



8-13 Sept. 2024 • **La Rochelle (FR)**  
24<sup>th</sup> international conference on Secondary Ion Mass Spectrometry

## Final program

[www.sims-24.com](http://www.sims-24.com)



# SIMS-24

24<sup>th</sup> International Conference on Secondary Ion Mass Spectrometry

8-13 September 2024

La Rochelle, France

[www.sims-24.com](http://www.sims-24.com)



8-13 Sept. 2024

• La Rochelle (FR)

24<sup>th</sup> international conference on Secondary Ion Mass Spectrometry

8 - 13 September 2024

La Rochelle (France)

[www.sims-24.com](http://www.sims-24.com)

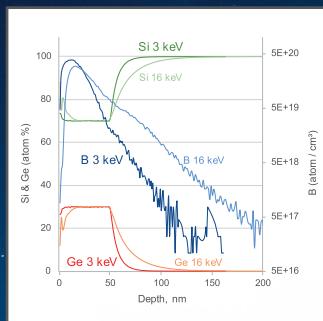
© Editions SFV 2024  
19 rue du Renard - F-75004 Paris, France

Legal Deposit: September 2024

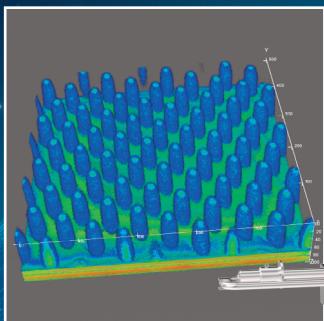
The texts of this volume are the exclusive property of the French Vacuum Society.  
Reproduction is prohibited without his consent. The editors assume no responsibility for any errors or omissions that may occur in the printing of this volume.

# NanoSIMS-HR™

The next frontier in nanoanalysis for science & high-tech



Superior depth resolution, depth profiling in multilayer structure using low impact energy.



High throughput 3D imaging: Array of silicon nanowires acquired in less than 1 hour.



## The CAMECA NanoSIMS-HR delivers:

- Unprecedented lateral resolution:  $\leq 30$  nm
- Superior depth profiling using low impact energy
- High throughput: x2.5 faster image acquisition
- Glovebox & cryogenic accessories



Also in our portfolio of high productivity, high precision microanalytical instruments:





## TABLE OF CONTENT

<b>Committees</b> .....	<b>3</b>
<b>Welcome</b> .....	<b>5</b>
<b>General information</b> .....	<b>6</b>
<b>Social events</b> .....	<b>7</b>
<b>Workshops</b> .....	<b>8</b>
<b>Program information</b> .....	<b>9</b>
Codes & Topics.....	9
Instructions to authors.....	10
Invited lectures.....	11
<b>Oral program</b> .....	<b>13</b>
<b>Poster program</b> .....	<b>37</b>
Session 1 .....	38
Session 2 .....	44
<b>Exhibition</b> .....	<b>50</b>



## COMMITTEES

### SIMS-24 International Scientific Committee

**Jean-Paul Barnes** *Chair*  
CEA Grenoble (FR)

**Morgan Alexander**  
Univ. Nottingham (UK)

**Satoka AOYAGI**  
Seikei Univ. Tokyo (JP)

**Anna BELU**  
Medtronic (US)

**Alain BRUNELLE**  
CNRS, Sorbonne Univ., Paris (FR)

**Giacomo CECCONE**  
Joint Research Centre, Ispra (IT)

**John CLIFF**  
Oak Ridge Nat. Lab. (US)

**Arnaud DELCORTE**  
Univ. Louvain (BE)

**Andrew EWING**  
Univ. Gothenburg (SE)

**Francisco FERNANDEZ-LIMA**  
Florida Univ., Miami (US)

**Gregory L. FISHER**  
Physical Electronics (US)

**Lara GAMBLE**  
Univ. Washington, Seattle (US)

**Greg GILLEN**  
NIST, Gaithersburg (US)

**Ian GILMORE**  
NPL, London (UK)

**Chris GROVENOR**  
Univ. Oxford

**Birgit HAGENHOFF**  
Tascon GmbH (DE)

**Ron HEEREN**  
Univ. Maastricht (NL)

**Anja HENSS**  
Univ. Giessen (DE)

**Yurimoto HISAYOSHI**  
Univ. Hokkaido (JP)

**Marinus HOPSTAKEN**  
IBM (US)

**Laurent HOUSSIAU**  
Univ. Namur (BE)

**Marc JUHEL**  
STMicroelectronics (FR)

**Matthew KILBURN**  
IAEA, Vienna (AT)

**Manuela KILLIAN**  
Univ. Siegen (DE)

**Norito KITA**  
Univ. Wisconsin-Madison (US)

**Tae Geol LEE**  
KRISS, Seoul (KR)

**Yeonhee LEE**  
KRISS, Seoul (KR)

**Didier LEONARD**  
Univ. Lyon (FR)

**Antonino LICCIARDELLO**  
Univ. Catania (IT)

**Christine MAHONEY**  
Corning Inc. (US)

**Hervé MARTINEZ**  
Univ. Pau (FR)

**Anders MEIBOM**  
EPFL (CH)

**Dae Won MOON**  
DGIST, Daegu (KR)

**Ewald NIEHUIS**  
IonTof (DE)

**Satoshi NINOMIYA**  
Univ. Yamanashi, Takeda (JP)

**Michaeleen PACHOLSKI**  
Dow Chemical (US)

**Paul PIGRAM**  
La Trobe Univ. (AU)

**Zbigniew POSTAWA**  
Univ. Krakow (PL)

**Peter SJÖVALL**  
RISE, Boras (SE)

**Vincent SMENTKOWSKI**  
General Electric (US)

**Alan SPOOL**  
HGST Inc. (US)

**Bonnie TYLER**  
Univ. Münster (DE)

**Wilfried VANDERVORST**  
IMEC (BE)

**Amy WALKER**  
Univ. Texas, Dallas (US)

**Fuyi WANG**  
CAS, Beijing (CN)

**Lu-Tao WENG**  
HKUST(GZ), Guangzhou (CN)

**Tom WIRTZ**  
LIST (LU)



## SIMS International Committee

**Jiro MATSUO** *Chair*  
Univ. Kyoto (JP)

**Satoka AOYAGI**  
Seikei Univ. Tokyo (JP)

**Anna BELU**  
Medtronic (US)

**Alain BRUNELLE**  
CNRS, Sorbonne Univ., Paris (FR)

**Gregory L. FISHER**  
Physical Electronics (US)

**Lara GAMBLE**  
Univ. Washington, Seattle (US)

**Arnaud DELCORTE** *Secretary*  
Univ. Louvain (BE)

**Tae Eun HONG**  
KBSI, Daejeon (KR)

**Manuela KILLIAN**  
Univ. Siegen (DE)

**Tae Geol LEE**  
KRISS, Seoul (KR)

**Nick LOCKYER**  
Univ. Manchester (UK)

**Lu-Tao WENG**  
HKUST(GZ), Guangzhou (CN)

## SIMS-24 Local Organizing Committee

**Alain BRUNELLE** *Chair*  
CNRS, Sorbonne Univ., Paris (FR)

**Julien AMALRIC**  
Science et Surface, SERMA Group (FR)

**Jean-Paul BARNES**  
CEA Grenoble (FR)

**Fabien CHIROT**  
Univ. Lyon, SFSM President (FR)

**Cécile COURRÈGES**  
CNRS, Univ. Pau (FR)

**Arnaud DELCORTE**  
Univ. Louvain (BE)

**Yves DE PUYDT**  
Tescan Analytics (FR)

**Anouk GALTAYRIES**  
Chimie ParisTech, Paris (FR)

**Jean-Luc GROSSEAU-POUSSARD**  
Univ. La Rochelle (FR)

**Gweltaz HIREL**  
SFP, Paris (FR)

**Laurent HOUSSIAU**  
Univ. Namur (BE)

**Didier LEONARD**  
Univ. Lyon (FR)

**Manale NOUN**  
LAEC, Beirut (LB)

**Nicolas NUNS**  
CNRS, Univ. Lille (FR)

**Marie-Amandine PINAULT-THAURY**  
CNRS, UVSQ, Versailles (FR)

**Laurent RÉMUSAT**  
CNRS, MNHN, Paris (FR)

**Jean-Paul SALVÉTAT**  
CNRS, Univ. Bordeaux (FR)

**Jérémie SILVENT**  
Orsay Physics (FR)

**Aurélien THOMEN**  
CAMECA-AMETEK (FR)

**Tom WIRTZ**  
LIST (LU)



## Welcome to SIMS24!

It is a great pleasure to welcome you to the 24<sup>th</sup> International Conference on Secondary Ion Mass Spectrometry (SIMS 24), held at the Espace Encan congress center near the old harbour and in the heart of the city of La Rochelle. This conference is organized every two years, successively in Asia-Pacific, North America, and Europe. The two previous editions in Europe were SIMS 18 in Riva-del-Garda, Italy, in 2011, and SIMS 21 in Krakow, Poland, in 2017, and the conference was organized only once before in France, SIMS 06 in Versailles, in 1987.

This year we chose not to focus on a particular theme, in an endeavor to bring together the entire SIMS scientific community as widely as possible. Your excellent submissions enabled us to put together an outstanding scientific program highlighting the major advances in our field. We have two plenary sessions, each with a plenary lecture and a platinum sponsor talk, 24 invited keynote lectures, 111 oral communications, and more than 100 posters. The Monday morning plenary lecture will be given by the recipient of the first Alfred Benninghoven award.

The conference will begin on Sunday, September 8, 2024 with the IUVSTA-sponsored Short course on SIMS. Technical sessions will run from Monday morning to Friday mid-day. This year the poster sessions are organized on Tuesday and Thursday, in the middle of the day, interspersed with buffet lunches, with a highly anticipated *poyster* session on Tuesday. We hope this format will generate more fruitful interactions and discussions between all participants. A special session on Wednesday morning will honor the presence of one of the founding fathers of SIMS, Georges Slodzian among us. The instrument supplier exhibition will open from Monday until Friday. It is organized in the same room as the poster sessions, the lunch buffets and the coffee breaks, in order to generate as much discussion as possible.

Beyond the stimulating scientific exchanges provided by the conference, there will be much to discover in and around La Rochelle: on Wednesday afternoon, four excursions will provide you with opportunities to explore the different aspects of life and heritage of La Rochelle. During the conference dinner that evening, at the Espace Encan, you will experience French gastronomy prepared by a renowned local caterer and have the opportunity to taste local beverages.

We wish to acknowledge the International Scientific Committee members for their invaluable contribution and guidance in the selection of this exciting scientific program. We are deeply grateful to the members of the Local Organizing Committee, without their dedicated effort the conference would not have been possible. We would also like to thank the kind financial support of the French Mass Spectrometry Society (SFSM), and the experienced logistical and technical support of the French Vacuum Society (SFV) staff. A very special thanks for the gracious support of the sponsors. Please visit the booths of our exhibitors and show our appreciation to them for their sponsorship and commitment to the advancement of our field. Without their support we could not have such a great event.

A conference is successful because of the active participation and enthusiasm of the delegates. Let us commit to making this conference a most enjoyable, enriching and rewarding experience. With your contribution, we can create a forum where new knowledge will be gained, new research networks will emerge and friendships will form, grow and develop!

**Alain Brunelle**

CNRS and Sorbonne Univ., Paris (FR)  
Chair of the Local Organizing Committee

**Jean-Paul Barnes**

CEA, Grenoble (FR)  
Chair of the International Scientific Committee



## GENERAL INFORMATION

### Practical information

#### ▪ Official language

The conference language is English.

#### ▪ Wi-Fi access

Indicated on your badge provided onsite.

#### ▪ Badges

All delegates, exhibitors and visitors must wear their badges at all times to obtain admittance to the conference venue.

#### ▪ Mobile phone

Please keep your mobile phone turned off or in silent mode in all conference rooms.

#### ▪ Publication

This final program and the abstract book (orals & posters) are available on the website.

#### ▪ Tourism Office

2 quai Georges Simenon  
17000 La Rochelle

Phone: +33 (0)5 46 41 14 68

<https://www.holidays-la-rochelle.co.uk/>

#### ▪ Opening hours

##### Welcome desk (hall Antioche)

Monday 9 Sept	09:00 – 19:00
Tuesday 10 Sept	08:30 – 19:00
Wednesday 11 Sept	08:30 – 12:00
Thursday 12 Sept	08:30 – 19:00
Friday 13 Sept	08:30 – 12:30

### Disclaimer

The program is preliminary. The organizers reserve the right to alter the program if and as is deemed necessary.

