Invited
Location: HS1
Chair: **Anton Ievlev**, Oak Ridge National Laboratory, United States of America

When EM meets SIMS: High-Resolution SIMS Imaging and Correlative Microscopy on the Helium Ion Microscope
Tom Wirtz, Paul Gratia, Jelena Lovric, Jean-Nicolas Audinot
Luxembourg Institute of Science and Technology (LIST), Luxembourg

9:10am - 10:30am

T2.1: Related or Combined Techniques I
Location: HS1
Chair: **Anton Ievlev**, Oak Ridge National Laboratory, United States of America

Analysis of radionuclide containing particles from Chernobyl by resonant Laser-SNMS
Manuel Raiwa[1], Hauke Bosco[1], Martin Weiß[1], Klaus Wendt[2], Clemens Walther[1]
1: Institute for Radioecology and Radiation Protection, Leibniz Universität Hannover, Germany; 2: Institute of Physics, Johannes Gutenberg-University, Mainz

Actual 3D analysis of hybrid arrays with *in-situ* SPM in a combined TOF-SIMS/SPM tool
Valentina Spampinato[1], Masoud Dialameh[1,2,3,4], Claudia Fleischmann[1], Alexis Franquet[1], Wilfried Vandervorst[1,2], Paul van der Heide[1]
1: IMEC, Belgium; 2: Instituut voor Kern-en Stralingsfysica, K. U. Leuven, Celestijnenlaan 200D, B-3001 Leuven, Belgium.; 3: Politecnico di Torino, Corso Duca degli Abruzzi, 24, 10129, Turin, Italy; 4: Istituto Nazionale di Ricerca Metrologia (INRIM), Strada delle Cacce 91, 10135 Turin, Italy

SIMS and MALDI for bioanalysis - complimentary, complementary or competition.
John Stephen Fletcher, Ibrahim Kaya
University of Gothenburg, Sweden

Combining the Benefits of GCIB-ToF-SIMS, MALDI-FTICR-MS and LC-MS/MS for Location specific Lipid Identification in Planarian Flatworm Tissue Sections
Tina B. Angerer[1], Dusan Velickovic[2], Micheal J. Taylor[1], Carrie D. Nicora[2], Christopher Anderton[2], Daniel J. Graham[1], Lara J. Gamble[1]
1: University of Washington, USA; 2: Pacific Northwest National Laboratory, USA

T2.2: Polymers
Location: HS2
Chair: **Antonino Licciardello**, Università degli Studi di Catania, Italy

Engineering a Poly(3,4-ethylenedioxythiophene):(Polystyrene Sulfonate) Surface Using Self-Assembling Molecules
Paweł Dąbczyński[1], Mateusz Marek Marzec[2], Andrzej Bernasik[3], Jakub Rysz[1]
1: M. Smoluchowski Institute of Physics, Jagiellonian University, Łojasiewicza 11, 30-348 Kraków, Poland; 2: 2AGH University of Science and Technology, Academic Centre for Materials and Nanotechnology, al. Mickiewicza 30, 30-059 Kraków, Poland; 3: 3Faculty of Physics and Applied Computer Science, AGH-University of Science and Technology, Al. Mickiewicza 30, 30–059 Kraków, Poland

Chemical Bonds between Laser Welded Aluminum and Polyamide?
Pierre Hirchenhahn[1], Adham Al-Sayyad[2], Julien Bardon[3], Alexandre Felten[1], Peter Plapper[2], Laurent Houssiau[1]
1: Université de Namur, Namur Institute of Structured Matter, Belgium; 2: Université du Luxembourg, Research unit in engineering science, Luxembourg; 3: Luxembourg Institute of Science and Technology, Luxembourg

Digging into the details of ToF-SIMS analysis of porous scaffolds
Michael Taylor, Daniel Graham, Lara Gamble
NESAC/BIO, University of Washington, United States of America

The Study of the Degradation of an Aircraft Coating Using ToF-SIMS and Multivariate Analysis
Marie-Laure Odile Claude Abel[1], Taraneh Bozorgzad Moghim[2], Gustavo Ferraz Trindade[3], John Farnham Watts[1]
1: University of Surrey, United Kingdom; 2: TWI, United Kingdom; 3: University of Nottingham, United Kingdom

10:30am - 11:00am

T3: Coffee Break
Location: Exhibition Hall

11:00am - 11:40am

T4: Invited
Location: HS1
Chair: **Marcus Rohnke**, Justus-Liebig University Giessen, Germany

Multimodal chemical and functional imaging of functional materials via combined AFM/ToF-SIMS platform
Anton Ievlev, Sergei Kalinin, Olga Ovchinnikova
Oak Ridge National Laboratory, United States of America

11:40am - 1:00pm

T5.1: Related or Combined Techniques II
Location: HS1
Chair: **Marcus Rohnke**, Justus-Liebig University Giessen, Germany

Characterization of the conductive structures in the periplasm of cable bacteria using combined TOF-SIMS/AFM
Raghavendran Thiruvallur Eachambadi[1], Henricus T.S. Boschker[2], Alexis Franquet[3], Valentina Spampinato[3], Silvia Hidalgo-Martinez[4], Filip J.R. Meysman[2,4], Jean V. Manca[1]
1: UHasselt, X-LAB, Faculty of Sciences, 3590 Diepenbeek, Belgium; 2: Delft University of Technology, Department of Biotechnology, Julianalaan 67, 2628 BC Delft, The Netherlands; 3: IMEC vzw, 3000 Leuven, Belgium; 4: University of Antwerp, Department of Biology, Universiteitsplein 1, 2610 Wilrijk, Belgium

In-Situ Correlative Helium Ion Microscopy and Secondary Ion Mass Spectrometry for High-Resolution Nano-Analytics in Life Sciences
Jelena Lovric, Jean-Nicolas Audinot, Tom Wirtz
Luxembourg Institute of Science and Technology, Luxembourg

11:40am - 12:00pm

Elucidating carbon transfer in a thiotrophic symbiosis with correlative NanoSIMS/TEM analysis, tissue autoradiography and fluorescence *in situ* hybdridization
Jean-Marie Volland[1,5], Arno Schintlmeister[2], Helena Zambalos[1], Siegfried Reipert[3], Patricija Mozetič[4], Salvador Espada-Hinojosa[1], Valentina Turk[4], Michael Wagner[2], Monika Bright[1]
1: Department of Limnology and Bio-Oceanography, University of Vienna, Austria; 2: Large-Instrument Facility for Advanced Isotope Research and Department of Microbiology and Ecosystem Science, Research Network “Chemistry meets Microbiology”, University of Vienna, Austria; 3: Core Facility of Cell Imaging and Ultrastructure Research (CIUS), University of Vienna, Austria; 4: National Institute of Biology, Marine Biology Station, Piran, Slovenia; 5: DOE Joint Genome Institute, Walnut Creek, CA, United States

Cryo-3D-OrbiSIMS – metrology of biological sample preparation methods for studies of frozen-hydrated bacterial biofilm
Junting Zhang[1], Paulina Rakowska[1], Kirsty MacLellan Gibson[2], James Brown[3], Jean-Luc Vorng[1], Morgan R Alexander[3], Paul Williams[3], Kim Hardie[3], Ian S Gilmore[1]
1: national physical laboratory, United Kingdom; 2: National Institute for Biological Standards and Control, United Kingdom; 3: University of Nottingham, United Kingdom

T5.2: Materials
Location: HS2
Chair: **Marie-Laure Odile Claude Abel**, University of Surrey, United Kingdom

Gazing at Titian’s *Ecce Homo* with Imaging Mass Spectrometry
Sebastiaan Van Nuffel[1], Ana González Mozo[2], María Dolores Gayo[2], Philippe Walter[3], Alain Brunelle[1]
1: Institut de Chimie des Substances Naturelles, CNRS UPR 2301, Université Paris-Sud, Université Paris-Saclay, Gif-sur-Yvette, France.; 2: Área de Restauración, Laboratorio y Gabinete Técnico, Museo Nacional del Prado, Madrid, Spain.; 3: Laboratoire d'Archéologie Moléculaire et Structurale (LAMS), Sorbonne Universités, UPMC Université Paris 06, CNRS, UMR 8220, Paris, France.

ToF-SIMS and XPS study of bromine-based plasma polymers for further designing organic coatings with high density of thiol moieties
Damien Thiry[1], Matthias Pouyanne[1], Damien Cossement[2], Axel Hemberg[2], Rony Snyders[1,2]
1: Chimie des Interactions Plasma-Surface (ChIPS), CIRMAP, Université de Mons, 20 Place du Parc, B-7000 Mons, Belgium; 2: Materia Nova Research Center, 1 Avenue Nicolas Copernic, B-7000 Mons, Belgium

11:40am - 12:10pm

Methane Flooding for Enhanced Nitrogen Detection
Lukas Volgger[1], Paul Frank[2], Peter Imrich[2], Herbert Hutter[1]
1: TU Wien, Austria; 2: Infineon Technologies Austria AG, Austria

Investigating internal diesel injector deposit formation: The role of iron
Emma N Antonio[1], Sarah Fearn[1], Chrissie Wicking[2], Sorin Filip[2], Mary P Ryan[1], Sandrine Heutz[1]
1: Department of Materials, London Centre for Nanotechnology, Imperial College London, London, UK; 2: BP Technology Centre, Pangbourne, Reading, UK