The SIMS-24 organization and/or its agents have the right for any reason beyond their control to alter or to cancel, without prior notice, the Conference or any of the arrangements, timetables, plans or other items relating directly or indirectly to the Conference. The SIMS-24 organization and/or its agents shall not be liable for any loss, damage, expenditure or inconvenience caused as a result of such alteration or cancellation.

### Contacts



Société Française du Vide

**Société Française du Vide**  
19 rue du Renard  
F75004 Paris  
+33 (0)1 53 01 90 30  
[www.vide.org](http://www.vide.org)

#### Gweltaz HIREL

SFV Director, Event manager  
[gweltaz.hirel@vide.org](mailto:gweltaz.hirel@vide.org)

#### Hervé LEMOINE

Exhibition coordinator  
[herve.lemoine@vide.org](mailto:herve.lemoine@vide.org)



## SOCIAL EVENTS

### Get together parties

✓ Included in the registration – no booking necessary

▪ **Welcome reception:** Sunday 8 September – 18:00 - 20:00

On Sunday evening, after the short courses, come to pick your badge and conference material. The organization offers a cocktail to get together over a drink with other attendees.

▪ **Poster party session #1:** Tuesday 10 September – 11:10 – 15:00

▪ **Poster party - session #2:** Thursday 12 September – 11:10 – 15:00

▪ **Conference dinner:** Wednesday 11 September – 18:30 – 23:00

Enjoy a relaxed moment during the conference dinner offered on the Convention Centre and a musical entertainment

### Social activities

Wednesday 11 September from 13:30

✓ *Included in the registration / Booking mandatory*

▪ **Option #1 – Boat trip to “Fort Boyard”**

- 13:30 / Meeting point at the parking “Saint-Jean-d’Acre” (point 2 on the map) and boarding
- 14:00 / Departure
- 16:00 / Return to the old harbor

On the cruise ship “**La Maline**”, we will sail from the old harbor of La Rochelle towards Fort Boyard, a 27 meter-high citadel, built in the open sea in the 19th century. It looks like a stone ship with three battery (gun) decks and has become famous as the site of a TV game show of the same name. We will spend two and a half hours at sea, passing through the “Pertuis d’Antioche”, between the islands of Ré, Oléron, and Aix. After approaching the island of Aix, where Napoleon I spent his last days in France before surrendering to Captain Frederick Lewis Maitland of HMS Bellerophon in 1815, we will go around Fort Boyard, located halfway between the islands of Aix and Oléron, before returning to the old harbor of La Rochelle.

[https://en.wikipedia.org/wiki/Fort\\_Boyard\\_\(fortification\)](https://en.wikipedia.org/wiki/Fort_Boyard_(fortification))

▪ **Option #2 - Aquarium**

**A visit into the heart of the Ocean!** Created by a family passionate about the underwater world, the La Rochelle Aquarium is one of the largest private aquariums in Europe. Over the course of two hours, visit the heart of the ocean, marvel at more than 12,000 marine animals, and discover the surprising biodiversity that the Atlantic, the Mediterranean and the Tropics have to offer. The numerous anecdotes of the audio guide will ensure that sea life will no longer hold any secrets for you!

[www.aquarium-larochelle.com/en/home/](http://www.aquarium-larochelle.com/en/home/)



## Social activities

### ▪ Option #3 – Maritime Museum

Guided tour of the former meteorological frigate "France I", which was stationed at a fixed spot in the Atlantic Ocean. The guided tour starts from the engine room and proceeds to the upper navigation deck (1 hour). Afterwards you will be free to explore the rest of the museum: an old trawler, a former open sea tugboat, and many old sailing ships. And finally the permanent exhibition of the museum "La Rochelle born from the sea", which traces the maritime heritage of La Rochelle and highlights the connection between humanity and the sea.

<https://museemaritime.larochelle.fr/>

### ▪ Option #4 – Guided walking tour of the La Rochelle City

**"La Rochelle reveals itself"** A charming getaway in the heart of the Old Town and the Old Harbor. Wander through some of the most remarkable chapters in the story of La Rochelle, a free and commercial city: the memory of Eleanor of Aquitaine, the escapades of Henri IV, the siege by Cardinal Richelieu ... You will be enchanted by the majestic buildings and the lively character of the docks and the terraces.



## WORKSHOPS

### Sponsors Workshops

During the 2 posters sessions, 4 workshops given by some sponsors are proposed.

Duration 45 minutes.

- |                 |                            |               |
|-----------------|----------------------------|---------------|
| • RAITH         | Tuesday 10 Sept. at 14:00  | Hermione Room |
| • CAMECA        | Tuesday 10 Sept. at 14:00  | Victory Room  |
| • IONOPTIKA     | Thursday 12 Sept. at 14:00 | Hermione Room |
| • ORSAY PHYSICS | Thursday 12 Sept. at 14:00 | Victory Room  |



## PROGRAM INFORMATION

### Codes & topics

In the scientific program, the SIMS-24 conference has been organized around 9 topics:

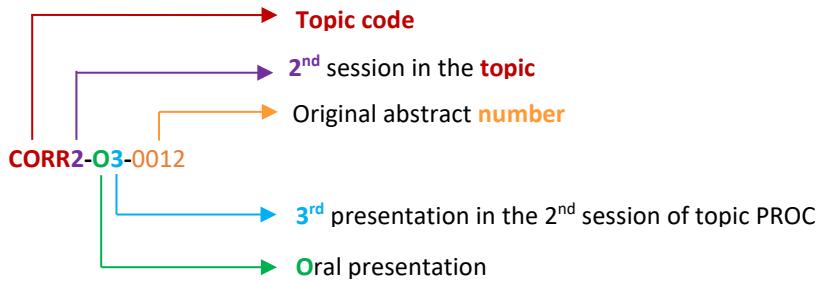
<b>BIO</b>	Biomaterials, life science and biotechnology, tissue imaging
<b>COMP</b>	Analysis of complex samples, depth profiling and imaging
<b>CORR</b>	Correlative analysis or multitechnique analysis
<b>FUN</b>	Fundamental science
<b>GEO</b>	Geology, geo- and cosmochemistry, archaeology, environment
<b>Hires</b>	High mass/lateral resolution analysis
<b>IND</b>	Industrial applications (bio, organic and inorganic)
<b>INST</b>	Instrumentation & novel ion beams
<b>ML</b>	Machine learning, data analysis

### Key to lecture

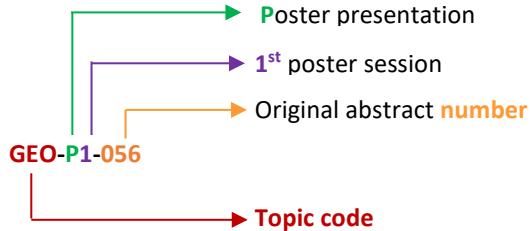
#### ▪ Type of presentations

- PL Plenary talk  
KN Keynote lecture  
O Oral presentation  
P Poster presentation

#### ▪ Lecture numbers



#### ▪ Poster numbers





## Instructions for authors

### ▪ Oral Presentations

#### Durations (including discussions)

- |                      |            |
|----------------------|------------|
| - Plenary talk       | 60 minutes |
| - Keynote Lectures   | 40 minutes |
| - Oral Presentations | 20 minutes |

Lectures must be presented **in English**.

Each speaker must ensure that presentation (including 5 min for questions) is not longer than stipulated in the program. The chairpersons will be strict on timing.

**There is no preview system for the conference.** All speakers have to **load their presentation file on the laptop available on the session room, preferably on the half day before the start in the session room.**

PowerPoint projection will be available in the session rooms which are equipped with a laptop computer and a projector. Overhead projection and slide projection are not available. All the hardware will be provided by the Congress to ensure consistency in technical quality and allow for quick and smooth transition between the speakers.

Please note that **only the computers provided on site can be used**.

The video files attached to the presentation must be located in the same folder as the presentation files.

**Presentation's Privacy:** at the end of the Congress, ALL presentations and associated files will be deleted.

### ▪ Poster Presentations

Each poster must be in the size of **0.85 m in width and 1.2 m in height (A0)**.

The author's name and affiliation and the title of the paper must be indicated in the top section of the poster.

The posters will be presented and numbered according to the poster programme. The poster number will be displayed on top of the board. Writing or painting on the poster board is not allowed.

All posters will be displayed during all the conference days (Tuesday until Friday). However, focus will be made with 2 poster sessions on:

- **P1 / Session #1** / Tuesday 10 Sept. from 11:10 until 15:00
- **P2 / Session #2** / Thursday 12 Sept. from 11:10 until 15:00

Presenters are expected to be next to their poster during the session (P1 or P2) assigned to their poster (information sent by email & available on the detailed program & registration space).

**Posters should be mounted from Monday 9 September at 10:00 and should be removed by 12:30 on Friday 13 September 2024.**



## Invited lectures

### ▪ Plenary speakers

In CREPEAU AUDITORIUM

**Ian GILMORE – Alfred Benninghoven Award**

NPL Teddington (UK)

**SIMS – All for one and one for all**

PL1 // MON 10 – 09:30

**Ron M.A. HEEREN**

Univ. Maastricht (NL)

**Mass spectrometry imaging and innovations in spatial biology**

PL2 // WED 11 – 08:30

### ▪ Keynote speakers

**Satoka AOYAGI**

Seikei Univ., Tokyo (JP)

**Data mining from rich SIMS data using machine learning**

VICTORY ROOM

ML2-KN // TUE 10 – 17:20

**Aditi BORKAR**

Univ. Nottingham (UK)

**Cryo-OrbiSIMS enables integrative modelling of RNA structures at atomic resolution**

HERMIONE ROOM

ML1-KN // MON 09 – 11:40

**Caroline BOUVIER**

M4i, Univ. Maastricht (NL)

**ToF-SIMS imaging of heritage materials: tackling analytical limitations to widen the interdisciplinary impact**

VICTORY ROOM

GEO2-KN // MON 09 – 14:40

**Michael ELLER**

California State Univ. Northridge, CA (US)

**Nanoscale molecular analysis with nano-projectile SIMS**

VICTORY ROOM

FUN2-KN // TUE 10 – 08:30

**Albert FAHEY**

Corning Corp. (US)

**Time-of-Flight Secondary Ion Mass Spectrometry of inorganic materials: understanding and quantification with more information to explore**

VICTORY ROOM

IND2-KN // THU 12 – 08:30

**Claudia FLEISCHMANN**

IMEC & Katholieke Univ. Leuven (BE)

**How to leverage Atom Probe Tomography to address characterization challenges in the semiconductor industry**

VICTORY ROOM

IND1-KN // TUE 10 – 15:00

**Felicia GREEN**

Rosalind Franklin Institute, Oxfordshire (UK)

**New generation of microscope mode Secondary Ion Mass Spectrometry imaging**

HERMIONE ROOM

BIO6-KN // THU 12 – 15:00

**Marco HOPSTAKEN**

IBM Research, New York (US)

**Applications of SIMS in advanced nano-electronics R&D**

VICTORY ROOM

IND4-KN1 // THU 12 – 17:20

**Anton IEVLEV**

CNMS, Oak Ridge National Lab. (US)

**Correlative studies of ion migration and chemical reactivity in electronic materials via combine AFM/ToF-SIMS platform**

HERMIONE ROOM

CORR4-KN // FRI 13 – 10:50

**Christine E. JILLY**

Univ. Stanford (US)

**Utilizing dynamic SIMS for isotopic analysis of terrestrial and extraterrestrial materials**

VICTORY ROOM

GEO1-KN // MON 09 – 11:30

**Manuela KILLIAN**

Univ. Siegen (DE)

**Digging into the depth of molecule coated oxide nanostructures - routes to analyse hybrid organic-inorganic nanomaterials**

CREPEAU AUDITORIUM

COMP2-KN // MON 09 – 17:00

**Anna KOTOWSKA**

Univ. Nottingham (UK)

**Unlocking the potential of high-volume SIMS data with molecular formula prediction"**

CREPEAU AUDITORIUM

BIO3-KN // TUE 10 – 15:00

**Nicholas P. LOCKYER**

Univ. Manchester (UK)

**A fundamental study of small proteins using Gas Cluster Ion Beam Secondary Ion Mass Spectrometry (GCIB-SIMS) – mutliple charging and projectile effects**

HERMIONE ROOM

INST1-KN // TUE 10 – 08:30

**Pavel MICHALOWSKI**

Łukasiewicz – IMiF, Warsaw (PL)

**From atomic layers, 3D nanostructures to full wafer thickness – the versatility of the SIMS technique**

VICTORY ROOM

HIRES1-KN // MON 09 – 17:00

**Katie MOORE**

Univ. Manchester (UK)

**Revealing trace element and stable isotope subcellar distributions in biological materials with high resolution SIMS**

CREPEAU AUDITORIUM

BIO4-KN // TUE 10 – 17:20

**Masayuki OKAMOTO**

Kao Corporation (JP)

**ToF-SIMS applications for the development of household and personal care products**

VICTORY ROOM

IND3-KN // THU 12 – 15:00

**Paul PIGRAM**

La Trobe Univ., Melbourne (AU)

**SIMS: transforming data complexity into a significant asset with machine learning**

VICTORY ROOM

ML3-KN // FRI 13 – 08:30

**Derk RADING**

IONTOF Technologies GmbH, Münster (DE)

**ToF-SIMS: instrument innovations and industrial applications**

VICTORY ROOM

IND4-KN2 // THU 12 – 18:00

**Hélène ROGNIAUX**

INRAE Nantes (FR)

**Big pixels can be beautiful too... MALDI MSI sheds new light on plant cell walls**

CREPEAU AUDITORIUM M

CORR1-KN // TUE 10 – 08:30

**Naoya SAKAMOTO**

Univ. Hokkaido, Sapporo (JP)

**Stigmatic isotope imaging of solar system materials using cryogenic LG-SIMS**

HERMIONE ROOM

HIRES2-KN // FRI 13 – 08:30

**Peter SJÖVALL**

RISE Research Institutes of Sweden, Boras (SE)

**ToF-SIMS analysis of biological and fossil samples**

CREPEAU AUDITORIUM

BI05-KN // THU 12 – 08:30

**Valentina SPAMPINATO**

Univ. Catania (IT)

**Advanced physico-chemical characterization of complex systems for microelectronics: innovative SIMS-based approaches**

CREPEAU AUDITORIUM

COMP1-KN // MON 09 – 14:40

**Yao ZHAO**

Chinese Academy of Sciences, Beijing (CN)

**ToF-SIMS study of the electrochemical isotope effects for the lithium-ion batteries**

CREPEAU AUDITORIUM

COMP6-KN // FRI 13 – 08:30

UNLOCK THE POWER OF CLUSTER SIMS WITH

# The New J Series III

3D Imaging. 3 Ion Beams. 3 Decades of Expertise.

**IONOPTIKA**

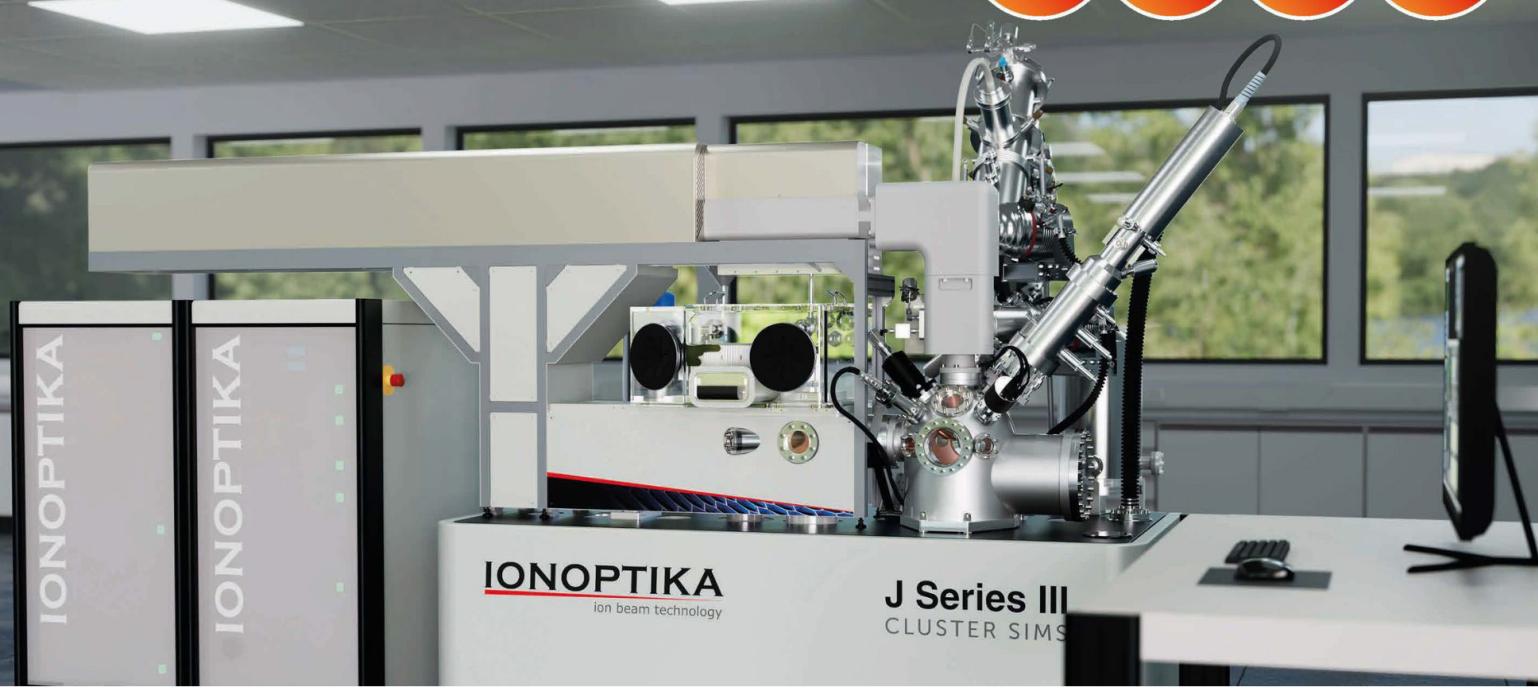
ion beam technology

24/7  
cryo  
analysis

100 x  
70mm  
sample stage

2 x  
increase  
in mass  
resolving  
power

5 x  
increase in  
transmission



**IONOPTIKA**  
ion beam technology

## Join our lunchtime Seminar

Thurs 12th September 2-2:45pm, Hermione Room

Introducing the Next Generation of Cluster SIMS:



**Professor Nick Lockyer, University of Manchester**

Investigating drug loading and distribution in spray-dried dispersions with cluster SIMS



**Professor Hua Tian, University of Pittsburgh**

Varied functionality of Cluster SIMS



**Professor John Fletcher, University of Gothenburg**

Bio-analysis with the J105



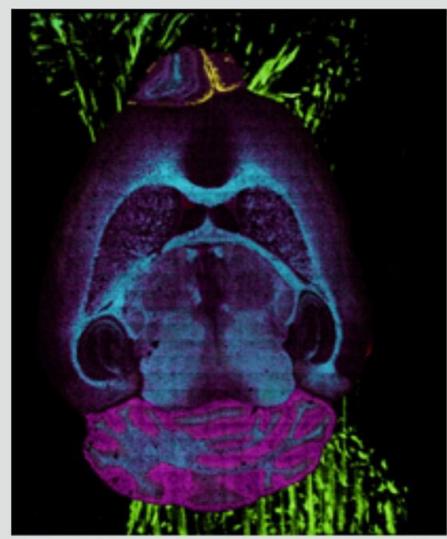
**Dr. Jay Tarolli, Ionpath**

MIBI: Lanthanide Labelled Antibodies for Spatial Proteomics with ToF-SIMS



**Dr. Naoko Sano, Ionoptika**

New applications of the J Series III



Data courtesy of the Rosalind Franklin Institute. Collected by Matija Lagator and processed by Ionoptika.



## MONDAY, SEPTEMBER 9<sup>TH</sup> – MORNING

### 09:00 Opening Ceremony

*Prof. Jean-Marc Ogier (FR), President of La Rochelle University*

*Jean-François Fountaine (FR) – City Mayor of La Rochelle*

*Alain Brunelle (FR) – Conference Chair*

*Jean-Paul Barnes (FR) – Conference co-chair & Chair of the Scientific Committee*

**M. Crépeau Auditorium – Chairs : J-P. Barnes & E. Niehuis**

### 09:30 SIMS – All for one and one for all

**Plenary speaker, Alfred Benninghoven Award**

**I. Gilmore – NPL, Teddington (UK)**

**M. Crépeau Auditorium – Chairs : J-P. Barnes & D. Leonard**

### 10:30 CAMECA-AMETEK Platinum plenary talk

**10:50 Break 40'**

### BIO 1 / Biomaterials, life science and biotechnology, tissue imaging

**M. Crépeau Auditorium**

*Chairs: H. Tian & F. Green*

### 11:30 #254 - GCIB-ToF-SIMS studies of skin cancer and its progression

**J. Fletcher, K. Sjögren Cehajic, K. Dimovska Nilsson, O. Zaar, D. Katsarelis, J. Paoli, R. Olofsson Bagge, N. Neittaanmäki**  
Univ. Gothenburg (SE)

### 11:50 #203 - Spinal cord injuries under the spotlight of ToF-SIMS

**X. Delvaux<sup>1</sup>, V. Bielarz<sup>1</sup>, A. Smits<sup>1</sup>, L. Houssiau<sup>2</sup>, C. Nicaise<sup>1</sup>**

<sup>1</sup> Namur Research Institute for Life Sciences, Univ. Namur (BE)

<sup>2</sup> Namur Institute of Structured Matter, Univ. Namur (BE)

### 12:10 #114 - Understanding in vivo topical permeation of cosmetics using SIMS

**A. Trzaska<sup>1</sup>, M. O'mahony<sup>2</sup>, N. Starr<sup>1</sup>, R. Griffiths<sup>1</sup>, M. Alexander<sup>1</sup>, D. Scurr<sup>1</sup>**

<sup>1</sup> Univ. Nottingham (UK)

<sup>2</sup> No7 Beauty Company, Walgreens Boots Alliance - Nottingham (UK)

### 12:30 #219 - Visualisation of drug distribution in skin using correlative optical spectroscopy and mass spectrometry imaging

**J-L. Vornig<sup>1</sup>, N. Belsey<sup>1</sup>, A. Dexter<sup>1</sup>, D. Tsikritys<sup>1</sup>, C. Nikula<sup>1</sup>, T. Murta<sup>1</sup>, M.V. Tiddia<sup>1</sup>, J. Zhang<sup>1</sup>, E. Gurdack<sup>1</sup>, G. Trindade<sup>1</sup>, I. Gilmore<sup>1</sup>, R. Guy<sup>2</sup>, M. Boncheva Bettex<sup>3</sup>**

<sup>1</sup> National Physical Laboratory - Teddington (UK)

<sup>2</sup> Department of Life Sciences, Univ. Bath - Teddington (UK)

<sup>3</sup> Haleon CH SARL - Teddington (UK)

**12:50 Lunch break**



## MONDAY, SEPTEMBER 9<sup>TH</sup> – MORNING

### ML 1 / Machine learning, data analysis

Hermione Room – Chairs: A. Henderson & B. Tyler

- 11:30 Cryo-OrbiSIMS enables integrative modelling of RNA structures at atomic resolution

**Keynote lecture**

**A. Borkar**

Univ. Nottingham (UK)

- 12:10 #201 - Applying machine learning to multiplexed acquisitions

**H. Arlinghaus<sup>1</sup>, D. Rading<sup>2</sup>, J. Zakei<sup>2</sup>, P. Pigram<sup>3</sup>, W. Gardner<sup>3</sup>, S. Bamford<sup>3</sup>, S.Y. Wong<sup>3</sup>, E. Niehuis<sup>2</sup>**

<sup>1</sup> IONTOF GmbH, Institut für Hygiene, Münster (DE)

<sup>2</sup> IONTOF GmbH, Münster (DE)

<sup>3</sup> Centre for Materials and Surface Science, La Trobe Univ. - Melbourne (AU)

- 12:30 #136 - Applications of machine learning in ToF SIMS data analysis:  
quantitative analyses using physics-based and machine-learning approaches

**A. Walker, L. Gelb**

Univ. Texas at Dallas - Richardson (US)

### GEO 1 / Geology, geo-and cosmochemistry, archaeology, environment

Victory Room

Chairs: L. Rémusat & J. Matsuo

- 11:30 Utilizing dynamic SIMS for isotopic analysis of terrestrial and extraterrestrial materials

**Keynote lecture**

**C.E. Jilly<sup>1,2</sup>**

<sup>1</sup> Department of Earth and Planetary Sciences, Stanford Univ., Stanford CA (US)

<sup>2</sup> Stanford Nano Shared Facilities, Stanford Univ., Stanford CA (US)

- 12:10 #118 - Matrix effects in MeV SIMS for detection of synthetic organic pigments in different binding media