1:00pm - 2:00pm

T6: Lunch Break
Location: Mensa am Ring

2:00pm - 2:40pm

T7: Invited
Location: HS1
Chair: **Alain Brunelle**, CNRS, France

Mass Spectrometry Imaging of Biological Samples: How to Get The Most Out of Your Experiment
Andreas Römpp
Chair of Bioanalytical Sciences and Food Analysis, University of Bayreuth, Germany

2:40pm - 4:00pm

T8.1: Life Science II

Location: HS1
Chair: **Alain Brunelle**, CNRS, France

ToF-SIMS analysis of Sr^{2+} dispersion in rat bone

Christine Kern[1], Mandy Quade[2], Seemun Ray[3], Jürgen Thomas[4], Marcus Rohnke[1]
1: Institute of Physical Chemistry, Justus-Liebig-University Gießen, Germany; 2: Centre for Translational Bone, Joint and Soft Tissue Research, University Hospital Carl Gustav Carus and Faculty of Medicine of Technische Universität Dresden, Germany; 3: Laboratory of Experimental Trauma Surgery, Justus-Liebig-University Giessen, Germany; 4: IFW Dresden, Institute for Complex Materials, Dresden, Germany

Identifying Cellular Metabolic Heterogeneity in Primary Mammary Gland Tumours and Metastases using the 3D-OrbiSIMS.

Yulia Panina[1,2], Peter Kreuzaler[1], Ian Gilmore[2], Mariia Yuneva[1]
1: The Francis Crick Institute; 2: National Centre of Excellence in Mass Spectrometry Imaging, National Physical Laboratory

2:40pm - 3:00pm

Tracing the interrelation of lipids, amyloid, tau and glia in Alzheimer's disease transgenic mice using time-of-flight secondary ion mass spectrometry and immunofluorescence imaging.

Jonas K Hannestad[1], Ida AK Nilsson[2], Lydia Giménez-Llort[4], Björn Johansson[2], Martin Schalling[2], Fredrik Höök[3], Peter Sjövall[1]
1: RISE Reserch Institutes of Sweden; 2: Department of Molecular Medicine and Surgery, Karolinska Institutet and Center for Molecular Medicine (CMM), Karolinska University Hospital; 3: Department of Physics, Chalmers University of Technology; 4: Institute of Neuroscience, Universitat Auto`noma de Barcelona

Elucidating the 3D chemical structure of the *stratum corneum* using Hybrid SIMS

Nichola Jayne Starr[1], Gustavo Ferraz Trindade[1], Alexander Pirkl[2], Matthias Kleine-Boymann[2], David Scurr[1]
1: Advanced Materials and Healthcare Technologies, University of Nottingham, United Kingdom; 2: IONTOF GmbH, Münster, Germany

T8.2: Data Treatment

Location: HS2
Chair: **Bonnie J Tyler**, University of Münster, Germany

Combined ToF-SIMS and AFM protocol for accurate 3D chemical analysis and data visualization

Maiglid Andreina Moreno Villavicencio[1], Franck Bassani[2], Isabelle Mouton[1], Nicolas Chevalier[1], Jean-Paul Barnes[1], Brice Gautier[3]
1: Univ. Grenoble Alpes, CEA Grenoble, LETI, France; 2: Univ. Grenoble Alpes, CNRS, LTM, F-38000 Grenoble, France; 3: Université de Lyon, INSA Lyon, Institut des Nanotechnologies de Lyon, UMR CNRS 5270, F- 69621 Villeurbanne cedex, France.

Signal-to-Noise ratio enhancement of ToF-SIMS images in combinationwith AFM measurement

Olivier Scholder[1], Marcos Penedo[1], Cristiana Passiu[2], Hans Josef Hug[1], Laetitia Bernard[1]
1: Swiss Federal Laboratories for Material Testing and Research (Empa), Laboratory for Nanoscale Materials Science, Überlandstrasse 129, CH-8600 Dübendorf, Switzerland; 2: Laboratory for Surface Science and Technology, Department of Materials, ETH Zurich, Vladimir-Prelog-Weg 5, CH-8093 Zurich, Switzerland

Correlating High-resolution Elemental and Morphological Imaging of Energy Materials using SIMS on the Helium Ion Microscope

Paul Gratia[1], Jean-Nicolas Audinot[1], Iwan Zimmermann[2], Mohammad Khaja Nazeeruddin[2], Tom Wirtz[1]
1: Luxembourg Institute of Science and Technology, Luxembourg; 2: Ecole Polytechnique Fédérale de Lausanne, Switzerland

User-independent protocols for the analysis of complex ToF-SIMSdatasets without mass binning, peak picking and peak integration

Nunzio Tuccitto, Alessandra Bombace, Alberto Torrisi, Giacomo Capizzi, Antonino Licciardello
University of Catania, Italy