**M. Krmpotic<sup>1</sup>, D. Jembrih-Simbürger<sup>2</sup>, T. Raicu<sup>2</sup>, Z. Siketic<sup>1</sup>, M. Matijevic<sup>1</sup>, I. Bogdanovic Radovic**

<sup>1</sup> Laboratory for Ion Beam Interactions, Rudjer Boskovic Institute, Zagreb (HR)

<sup>2</sup> Institute for Natural Sciences and Technology in the Arts, Academy of Fine Arts Vienna, Vienna (AT)

- 12:30 #101 - Towards a higher temporal resolution for decoding oxygen isotopic signatures of pearl mussel shell used as a long-term hydrological recorder

**N. Valle<sup>1</sup>, C. Gey<sup>2</sup>, F. Thielen<sup>3</sup>, B. El Adib<sup>1</sup>, E. Deloule<sup>4</sup>, B.R. Schöne<sup>2</sup>, L. Pfister<sup>5,6</sup>**

<sup>1</sup> Dpt. Materials Research and Technology, LIST, Belvaux (LU)

<sup>2</sup> Institute of Geosciences, Univ. Mainz (DE)

<sup>3</sup> Natur&ëmwelt Fondation Héllef Fir d'Natur, Marnach (LU)

<sup>4</sup> Centre de Recherches Pétrographiques et Géochimiques, Vandoeuvre-lès-Nancy (FR)

<sup>5</sup> Dpt. Environmental Research and Innovation, LIST, Belvaux (LU)

<sup>6</sup> Univ. Luxembourg, Faculty of Science, Technology, and Medicine, Esch/Alzette (LU)

12:50 **Lunch break**



## MONDAY, SEPTEMBER 9<sup>TH</sup> – AFTERNOON

### COMP 1 / Analysis of complex samples, depth profiling and imaging

M. Crépeau Auditorium

Chairs: C. Courrèges & A. Bejjani

- 14:40 Advanced physico-chemical characterization of complex systems for microelectronics:  
innovative SIMS-based approaches

**Keynote lecture**

**V. Spampinato**

Department of Chemical Sciences, Univ. Catania (IT)

- 15:20 #105 - Analysis of thin EUV photoresist films with MeV gold nanoparticles

**I. Ribaud<sup>1</sup>, D. Jacquet<sup>1</sup>, T.H. Lai<sup>1</sup>, V. Spampinato<sup>2</sup>, A. Franquet<sup>2</sup>, S. Della-Negra<sup>1</sup>**

<sup>1</sup> IJCLab, UMR9012 – CNRS / Univ. Paris-Saclay / Univ. Paris Cité - Orsay (FR)

<sup>2</sup> IMEC - Leuven (BE)

- 15:40 #151 - SIMS analysis of an oxide thin film with continuous composition gradient

**J. Scola<sup>1</sup>, F. Jomard<sup>1</sup>, J. Wolfman<sup>2</sup>, B. Negulescu<sup>2</sup>, M.A. Pinault-Thaury<sup>1</sup>**

<sup>1</sup> Univ. Paris-Saclay, UVSQ, CNRS, GEMaC - Versailles (FR)

<sup>2</sup> Univ. Tours, CNRS, Laboratoire GREMAN - Tours (FR)

- 16:00 #083 - Boron depth profile in silicon with a ToF-SIMS using low energy O<sub>2</sub><sup>+</sup> beam: effect of the Bi LMIG energy and clustering on depth resolution

**J. Lavie<sup>1</sup>, J.M. Hartmann<sup>2</sup>, M. Juhel<sup>1</sup>**

<sup>1</sup> STMicroelectronics - Crolles (FR)

<sup>2</sup> CEA LITEN - Crolles (FR)

16:20

**Break 40'**

### COMP 2 / Analysis of complex samples, depth profiling and imaging

M. Crépeau Auditorium

Chairs: L. Weng & G. Ceccone

- 17:00 Digging into the depth of molecule coated oxide nanostructures - routes to analyse hybrid organic-inorganic nanomaterials

**Keynote lecture**

**M.S. Killian**

Chemistry and Structure of Novel Materials, Univ. Siegen (DE)

- 17:40 #017 - In situ experiments and probing measurement artifacts when profiling hybrid organic-inorganic perovskite materials

**S. Harvey, F. Yang, K. Zhu**

National Renewable Energy Laboratory - Golden, CO (US)

- 18:00 #033 - P3HT multilayer sputtering: molecular dynamics insights into low-energy monoatomic projectile interactions

**S. Louerdi<sup>1</sup>, T. Mouhib<sup>2</sup>, M. Kański<sup>1</sup>, Z. Postawa<sup>1</sup>**

<sup>1</sup> Jagiellonian Univ., Faculty of Physics, Astronomy and Applied Computer Science - Krakow (PL)

<sup>2</sup> Hassan First Univ. Settat, Ecole Nationale des Sciences Appliquées, LISA Lab. - Berrechid (MA)

- 18:20 #234 - Recent applications of ToF-SIMS analysis on new electrochemical energy conversion materials

**X. Sun, Z. Wang, D. Guan, Z. Lin, W. Rickard**

Curtin Univ. - Perth (AU)



Last update: 11 September 2024

## MONDAY, SEPTEMBER 9<sup>TH</sup> – AFTERNOON

### FUN 1 / Fundamental science

### Hermione Room – Chairs: A. Henss & A. Delcorte

- 14:40 #041 - Further elucidation of secondary ion formation mechanisms via secondary ion angular distributions

**A. Spool<sup>1</sup>, L. Finney<sup>2</sup>**

<sup>1</sup> Western Digital, Retired (US) - <sup>2</sup> Western Digital (US)

- 15:00 #067 - Study on the properties of ionization yield of sputtered neutral atoms in dual-laser secondary neutral mass spectrometry (SNMS)

**R. Saito<sup>1,2</sup>, M. Morita<sup>2</sup>, H. Yabuhara<sup>1</sup>, T. Sakamoto<sup>2</sup>**

<sup>1</sup> Toshiba corporation, Yokohama (JP) - <sup>2</sup> Kogakuin Univ. – Hachioji (JP)

- 15:20 #084 - Theoretical insights into the structure of water cluster projectiles and their mechanism of operation

**M. Kański, Z. Postawa**

Jagiellonian Univ., Smoluchowski Institute of Physics - Kraków (PL)

- 15:40 #065 - Co-sputtering EXLIE SIMS concept, challenges for surface state control under dynamic SIMS conditions

**A. Merkulov**

IMEC - Leuven (BE)

- 16:00 #075 - Fragmentation-free deposition of organic molecules based on cluster-induced desorption for detailed analysis of surface-mediated and on-surface reactions

**M. Dürr, K. Pluschke, A. Herrmann**

Justus Liebig Univ. - Giessen (DE)

16:20

*Break 40'*



## MONDAY, SEPTEMBER 9<sup>TH</sup> – AFTERNOON

**BIO 2 / Biomaterials, life science and biotechnology, tissue imaging**

**Hermione Room**

*Chairs: M. Alexander & A. Kotowska*

- 17:00 #227 - Single-cell spatial biology using dual SIMS for cell-type-specific omics in tissue microenvironment  
**H. Tian**  
Univ. Pittsburgh (US)

- 17:20 #240 - High resolution ToF-SIMS imaging for subcellular profiling of a snow microalga  
**C. Seydoux<sup>1</sup>, J. Ezzedine<sup>2</sup>, G. Si Larbi<sup>2</sup>, S. Ravanel<sup>2</sup>, E. Maréchal<sup>2</sup>, J.P. Barnes<sup>3</sup>, P.H. Jouneau<sup>1</sup>**

<sup>1</sup> Laboratoire Modélisation et Exploration des Matériaux, CEA, UGA; IRIG, Grenoble (FR)

<sup>2</sup> Laboratoire de Physiologie Cellulaire et Végétale, CNRS, INRAE, CEA, UGA; IRIG, Grenoble (FR)

<sup>3</sup> Univ. Grenoble Alpes, CEA, Leti, Grenoble (France)

- 17:40 #116 - A novel approach to understanding parasite nutrient uptake and metabolism at a subcellular scale: Nanoscale Secondary Ion Mass Spectrometry  
**M. Turner, K. Moore, K. Else**  
Univ. Manchester (UK)

- 18:00 #237 - Fine particulate matter effects on human bronchial epithelial cells using 2D and 3D ToF-SIMS imaging  
**M. Noun<sup>1</sup>, R. El Annan<sup>2</sup>, A. Brunelle<sup>3</sup>, J.P. Salvat<sup>4</sup>, S. Villette<sup>2</sup>, I. Abbas<sup>1</sup>, A. Verdin<sup>5</sup>, G. Badran<sup>6</sup>, M. Roumie<sup>1</sup>, S. Lecomte<sup>2</sup>**

<sup>1</sup> Lebanese Atomic Energy Commission, CNRS-L, Beirut (LB)

<sup>2</sup> Univ. Bordeaux, CNRS, Bordeaux INP, CBMN, UMR 5248, Pessac (FR)

<sup>3</sup> Sorbonne Univ., CNRS, Laboratoire d'Archéologie Moléculaire et Structurale (LAMS), Paris (FR)

<sup>4</sup> Placamat, UAR 3626, CNRS, Univ. Bordeaux, Pessac (FR)

<sup>5</sup> Univ. Littoral Côte d'Opale, UCEIV UR4492, Dunkerque (FR)

<sup>6</sup> Univ. Paris-Saclay, INSERM, Inflammation microbiome immunosurveillance, Orsay (FR)

- 18:20 #042 - Secondary Ion Mass Spectrometry analysis of glycosaminoglycans within biological samples  
**A. Hook**  
Univ. Nottingham (UK)



Last update: 11 September 2024

## MONDAY, SEPTEMBER 9<sup>TH</sup> – AFTERNOON

### GEO 2 / Geology, geo-and cosmochemistry, archaeology, environment

**Victory Room**

Chairs: P. Van der Heide & Y. Lee

- 14:40 ToF-SIMS imaging of heritage materials: tackling analytical limitations to widen the interdisciplinary impact

**Keynote lecture**

**C. Bouvier**

*Maastricht MultiModal Molecular Imaging Institute (M4i), Maastricht Univ. (NL)*

- 15:20 #156 - NanoSIMS investigation of the H and N isotope composition of the macromolecular organic matter of the asteroid Ryugu

**L. Rémusat, M. Verdier-Paoletti, S. Mostefaoui**

*IMPMC UMR CNRS 7590 - MNHN - Paris (FR)*

- 15:40 #078 - Characterization of the nuclear material at the micrometric scale using Large Geometry-Secondary Ion Mass Spectrometry: a powerful tool for nuclear safeguards

**A-L. Fauré, M. Cornaton, F. Pointurier**

*CEA - Arpajon (FR)*

- 16:00 #103 - Nano-scale imaging of multi-isotope ratios in radionuclide-bearing phases

**L. Darricau<sup>1</sup>, J. Aleon<sup>2</sup>, V. Sellier<sup>1</sup>, A. Mangeret<sup>1</sup>, J. Gorny<sup>1</sup>, N. Ait-Ouabbas<sup>1</sup>,**

**L. Garcia-Sanchez<sup>3</sup>, D. Suhard<sup>4</sup>, G. Montavon<sup>5</sup>, A. Gourgiotis<sup>1</sup>**

<sup>1</sup> IRSN, PSE-ENV/SPDR/LT2S - Fontenay-aux-Roses (R)

<sup>2</sup> IMPMC, Sorbonne Univ., Museum National d'Histoire Naturelle, CNRS UMR7590 - Paris (FR)

<sup>3</sup> IRSN, PSE-ENV/SPDR/LT2S - Saint-Paul-lez-Durance (FR)

<sup>4</sup> IRSN, PSE-SANTE/SESANE/LRSI - Fontenay-aux-Roses (FR)

<sup>5</sup> Laboratoire SUBATECH, UMR 6457, IMT Atlantique/Univ. Nantes/CNRS/IN2P3 - Nantes (FR)

16:20

**Break 40'**

### HRES 1 / High mass/lateral resolution analysis

**Victory Room – Chairs: N. Valle & M. Rohnke**

- 17:00 From atomic layers, 3D nanostructures to full wafer thickness – the versatility of the SIMS technique

**Keynote lecture**

**P.P. Michałowski**

*Łukasiewicz Research Network – Institute of Microelectronics and Photonics, Warsaw (PL)*

- 17:40 #055 - High-resolution imaging and high-throughput data acquisition on a FIB instrument equipped with a magnetic sector SIMS

**J-N. Audinot, O. De Castro, A. Biesemeier, Q.H. Hoang, T. Wirtz**

*Luxembourg Institute of Science and Technology - Belvaux (LU)*

- 18:00 #182 - Large scale high resolution cryo imaging of Zebrafish by water Cluster Secondary Ion Mass Spectrometry (Cluster SIMS)