4:00pm - 4:20pm

T9: Coffee Break
Location: Exhibition Hall

4:20pm - 6:00pm

T10.1: Energy and Tribology

Location: HS1
Chair: **Birgit Hagenhoff**, Tascon GmbH, Germany

ToF-SIMS for the chemical characterization of electrode/electrolyte interfacial phenomena during the cycling of Li-ion batteries

Cecile Courreges[1], Nicolas Gauthier[1], Lionel Goubault[2], Julien Demeaux[2], Cecile Tessier[2], Herve Martinez[1]
1: IPREM UMR 5254, Technopole Helioparc, 2 avenue du Président Pierre Angot, 64000 Pau, France; 2: SAFT, 111-113 Boulevard Alfred Daney, 33074 Bordeaux cedex, France

Depth profiling with delayed extraction for analytical 3D tomography on battery materials

Felix Walther[1], Sven Neudeck[2], Johannes Sicklinger[3], Grecia Garcia[2], Pascal Hartmann[2,4], Hubert A. Gasteiger[3], Jürgen Janek[1,2], Marcus Rohnke[1]
1: Institute of Physical Chemistry, Justus Liebig University of Giessen, 35392 Giessen, Germany; 2: Battery and Electrochemistry Laboratory, Institute of Nanotechnology and Institute for Applied Materials, Karlsruhe Institute of Technology, 76344 Eggenstein-Leopoldshafen, Germany; 3: Department of Chemistry, Technical University of Munich, 85748 Garching, Germany; 4: BASF SE, 67056 Ludwigshafen, Germany

Surfaces and Interfaces in Perovskite-Based Solar Cells

Jonathan Ngiam[1,2], Chieh Ting Lin[1], Sarah Fearn[1], David Payne[1], Martyn McLachlan[1,2]
1: Department of Materials & Centre for Plastic Electronics, Imperial College London, UK; 2: Marie Skłodowska-Curie Innovative Training Network (INFORM)

Kinetics of hydrogenation of borosilicate glasses

Yuriy Kudriavtsev[1], Georgina Ramirez[1], Rene Asomoza-Palacio[1], Linda Manzanilla-Naim[2]
1: CINVESTAV-IPN, Mexico; 2: IA-UNAM, Mexico

ToF-SIMS investigation of tribochemical surface reaction films built up by specially added cooling lubricants

Lukas Gustav Hermann Britt, Philipp Konstantin Jenke, Dieter Lipinsky, Heinrich Franz Arlinghaus
University of Münster, Germany

T10.2: Environmental and Geology

Location: HS2
Chair: **Herbert Hutter**, TU Vienna, Austria

Radial distribution of wood extractives in European larch *Larix decidua* by TOF-SIMS imaging

Tingting Fu, Nicolas Elie, Alain Brunelle
CNRS, Institut de Chimie des Substances Naturelles, Gif-sur-Yvette, France

Using ToF-SIMS to Measure Mineral Dissolution and Secondary Mineral Precipitation During Gas-Liquid-Mineral Reactions in Carbon Sequestration Studies.

Bonnie J Tyler[1], Christian Ostertag-Henning[2], Heinrich F Arlinghaus[1]
1: Physikalisches Institut, University of Münster, Wilhelm-Klemm-Straße 10, 48149 Münster, Germany; 2: Bundesanstalt für Geowissenschaften und Rohstoffe, Stilleweg 2, 30655 Hannover, Germany

Biomolecular degradation in fossils studied by ToF-SIMS

Peter Sjövall[1], Martin Jarenmark[2], Johan Lindgren[2]
1: RISE Research Institutes of Sweden, Sweden; 2: Department of Geology, Lund University, Sweden

Chemical Characterisation and Classification of (Core-Shell) Nanoparticles using PCA assisted ToF-SIMS

Thomas Heinrich[1], Anja Müller[1], Markus Schneider[1], Katia Sparnacci[2], Wolfgang E. S. Unger[1]
1: Bundesanstalt für Materialforschung und –prüfung, 6.1 – Surface Analysis and Interfacial Chemistry, Unter den Eichen 44-46, 12203 Berlin, Germany; 2: Università del Piemonte Orientale, 15121 Alessandria, Italy

Inorganic nanoparticles as a probe of complex organic host.

Pietro Benettoni[1], Hryhoriy Stryhanyuk[1], Stephan Wagner[1], Jairo Moreno[1,2], Matthias Schmidt[1], Thorsten Reemtsma[1], Hans Hermann Richnow[1]
1: Helmholtz Centre for Environmental Research-UFZ, Germany; 2: University of Cassino and Southern Lazio, Italy

6:00pm - 6:10pm

T11: Closing Remarks
Location: HS1