**M. Mills<sup>1</sup>, E. Lau<sup>2</sup>, M. Bailey<sup>2</sup>, K. McHardy<sup>1</sup>**

<sup>1</sup> Ionoptika - Chandlers Ford (UK)

<sup>2</sup> Univ. Surrey - Guildford (UK)



## TUESDAY, SEPTEMBER 10<sup>TH</sup> – MORNING

### CORR 1 / Correlative analysis or multitechnique analysis

M. Crépeau Auditorium

Chairs: R.M.A. Heeren & E. De Vito

- 08:30 Big pixels can be beautiful too... MALDI MSI sheds new light on plant cell walls

#### **Keynote lecture**

**H. Rogniaux<sup>1,2</sup>**

<sup>1</sup> INRAE, UR1268 BIA, Nantes (FR)

<sup>2</sup> INRAE, PROBE research infrastructure, BIBS facility, Nantes (FR)

- 09:10 #085 - Correlated cryo-EM and cryo-FIB-SIMS enables spatial and chemical imaging of biological specimens

**H. Ochner, B. Isbilir, A. Tarafder, Z. Wang, I. Caspy, T. Bharat**

Laboratory of Molecular Biology - Cambridge (UK)

- 09:30 #062 - Improving the analysis of biological samples incorporating nanoparticles by multimodal imaging and mass spectrometry applied on focused ion beam instrumentation

**A. Bieseimer<sup>1</sup>, O. De Castro<sup>1</sup>, T. Taubitz<sup>1,2</sup>, Z. Berro<sup>3</sup>, Z. Berro<sup>4</sup>, E. Moschini<sup>5,6</sup>, J.N. Audinot<sup>1</sup>, T. Wirtz<sup>1</sup>**

<sup>1</sup> Materials Research and Technology Department, LIST - Belvaux (LU)

<sup>2</sup> Dpt. of Structural Biochemistry, Max Planck Institute of Molecular Physiology - Dortmund (DE)

<sup>3</sup> LIST - Belvaux (LU)

<sup>4</sup> Univ. Luxembourg - Belval Esch-sur-Alzette (LU)

<sup>5</sup> Environmental Research and Innovation (ERIN) Department, LIST - Belvaux (LU)

<sup>6</sup> Heriot-Watt Univ. - Edinburgh (UK)

- 09:50 #089 - Correlative ToF-SIMS and in-situ AFM studies on 2D Transition Metal Dichalcogenides (TMD)

**R. Tilmann<sup>1</sup>, A. Franquet<sup>1</sup>, S. Heiserer<sup>2</sup>, G.S. Duesberg<sup>2</sup>, J. Serron<sup>1</sup>, A. Minj<sup>1</sup>, T. Hantschel<sup>1</sup>, P. Van Der Heide<sup>1</sup>, V. Spampinato<sup>3</sup>**

<sup>1</sup> IMEC - Leuven (BE)

<sup>2</sup> Univ. Bundeswehr Munich - Munich (DE)

<sup>3</sup> UNICT - Catania (IT)

- 10:10 #036 - Simultaneous molecular and elemental Imaging: MeV SIMS and heavy ion PIXE in sequential analysis

**Z. Siketic, I. Bogdanovic Radovic, M. Masekane, M. Krmpotic, M. Matijevic**

Ruder Boskovic Institute - Zagreb (Croatia)

10:30

**Break 40'**

11:10 Poster session 1 until 12:30

12:30 **Lunch break**

13:30 Poster session 1 until 15:00

14:00- 14:45 Workshops RAITH (Hermione Room) & CAMECA-AMETEK (Victory Room)



## TUESDAY, SEPTEMBER 10<sup>TH</sup> – MORNING

INST 1 / Instrumentation & novel ion beams

Hermione Room

Chairs: J-N. Audinot & A-S. Robbes

- 08:30 A fundamental study of small proteins using Gas Cluster Ion Beam Secondary Ion Mass Spectrometry (GCIB-SIMS) – multiple charging and projectile effects

**Keynote lecture**

**N. Lockyer<sup>1</sup>, S. Sheraz<sup>1</sup>, M. Lagator<sup>2</sup>, H. Tian<sup>3</sup>, F. Green<sup>2</sup>**

<sup>1</sup>Department of Chemistry, Photon Science Institute, Univ. Manchester (UK)

<sup>2</sup>Rosalind Franklin Institute, Harwell Campus - Didcot (UK)

<sup>3</sup>Univ. Pittsburgh (US)

- 09:10 #099 - CO<sub>2</sub>/Ar gas cluster ion beam combined with high-mass resolution OrbiSIMS imaging

**A. Eyres<sup>1,2</sup>, C.L. Newell<sup>1,3</sup>, J.L. Vorng<sup>1</sup>, A.P. Gould<sup>3</sup>, I.S. Gilmore<sup>1</sup>**

<sup>1</sup>National Physical Laboratory, Hampton Road, Teddington, London (UK)

<sup>2</sup>Univ. Oxford, Chemistry Research Laboratory, Department of Chemistry, Oxford (UK)

<sup>3</sup>The Francis Crick Institute - London (UK)

- 09:30 #035 - Augmenting the performances of nanoprojectile SIMS using a 64 anodes detector

**P. Hirchenhahn<sup>1</sup>, D. Verkhoturov<sup>1</sup>, S. Verkhoturov<sup>1</sup>, M. Eller<sup>2</sup>, E. Schweikert<sup>1</sup>**

<sup>1</sup>Department of Chemistry - College Station (US)

<sup>2</sup>Department of Chemistry and Biochemistry - Northridge (US)

- 09:50 #051 - Magnetic sector SIMS systems for FIB platforms: new developments, applications, and prospects

**T. Wirtz, O. De Castro, H. Hoang, A. Biesecker, S. Eswara, J.N. Audinot**

LIST Belvaux (LU)

- 10:10 #229 - Primary ion source developments at Arizona State University

**P. Williams, M. Bose, L. Nittler, R. Hervig**

Arizona State Univ. - Tempe (US)

10:30

**Break 40'**

11:10 Poster session 1 until 12:30

12:30 **Lunch break**

13:30 Poster session 1 until 15:00

14:00-14:45 Workshops **RAITH** (Hermione Room) & **CAMECA-AMETEK** (Victory Room)



## TUESDAY, SEPTEMBER 10<sup>TH</sup> – MORNING

### FUN 2 / Fundamental science

Victory Room – Chairs: T. Fu & E. Schweikert

- 08:30 Nanoscale molecular analysis with nano-projectile SIMS  
**Keynote lecture**  
**M.J. Eller**  
*Department of Chemistry and Biochemistry, California State Univ. Northridge (US)*
- 09:10 #166 - Emission of velocity correlated secondary cluster ions following surface impact with fullerene ions  
**E. Kolodney, E. Armon, A. Bekerman, V. Bernstein, B. Tsipinyuk**  
*Schulich Faculty of Chemistry, Technion - Israel Institute of Technology - Haifa (IL)*
- 09:30 #153 - ToF-SIMS and SS-NMR: a powerful combination to unravel the self-degradation mechanism of organophosphonic acid grafted titanium dioxide under humid storage conditions  
**K. Marcoen<sup>1</sup>, N. Gys<sup>2</sup>, B. Pawlak<sup>3</sup>, E. Derveaux<sup>3</sup>, L. Luntadila Lufungula<sup>4</sup>, L. Siemons<sup>4</sup>, B. Michielsen<sup>5</sup>, F. Blockhuys<sup>4</sup>, P. Adriaensens<sup>3</sup>, S. Mullens<sup>5</sup>, V. Meynen<sup>2</sup>, T. Hauffman<sup>1</sup>**  
<sup>1</sup> Vrije Univ. Brussel, Dpt. Materials and Chemistry (BE)  
<sup>2</sup> Univ. Antwerp, Flemish Institute for Technological Research (VITO NV) (BE)  
<sup>3</sup> Hasselt Univ., MATCHEM, Analytical and Circular Chemistry (ACC) (BE)  
<sup>4</sup> Univ. Antwerp, Department of Chemistry, Structural Chemistry Group (BE)  
<sup>5</sup> Flemish Institute for Technological Research (VITO NV) (BE)
- 09:50 #074 - Exploring the role of depth in SIMS signal detection for deuterium-implanted fusion matrices  
**G. Delgado Soria, M. González Viada**  
*CIEMAT - Madrid (ES)*
- 10:10 #072 - Soft and reactive landing of a protein (neurotensin) cluster: the effect of collision's parameters  
**S. Bertolini, A. Delcorte**  
*UCLouvain - Louvain-La-Neuve (BE)*
- 10:30 **Break 40'**
- 11:10 Poster session 1 until 12:30
- 12:30 **Lunch break**
- 13:30 Poster session 1 until 15:00
- 14:00-14:45 Workshops **RAITH** (Hermione Room) & **CAMECA-AMETEK** (Victory Room)



Last update: 11 September 2024

## TUESDAY, SEPTEMBER 10<sup>TH</sup> – AFTERNOON

### BIO 3 / Biomaterials, life science and biotechnology, tissue imaging

M. Crépeau Auditorium

Chairs: J. Fletcher & C. Seydoux

- 15:00 Unlocking the potential of high-volume SIMS data with molecular formula prediction

**Keynote lecture**

**A. Kotowska**

*Univ. Nottingham (UK)*

- 15:40 #217 - Nanoscale co-localization analysis of tagged proteins and lipids on individual extracellular vesicles by nano-projectiles SIMS

**D. Verkhoturov<sup>1</sup>, S. Lee<sup>2</sup>, T.Q. Nguyen<sup>2</sup>, D. Choi<sup>2</sup>, M. Eller<sup>3</sup>, S. Verkhoturov<sup>1</sup>, K. Gwon<sup>2</sup>, F. Lucien<sup>2</sup>, H. Malhi<sup>2</sup>, A. Revzin<sup>2</sup>, E.A. Schweikert<sup>1</sup>**

<sup>1</sup> Texas A&M University - College Station (US)

<sup>2</sup> Mayo Clinic - Rochester (US)

<sup>3</sup> California State University Northridge - Northridge (US)

- 16:00 #147 - Development of an evaluation method for ligand conjugation and existence of free ligands in solution of nano-sized and micro-sized particles using ToF-SIMS images and statistical analysis

**H. Shon, T.G. Lee, J.G. Son**

*Korea Research Institute of Science and Technology - Daejeon (KR)*

- 16:20 #068 - Gas Cluster Ion Beam (GCIB)-assisted deposition applications

**B. Tomasetti, M. Lakhdar, C. Dupont, C. Lauzin, A. Delcorte**

*UC Louvain (BE)*

16:40

**Break 40'**

### BIO 4 / Biomaterials, life science and biotechnology, tissue imaging

M. Crépeau Auditorium

Chairs: A. Hook & P. Sjövall

- 17:20 Revealing trace element and stable isotope subcellular distributions in biological materials with high resolution SIMS

**Keynote lecture**

**K. Moore<sup>1</sup>, S. Sheraz<sup>2</sup>, J. Dinsley<sup>1</sup>, M. Turner<sup>1</sup>, M. Burkitt-Gray<sup>2</sup>, K. Else<sup>1</sup>, J. Balk<sup>3</sup>**

<sup>1</sup> Univ. Manchester (UK)

<sup>2</sup> Kings College London - London (UK)

<sup>3</sup> John Innes Centre - Norwich (UK)

- 18:00 #187 - Cryo-3D MSI for plant cells by water Cluster Secondary Ion Mass Spectrometry (Cluster SIMS)

**M. Ryszka, N. Sano, M. Mills, K. McHardy, P. Blenkinsopp**

*Ionoptika Ltd - Chandlers Ford (UK)*

- 18:20 #150 - ToF-SIMS imaging coupled with immunostaining methods

**K. Garcia, M. Shamraeva, R.M.A. Heeren, S. Van Nuffel**

*Maastricht MultiModal Molecular Imaging Institute – M4i - Maastricht (NL)*



## TUESDAY, SEPTEMBER 10<sup>TH</sup> – AFTERNOON

### COMP 3 / Analysis of complex samples, depth profiling and imaging

Hermione Room

Chairs: V. Spampinato & T. Terlier

- 15:00 #209 - ToF-SIMS chemical mapping for insight into early 1900s historical photographic films  
**N. Tuccitto, V. Spampinato, A. Auditore, A. Torrisi, A. Licciardello**  
Univ. Catania - Catania (IT)
- 15:20 #251 - ToF-SIMS imaging analysis to determine Cognac barrels oak wood interaction with specific fungi  
**A. Cournut<sup>1</sup>, T. Herrera Durigneux<sup>2</sup>, Q.P. Vanbellingen<sup>1</sup>, A. Demaye<sup>2</sup>, J. Kokesch-Himmelreich<sup>3</sup>, P. Walter<sup>1</sup>, A. Römpf<sup>3</sup>, D. Touboul<sup>4</sup>, V. Eparvier<sup>2</sup>, A. Brunelle<sup>1</sup>**  
<sup>1</sup> Sorbonne Univ., CNRS, LAMS - Paris (FR) - <sup>2</sup> Univ. Paris-Saclay, CNRS, ICSN - Gif-sur-Yvette (FR)  
<sup>3</sup> Univ. Bayreuth, BSFA - Bayreuth (DE) - <sup>4</sup> Ecole Polytechnique, CNRS, LCM - Palaiseau (FR)
- 15:40 #064 - Novel Zircaloy nanomaterials with antibacterial activity  
**G. Onyenso, M. Killian**  
Univ. Siegen (DE)
- 16:00 #256 - Macroscale nanocontainers: innovation in functional coatings or additional superfluous roughness?  
**S. Vakamulla Raghu<sup>1</sup>, P. Hartwich<sup>1</sup>, A. Patalas<sup>2</sup>, M.S. Killian<sup>1</sup>**  
<sup>1</sup> Univ. Siegen (DE) - <sup>2</sup> Poznan Univ. of Technology - Poznan (PL)
- 16:20 #211 - Benefits of high energy per nuclei (E/N) using small cluster size at 70 keV beams in 3D SIMS analysis for challenging analytes  
**N. Sano, K. McHardy, P. Blenkinsopp**  
Ionoptika LTD. - Chandler's Ford (UK)

16:40

**Break 40'**

### CORR 2 / Correlative analysis or multitechnique analysis

Hermione Room

Chairs: A. Galtayries & I. Gilmore

- 17:20 #189 - Surface Analysis of Nanolayers by LEIS, SIMS and XPS  
**B. Hagenhoff<sup>1</sup>, J. Tröger<sup>1,2</sup>, D. Heller-Krippendorff<sup>1</sup>, D. Breitenstein<sup>1</sup>**  
<sup>1</sup> Tascon GmbH - Münster (DE) - <sup>2</sup> Univ. Münster (DE)
- 17:40 #027 - ToF-SIMS and XPS coupled characterization of HgCdTe surface oxides for infrared detection applications  
**S. Bel, C. Lobre, S. Petit, M. Veillerot, G. Badano**  
Univ. Grenoble Alpes, CEA, Leti, Grenoble (FR)
- 18:00 #029 - Correlated microscope/ToF-SIMS imaging mass spectrometry with continuous C60 ion beam  
**H. Li, P. Chen, Y. Chen**  
Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian (CN)
- 18:20 #079 - Way to understand the functional thin films formation in static and dynamic conditions and its co-dependency with topography – Poly(4-vinylpyridine)-CoBr<sub>2</sub> complex case study  
**J. Chudzik<sup>1,2</sup>, P. Dąbczyński<sup>2</sup>, J. Rysz<sup>2</sup>, S. Tymetska<sup>1</sup>, A.M. Majcher-Fitas<sup>2</sup>**  
<sup>1</sup> Jagiellonian Univ., Doctoral School of Exact and Natural Sciences, Krakow (PL)  
<sup>2</sup> Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian Univ., Krakow (PL)



## TUESDAY, SEPTEMBER 10<sup>TH</sup> – AFTERNOON

### IND 1 / Industrial applications (bio, organic, and inorganic)

**Victory Room**

*Chairs: D. Rading & Y. Hou*

- 15:00 How to leverage atom probe tomography to address characterization challenges in the semiconductor industry

**Keynote lecture**

**C. Fleischmann<sup>1,2</sup>**

<sup>1</sup> IMEC, Leuven (BE)

<sup>2</sup> Quantum Solid State Physics Group, KU Leuven (BE)

- 15:40 #034 - Practical Ar+ GCIB in-situ ToF-SIMS cross sectioning

**D. Carr, S. Hanson**

3M Corporate Research Analytical Lab - St. Paul (US)

- 16:00 #095 - ToF-SIMS characterization of iron-based metal-organic frameworks as mediators in persulfate-activated degradation of pharmaceutical factory effluents in water

**A. Bejjani<sup>1</sup>, B. Nsouli<sup>1</sup>, R. El Asmar<sup>2</sup>, Z. Abou Khalil<sup>2</sup>, A. Baalbaki<sup>2</sup>, A. Ghauch<sup>2</sup>**

<sup>1</sup> Lebanese Atomic Energy Commission-NCSR, Beirut (LB)

<sup>2</sup> American Univ. Beirut, Faculty of Arts and Sciences, Department of Chemistry - Beirut (LB)

- 16:20 #100 - Native state characterisation of lubricating grease using a multi-technique approach

**X. Wang<sup>1</sup>, D.S.A. De Focatiis<sup>1</sup>, D.J. Scurr<sup>2</sup>, D.J. Irvine<sup>1</sup>**

<sup>1</sup> Univ. Nottingham, Faculty of Engineering, Nottingham (UK)

<sup>2</sup> Univ. Nottingham, School of Pharmacy, Nottingham (UK)

16:40

**Break 40'**

### ML 2 / Machine learning, data analysis

**Victory Room – Chairs: P. Pigram & M. Kraft**

- 17:20 Data mining from rich SIMS data using machine learning

**Keynote lecture**

**S. Aoyagi**

Seikei Univ. - Tokyo (JP)

- 18:00 #242 - FAIRspectra: towards a standard data file format for SIMS images

**A. Henderson**

Univ. Manchester (UK)

- 18:20 #198 - A new algorithm for improved automated segmentation of mass spectrometry images

**B. Tyler, R. Kassenböhmer, R.E. Peterson, H.F. Arlinghaus**

Institute of Physics, Univ. Münster (DE)



## WEDNESDAY, SEPTEMBER 11<sup>TH</sup>

### M. Crépeau Auditorium – Chairs: J-P. Barnes & A. Brunelle

08:30 Mass spectrometry imaging and innovations in spatial biology

**Plenary speaker**

R.M.A. Heeren

*M4i - Maastricht Multimodal Molecular Institute, IMS, Maastricht Univ., Maastricht (NL)*

### M. Crépeau Auditorium – Chairs: J-P. Barnes & A. Brunelle

09:30 IONTOF Platinum plenary talk

09:50 **Break 40'**

### M. Crépeau Auditorium – Chair: A. Brunelle

10:30 Conclusions of SIMS-24

10:45 Presentation of SIMS-25 (2026)

11:00 Presentation of SIMS Europe (2025), North America SIMS Workshop (2025) & CQLMNS 2025

11:15 Tribute to G. Slodzian in his presence

11:35 Conference photo

12:00 **Lunch break (boxes)**

13:30 Social program (booking mandatory)

#1 Boat trip to “Fort Boyard”

#2 Aquarium

#3 Maritime museum

#4 Guided walking tour of the La Rochelle city

18:30 Conference dinner (until 23:00)



## THURSDAY, SEPTEMBER 12<sup>TH</sup> – MORNING

**BIO 5 / Biomaterials, life science and biotechnology, tissue imaging**

**M. Crépeau Auditorium**

*Chairs: K. Moore & A. Licciardello*

- 08:30 ToF-SIMS analysis of biological and fossil samples

**Keynote lecture**

**P. Sjövall**

*RISE Research Institutes of Sweden, Borås (SE)*

- 09:10 #171 - Tracking active fungicide mobility in wheat leaves with ToF-SIMS

**A. Ajith<sup>1</sup>, S. Sheraz<sup>1</sup>, D. Trivedi<sup>1</sup>, G.N. Johnson<sup>1</sup>, P.J. Milnes<sup>2</sup>, N.P. Lockyer<sup>1</sup>**

<sup>1</sup> Univ. Manchester (UK)

<sup>2</sup> Syngenta - Bracknell (UK)

- 09:30 #207 - Influence of primary ion species, cluster size and analysis temperature on the spectra of antibiotics in frozen aqueous sample systems

**M. Bäumer, T. Adolphs, R.E. Peterson, H.F. Arlinghaus, B.J. Tyler**

*Institute of Physics, Univ. Münster (DE)*

- 09:50 #204 - Lipidomics on immune-instructive polymers implanted subcutaneously using 3D OrbiSIMS

**A. Sabri<sup>1</sup>, A. Kotowska<sup>1</sup>, L. Fisher<sup>1</sup>, J. Mase<sup>2</sup>, C. Wong<sup>1</sup>, L. Kämmerling<sup>3</sup>, M. Price<sup>4</sup>, G. Figueiredo<sup>5</sup>, A. Ghaemmaghami<sup>5</sup>, M.R. Alexander<sup>5</sup>**

<sup>1</sup> Advanced Materials and Healthcare Technologies Division, School of Pharmacy, Univ. Nottingham (UK)

<sup>2</sup> School of Computer Science, Univ. Nottingham (UK)

<sup>3</sup> School of Life Sciences, Faculty of Medicine and Health Science, Univ. Nottingham (UK)

<sup>4</sup> Faculty of Engineering, Univ. Nottingham (UK)

<sup>5</sup> Health Data Science, Faculty of Medicine & Health Sciences, Univ. Nottingham (UK)

- 10:10 #224 - OrbiSIMS spatially resolves isomeric trisaccharides on surfaces

**G.F. Trindade, R. Patterson, B. Yan, J.L. Vorng, I. Gilmore**

*National Physical Laboratory - London (UK)*

10:30

**Break 40'**

11:10 Poster session 2 until 12:30

12:30 **Lunch break**

13:30 Poster session 2 until 15:00

14:00-14:45 Workshops IONOPTIKA (Hermione Room) & ORSAY PHYSICS (Victory Room)



## THURSDAY, SEPTEMBER 12<sup>TH</sup> – MORNING

### CORR 3 / Correlative analysis or multitechnique analysis

Hermione Room

Chairs: S. Aoyagi & A. levlev

- 08:30 #066 - Li isotopic tracing as a toolbox for the study of lithium mobility in battery materials  
**E. De Vito<sup>1</sup>, T. Meyer<sup>2</sup>, T. Gutel<sup>1</sup>, M. Berthault<sup>1</sup>, H. Manzanarez<sup>1</sup>, J. Almoric<sup>3</sup>, T. Genieys<sup>3</sup>, M. Bardet<sup>4</sup>**  
<sup>1</sup> Univ. Grenoble Alpes, CEA, DES, LITEN - Grenoble (FR)  
<sup>2</sup> Justus-Liebig-Univ. Giessen, IPC - Giessen (DE)  
<sup>3</sup> Orsay Physics, Tescan Group - Fuveau (FR)  
<sup>4</sup> Univ. Grenoble Alpes, CEA, DRF, IRIG - Grenoble (FR)
- 08:50 #053 - Nano-scale isotopic tracing of lithium in negative electrodes by FIB-SIMS  
**P. Delfino<sup>1</sup>, M. Bofanova<sup>2</sup>, E. De Vito<sup>3</sup>, N. Dupré<sup>2</sup>, G. Lamblin<sup>1</sup>, W. Porcher<sup>3</sup>, T. Wirtz<sup>1</sup>, J.N. Audinot<sup>1</sup>**  
<sup>1</sup> Luxembourg Institute of Science and Technology - Esch Sur Alzette (LU)  
<sup>2</sup> Nantes Univ., CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN - Nantes (FR)  
<sup>3</sup> Univ. Grenoble Alpes, CEA-Liten - Grenoble (FR)
- 09:10 #061 - Unlocking insights into lithium metal-solid polymer electrolyte interphase: advancements in battery analytics  
**A. Weiss, T. Weintraut, S.L. Benz, A. Henss**  
Institute of Physical Chemistry and Centre for Material Research, Justus Liebig Univ. Giessen (DE)
- 09:30 #208 - ToF-SIMS in-depth investigation of interphase between TiNb<sub>2</sub>O<sub>7</sub> electrode and electrolyte in Li-ion batteries  
**K. Ghamgui<sup>1</sup>, C. Courrèges<sup>1</sup>, A. Gajan<sup>2</sup>, H. Martinez<sup>3</sup>**  
<sup>1</sup> Pau et des Pays de l'Adour Univ., E2S UPPA, CNRS, IPREM - Pau (FR)  
<sup>2</sup> TOTAL-SAFT, Bordeaux (FR)  
<sup>3</sup> Centrale Casablanca, Research center for complex systems and interactions - Bouskoura (MA)
- 09:50 #180 - Correlative characterization of individual lead halide perovskite nanocrystals  
**T. Šamořil<sup>1</sup>, P. Liška<sup>2</sup>, T. Musálek<sup>3</sup>, M. Kratochvíl<sup>4</sup>, M. Horák<sup>3</sup>**  
<sup>1</sup> TESCAN GROUP - Brno (CZ)  
<sup>2</sup> Institute of Physical Engineering, FME, BUT - Brno (CZ)  
<sup>3</sup> CEITEC BUT - Brno (CZ)  
<sup>4</sup> Institute of Physical and Applied Chemistry, FCH, BUT - Brno (CZ)
- 10:10 #090 - ToF-SIMS characterization of gate-all-around devices  
**A. Franquet, R. Tilmann**  
IMEC - Leuven (BE)

10:30

**Break 30'**

11:10 Poster session 2 until 12:30

12:30 **Lunch break**

13:30 Poster session 2 until 15:00

14:00-14:45 Workshops IONOPTIKA (Hermione Room) & ORSAY PHYSICS (Victory Room)



## THURSDAY, SEPTEMBER 12<sup>TH</sup> – MORNING

**IND 2 / Industrial applications (bio, organic, and inorganic)**

**Victory Room**

*Chairs: C. Mahoney & M. Hopstaken*

- 08:30 Time-of-Flight Secondary Ion Mass Spectrometry of inorganic materials: understanding and quantification with more information to explore

**Keynote lecture**

**A.J. Fahey**

*Corning Research and Development Corporation, Corning NY (US)*

- 09:10 #021 - Using dynamic Secondary Ion Mass Spectrometry to advance the characterization of inkjet-printed localized polysilicon passivating contacts

**L. Créon<sup>1</sup>, J. Wang<sup>2</sup>, P. Phang<sup>2</sup>, J. Ren<sup>1</sup>, M. Adier<sup>1</sup>, B. Jablon<sup>1</sup>, P. Peres<sup>1</sup>**

<sup>1</sup> CAMECA - Gennevilliers (FR)

<sup>2</sup> Australian National Univ. - Canberra (AU)

- 09:30 #063 - Recent developments on a new shielded SIMS for the characterization of irradiated nuclear fuels

**P. Bienvenu, I. Roure**

*CEA, DES, IRESNE, DEC - Cadarache (FR)*

- 09:50 #046 - Investigation of hair repair mechanism by cryo-ToF-SIMS equipped with an Orbitrap analyzer

**Y. Hou<sup>1</sup>, J. Qiu<sup>1</sup>, Z. Tang<sup>2</sup>, Y. Yu<sup>2</sup>, L.T. Weng<sup>3</sup>**

<sup>1</sup> Materials Characterization and Preparation Facility (GZ), Hong Kong Univ., Guangzhou (CN)

<sup>2</sup> L'Oréal Research & Innovation, - Shanghai (CN)

<sup>3</sup> Materials Characterization and Preparation Facility (GZ), Thrust of Advanced Materials, Function Hub, Guangzhou Municipal Key Lab. of Materials Informatics, Hong Kong Univ., Guangzhou (CN)

- 10:10 #185 - ToF-SIMS applications for the characterization and recovery of critical minerals

**C. Hill-Svehla, B. Almusned, M. Biesinger**

*Surface Science Western, Univ. Western Ontario - London (CA)*

10:30

**Break 40'**

11:10 Poster session 2 until 12:30

12:30 **Lunch break**

13:30 Poster session 2 until 15:00

14:00-14:45 Workshops IONOPTIKA (Hermione Room) & ORSAY PHYSICS (Victory Room)



Last update: 11 September 2024

## THURSDAY, SEPTEMBER 12<sup>TH</sup> – AFTERNOON

### COMP 4 / Analysis of complex samples, depth profiling and imaging

M. Crépeau Auditorium

Chairs: M. Killian & S. Van Nuffel

- 15:20 #018 - Novel Strategies for the characterization of the battery materials by ToF-SIMS: from an in-situ exploration to an operando measurement  
**T. Terlier**  
*SIMS laboratory, Shared Equipment Authority, Rice Univ. - Houston (US)*
- 15:40 #134 - 3D ToF-SIMS imaging of polyethylene oxide-lithium nitrate electrolytes in Lithium-ion batteries  
**D.L. Hanley<sup>1</sup>, T. Zagorac<sup>1</sup>, M. Counihan<sup>2</sup>, R. Shavandi<sup>1</sup>, J. Lee<sup>2</sup>, Y. Zhang<sup>2</sup>, S. Tepavcevic<sup>2</sup>**  
<sup>1</sup> Univ. of Illinois - Chicago (US)  
<sup>2</sup> Argonne National Laboratory - Lemont (US)
- 16:00 #045 - ToF-SIMS to discover multielement two dimensional materials  
**C. Dai, C. Xu, W. Ren, L. Zhang**  
*Lab. for Materials Science, Institute of Metal Research, Chinese Academy of Sciences - Shenyang (CN)*
- 16:20 #124 - Surface analysis of TiO<sub>2</sub> nanoparticles using ToF-SIMS: the influence of sample preparation methods, studied in a VAMAS interlaboratory comparison  
**F. Bennet<sup>1</sup>, R. Opitz<sup>1</sup>, N. Ghoreishi<sup>1</sup>, K. Plate<sup>1</sup>, J.P. Barnes<sup>2</sup>, A. Bellew<sup>3</sup>, A. Belu<sup>4</sup>, G. Ceccone<sup>5</sup>, E. De Vito<sup>6</sup>, A. Delcorte<sup>7</sup>, A. Franquet<sup>8</sup>, F. Fumagalli<sup>5</sup>, D. Gilliland<sup>5</sup>, H. Jungnickel<sup>1</sup>, T.G. Lee<sup>9</sup>, C. Poleunis<sup>7</sup>, D. Rading<sup>10</sup>, H.K. Shon<sup>9</sup>, V. Spampinato<sup>8</sup>, J.G. Son<sup>9</sup>, F. Wang<sup>11</sup>, Y.C. Wang<sup>4</sup>, Y. Zhao<sup>11</sup>, A. Roloff<sup>1</sup>, J. Tentschert<sup>1</sup>, J. Radnik<sup>12</sup>**  
<sup>1</sup> Federal Institute for Risk Assessment - Berlin (DE)  
<sup>2</sup> Univ. Grenoble Alpes, CEA, Leti - Grenoble (FR)  
<sup>3</sup> Ionoptika Ltd. - Chandler's Ford (UK)  
<sup>4</sup> Medtronic Corporate Science & Technology - Minneapolis (US)  
<sup>5</sup> European Commission Joint Research Centre - Ispra (IT)  
<sup>6</sup> Univ. Grenoble Alpes, CEA, Liten - Grenoble (FR)  
<sup>7</sup> Univ. Catholique de Louvain, ICMN - Louvain-la-Neuve (BE)  
<sup>8</sup> IMEC - Leuven (BE)  
<sup>9</sup> Safety Measurement Institute, Korea Research Institute of Standard and Science - Daejeon (KR)  
<sup>10</sup> IONTOF Technologies GmbH - Münster (DE)  
<sup>11</sup> NCMS, Institute of Chemistry, Chinese Academy of Sciences - Beijing (CN)  
<sup>12</sup> Federal Institute for Materials Research and Testing - Berlin (DE)

16:40

**Break 40'**



Last update: 11 September 2024

## THURSDAY, SEPTEMBER 12<sup>TH</sup> – AFTERNOON

### COMP 5 / Analysis of complex samples, depth profiling and imaging

M. Crépeau Auditorium

Chairs: M. Shamraeva & Y. Zhao

- 17:20 #108 - Channeling proton implantation in 4H-SiC: coupling dynamic SIMS with DLTS defect profiling

**O. Samperi<sup>1</sup>, A. Azarov<sup>2</sup>, V. Bobal<sup>2</sup>, M. Cantiano<sup>3</sup>, M. Bertolini<sup>3</sup>, L. Vines<sup>2</sup>, S. Coffa<sup>3</sup>, M.E. Fragalà<sup>1</sup>**

<sup>1</sup> Univ. Catania, Department of Chemical Sciences, Catania (IT)

<sup>2</sup> Univ. Oslo, Centre for Material Science and Nanotechnologies, Oslo (NO)

<sup>3</sup> STMicroelectronics Catania, Catania (IT)

- 17:40 #030 - Advancing photocatalytic hydrogen production: the critical role of ToF-SIMS in the detection of single-atom catalysts on TiO<sub>2</sub> nanotubes

**S. Orangpour<sup>1</sup>, T. Kowald<sup>1</sup>, S. Hejazi<sup>1</sup>, S. Mohajernia<sup>2</sup>, M.S. Killian<sup>1</sup>**

<sup>1</sup> Chemistry and Structure of novel Materials, Univ. Siegen (DE)

<sup>2</sup> Chemical and Materials Engineering, Univ. Alberta (CA)

- 18:00 #159 - Investigation of signal loss as a consequence of analysis under high vacuum conditions

**M. Lagator<sup>1</sup>, N. Lockyer<sup>2</sup>, F. Green<sup>1</sup>**

<sup>1</sup> The Rosalind Franklin Institute - Didcot (UK)

<sup>2</sup> Univ. Manchester (UK)

- 18:20 #097 - The use of Time-Of-Flight Secondary Ion Mass Spectrometry to characterize ZnO@SiO<sub>2</sub> nanofertilizer translocation in tomato plants following foliar application

**S. Ghoshal, X. Gao, C. Henkel**

McGill Univ. – Montreal (CA)



Last update: 11 September 2024

## THURSDAY, SEPTEMBER 12<sup>TH</sup> – AFTERNOON

BIO 6 / Biomaterials, life science and biotechnology, tissue imaging

Hermione Room

Chairs: N.P. Lockyer & B. Hagenhoff

- 15:00 New generation of microscope mode Secondary Ion Mass Spectrometry imaging

**Keynote lecture**

**Y. Jia<sup>1</sup>, M.E. Castellani<sup>1,2</sup>, Z. Takats<sup>2</sup>, M. Burt<sup>1</sup>, M. Brouard<sup>1</sup>, F. Green<sup>1, 2</sup>**

<sup>1</sup> University of Oxford Department of Chemistry, Oxford (UK)

<sup>2</sup> Rosalind Franklin Institute (UK)

- 15:40 #253 - GCIB-SIMS studies of diffuse large B-cell lymphoma

**S. Uzonij<sup>1</sup>, D. Zanchin<sup>1</sup>, V. Chatzikyriakos<sup>2</sup>, N. Neittaanmäki<sup>2</sup>, J. Fletcher<sup>1</sup>**

<sup>1</sup> Dpt. of Chemistry and Molecular Biology, Univ. Gothenburg (SE)

<sup>2</sup> Dpt. of Laboratory Medicine, Institute of Biomedicine, Sahlgrenska Academy, Univ. Gothenburg (SE)

- 16:00 #132 - Mapping pollutant distribution in cells and tissues by NanoSIMS

**M. Subirana<sup>1</sup>, E. Gontier<sup>2</sup>, P. Ollivier<sup>3</sup>, L. Paton<sup>4</sup>, J. Feldmann<sup>4</sup>, I. Bakour<sup>1</sup>, M.P. Isaure<sup>1</sup>, D. Schaumlöffel<sup>1</sup>**

<sup>1</sup> CNRS /Univ. Pau et des Pays de l'Adour/E2S UPPA, IPREM, UMR 5254 - Pau (FR)

<sup>2</sup> Bordeaux Imaging Center, Imagerie Electronique, Univ. Bordeaux (FR)

<sup>3</sup> BRGM - Orleans (FR)

<sup>4</sup> TESLA-Analytical Chemistry, Institute of Chemistry, Univ. Graz (AT)

- 16:20 #200 - ToF-SIMS analyses of train brake particles in human epithelial Caco-2 cells

**R. Rydbergh<sup>1</sup>, L.M. Witte<sup>1</sup>, J. Sjöblom<sup>2</sup>, N. Scheers<sup>1</sup>, P. Malmberg<sup>3</sup>**

<sup>1</sup> Chalmers Univ. Technology, Department of Life Sciences - Gothenburg (SE)

<sup>2</sup> Chalmers Univ. Technology, Department of Chemistry and Chemical Engineering - Gothenburg (SE)

<sup>3</sup> Chalmers Univ. Technology, Department of Mechanics and Maritime Sciences - Gothenburg (SE)

16:40

**Break 40'**



Last update: 11 September 2024

## THURSDAY, SEPTEMBER 12<sup>TH</sup> – AFTERNOON

BIO 7 / Biomaterials, life science and biotechnology, tissue imaging

Hermione Room

Chairs: K. McHardy & A. Walker

- 17:20 #165 - 10 years of experience with a radio frequency oxygen plasma primary ion source on NanoSIMS for biological trace metal research  
**D. Schaumlöffel, I.H. Valido, M.A. Subirana**  
CNRS / Univ. Pau et des Pays de l'Adour, IPREM UMR 5254 - Pau (FR)
- 17:40 #120 - Structural, molecular and elemental analysis of human Locus coeruleus using correlative FIB-SIMS instruments  
**Z. Berro<sup>1</sup>, M. Subirana<sup>2</sup>, C. Warres<sup>3</sup>, F. Azucca<sup>4</sup>, L. Zecca<sup>4</sup>, T. Taubitz<sup>5</sup>, J.N. Audinot<sup>1</sup>, M. Mittelbronn<sup>6</sup>, A. Biesemeier<sup>1</sup>**  
<sup>1</sup> Advanced Instrumentation for Nano-Analytics, LIST - Belvaux (LU)  
<sup>2</sup> CNRS, Univ. Pau et des Pays de l'Adour, E2S UPPA, IPREM, UMR 5254, Pau (FR)  
<sup>3</sup> NMI Natural and Medical Sciences Institute at the Univ. of Tübingen, Reutlingen (DE)  
<sup>4</sup> Institute of Biomedical Technologies, National Research Council of Italy, Segrate - Milan (IT)  
<sup>5</sup> Department of Structural Biochemistry, Max Planck Institute of Molecular Physiology, Dortmund (DE)  
<sup>6</sup> Luxembourg Center of Neuropathology; National Center of Pathology, Dudelange (LU)
- 18:00 #043 - Machine learning to decipher compositional and structural features hidden in ToF-SIMS spectra of extracellular matrices  
**R. Zimmermann<sup>1</sup>, M. Nitschke<sup>1</sup>, V. Magno<sup>1</sup>, M. Wobus<sup>2</sup>, F. Stölzel<sup>3</sup>, C. Werner<sup>1</sup>**  
<sup>1</sup> Leibniz Institute of Polymer Research Dresden, Dresden (DE)  
<sup>2</sup> Medical Clinic and Polyclinic I, Univ. Hospital Carl Gustav Carus, Technische Univ. Dresden (DE)  
<sup>3</sup> SCTCI, Univ. Hospital Schleswig-Holstein - Kiel (DE)
- 18:20 #048 - Metabolic impact of lipid nanoparticle vaccine delivery using OrbiSIMS  
**R. Franklin<sup>1</sup>, A. Kotowska<sup>1</sup>, A. West<sup>2</sup>, C. Newman<sup>2</sup>, M. Alexander<sup>1</sup>, D. Scurr<sup>1</sup>**  
<sup>1</sup> Univ. Nottingham (UK)  
<sup>2</sup> GSK - Stevenage (UK)



## THURSDAY, SEPTEMBER 12<sup>TH</sup> – AFTERNOON

### IND 3 / Industrial applications (bio, organic, and inorganic)

**Victory Room**

*Chairs: C. Fleischmann & A. Fahey*

- 15:00 ToF-SIMS applications for the development of household and personal care products  
**Keynote lecture**

**M. Okamoto<sup>1</sup>, T. Hara<sup>1</sup>, T. Yabuchi<sup>2</sup>, M. Oguri<sup>2</sup>, D. Aoki<sup>3</sup>, K. Fukushima<sup>3</sup>**

<sup>1</sup>*Analytical Science Research Laboratory, Wakayama (JP)*

<sup>2</sup>*Analytical Science Research Laboratory, Kanagawa (JP)*

<sup>3</sup>*Graduate School of Bioagricultural Sciences, Nagoya Univ., Aichi (JP)*

- 15:40 #230 - Probing the chemistry in glass and glass coatings with ToF-SIMS: challenges and applications

**C. Mahoney, A. Fahey, T. Dimond, C. Cushman**

*Corning Research and Development Corporation, Corning NY (US)*

- 16:00 #119 - ToF-SIMS with correlation analysis for characterizing SEI layer on battery electrodes

**S-J. Chang, E.J. Kim, Y.H. Lee**

*National Nano Fab Center - Daejeon (KR)*

- 16:20 #082 - ToF-SIMS and OrbiSIMS mapping of battery surface and interface chemistry

**Y. Zhou<sup>1</sup>, S. Marchesini<sup>1</sup>, X. Yao<sup>1</sup>, Y. Zhao<sup>2</sup>, I. Gilmore<sup>1</sup>**

<sup>1</sup>*National Physical Laboratory, Teddington - London (UK)*

<sup>2</sup>*Dyson School of Design Engineering, Imperial College London, London (UK)*

16:40

**Break 40'**

### IND 4 / Industrial applications (bio, organic, and inorganic)

**Victory Room**

*Chairs: C. Hill-Svehla & L. Créon*

- 17:20 Applications of SIMS in advanced nano-electronics R&D

**Keynote lecture**

**M.J.P. Hopstaken, S. Molis, C. Lavoie**

*IBM T.J. Watson Research Center, Yorktown Heights NY (US)*

- 18:00 ToF-SIMS: instrument innovations and industrial applications

**Keynote lecture**

**D. Rading**

*IONTOF Technologies GmbH, Münster (DE)*



## FRIDAY, SEPTEMBER 13<sup>TH</sup> – MORNING

### COMP 6 / Analysis of complex samples, depth profiling and imaging

**M. Crépeau Auditorium**

Chairs: N. Nuns &amp; M-A. Pinault-Thaury

- 08:30 ToF-SIMS study of the electrochemical isotope effects for the lithium-ion batteries  
**Keynote lecture**

**Y. Zhao, J. Chou, Y. Zhang, X. Li, F. Wang, S. Xin***Institute of Chemistry, Chinese Academy of Sciences - Beijing (CN)*

- 09:10 #235 - In situ ToF-SIMS analysis of solid-liquid interfaces

**F. Wang, Y. Zhang***Institute of Chemistry Chinese Academy of Sciences - Beijing (CN)*

- 09:30 #054 - Improvements in ToF-SIMS depth profiling and quantification of metals in alloys by H<sub>2</sub> and O<sub>2</sub> flooding

**J. Ekar<sup>1</sup>, S. Kos<sup>2</sup>, J. Kovač<sup>1</sup>**<sup>1</sup> Jožef Stefan Institute, Ljubljana (SI)<sup>2</sup> Geological Survey of Slovenia, Ljubljana (SI)

- 09:50 #232 - SIMS analysis of transmuted nuclides in neutron-fluence detectors

**J. Lorincik, L. Viererbl, I. Elantyev, A. Krechlerova, H. Assmann Vratislavská***Research Centre Rez - Husinec (CZ)*

10:10

**Break 40'**

### BIO 8 / Biomaterials, life science and biotechnology, tissue imaging

**M. Crépeau Auditorium**

Chairs: G. Trindade &amp; M. Noun

- 10:50 #162 - OrbiSIMS lipidomics to understand biomaterials performance in vivo

**M. Alexander***School of Pharmacy, Univ. Nottingham (UK)*

- 11:10 #188 - Surface analysis of PEGylated liposomes for nanomedicine applications

**F. Fumagalli<sup>1</sup>, G. Bucher<sup>1</sup>, G. Ceccone<sup>1</sup>, A. Welle<sup>2</sup>, D. Mehn<sup>1</sup>**<sup>1</sup> European Commission JRC - Ispra (IT)<sup>2</sup> KNMFi-KIT - Karlsruhe (DE)

- 11:30 #196 - Analysis of a pharmaceutical formulation using hybrid-SIMS

**D. Breitenstein<sup>1</sup>, J. Van Rüschen<sup>1</sup>, A. Pirkl<sup>2</sup>, G. Winkler<sup>1</sup>, B. Hagenhoff<sup>1</sup>**<sup>1</sup> Tascon GmbH - Münster (DE)<sup>2</sup> IONTOF GmbH - Münster (DE)

- 11:50 #138 - Plasma membrane lipid composition and turnover reflecting the status and behaviour of neuronal cells elucidated by ToF-SIMS imaging

**E. Berlin<sup>1</sup>, A.A. Lork<sup>1</sup>, M. Bornecrantz<sup>1</sup>, C. Ernst<sup>2</sup>, N.T.N. Phan<sup>1</sup>**<sup>1</sup> Univ. Gothenburg (SE)<sup>2</sup> McGill Univ. - Montreal (CA)

- 12:30 **Closing ceremony:** AVS Awards, SFV Awards, Ionoptika "Rowland & Christine Hill" Awards  
Concluding remarks, Goodbye and See you in 2 years



## FRIDAY, SEPTEMBER 13<sup>TH</sup> – MORNING

### HIRES 2 / High mass/lateral resolution analysis

Hermione Room

Chairs: D. Scurr & J. Zakel

- 08:30 Stigmatic isotope imaging of solar system materials using cryogenic LG-SIMS  
**Keynote lecture**  
**N. Sakamoto**  
*Creative Research Institution, Hokkaido Univ. - Sapporo (JP)*
- 09:10 #004 - Orbi-SIMS mediated metabolomics analysis of pathogenic tissue at single cell resolution  
**M. Rohnke<sup>1</sup>, C. Kern<sup>1</sup>, P. Kreuzaler<sup>2</sup>**  
<sup>1</sup>Justus Liebig Univ. - Giessen (DE)  
<sup>2</sup>Univ. Cologne (DE)
- 09:30 #022 - High mass resolution multireflection Time-of-Flight Secondary Ion Mass Spectrometer  
**P. Chen, Y. Chen, H. Li**  
*Dalian Institute of Chemical Physics, Chinese Academy of Sciences - Dalian (CN)*
- 09:50 #128 - In operando simultaneous dual-polarity SIMS characterisation of the solid-electrolyte interface in sodium-ion batteries  
**S. Sukumaran<sup>1</sup>, R. J Chater<sup>1</sup>, S. Fearn<sup>1</sup>, G. Cooke<sup>2</sup>, N. Smith<sup>3</sup>, S.J Skinner<sup>1</sup>**  
<sup>1</sup>Imperial College London - London (UK)  
<sup>2</sup>Hiden Analytical - London (UK)  
<sup>3</sup>Oregon Physics - Oregon (US)

10:10

**Break 40'**

### CORR 4 / Correlative analysis or multitechnique analysis

Hermione Room

Chairs: A. Biesemeier & R. Tilmann

- 10:50 Correlative studies of ion migration and chemical reactivity in electronic materials via combine AFM/ToF-SIMS platform  
**Keynote lecture**  
**A.V. Levlev**  
*The Center for Nanophase Materials Sciences, Oak Ridge National Laboratory (US)*
- 11:30 #241 - Study of  $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$ /InP/InAlAs/InP heterostructures by ToF-SIMS and HAXPES  
**G. Tsamo Tagouque<sup>1,2</sup>, E. Martinez<sup>1</sup>, M. Veillerot<sup>1</sup>, V. Thoréton<sup>1</sup>, F. Bassani<sup>2</sup>, M. Martin<sup>2</sup>, T. Baron<sup>2</sup>**  
<sup>1</sup>Univ. Grenoble Alpes, CEA, Leti, Grenoble (FR)  
<sup>2</sup>Univ. Grenoble Alpes, CNRS, CEA/LETI Minatec, Grenoble INP, LTM, Grenoble (FR)
- 11:50 #006 - The effect of using KOH instead of LiOH on corrosion behavior of 304 Stainless Steel in simulated pressurized water reactor water chemistry  
**D. Kaoumi<sup>1</sup>, F.Y. Tsai<sup>1</sup>, C. Zhou<sup>1</sup>, K. Yano<sup>2</sup>, D. Schreiber<sup>2</sup>**  
<sup>1</sup>North Carolina State Univ. - Raleigh (US)  
<sup>2</sup>Pacific Northwest National Laboratory (US)
- 12:10 #148 - SIMS based correlative microscopy for nanoscale imaging of hydrogen in materials prone to hydrogen embrittlement  
**A. Suresh Kumar, T. Wirtz, S. Eswara**  
*LIST - Esch Sur Alzette (LU)*



Last update: 11 September 2024

## FRIDAY, SEPTEMBER 13<sup>TH</sup> – MORNING

### ML 3 / Machine learning, data analysis

### Victory Room – Chairs: A. Franquet & A. Delcorte

- 08:30 SIMS: transforming data complexity into a significant asset with machine learning  
**Keynote lecture**  
**P. Pigram, W. Gardner, S. Bamford, D. Winkler, B. Muir, R. Sun, S. Yoong Wong**  
La Trobe Univ., Melbourne (AU)
- 09:10 #192 - Use of secondary ion images to depth correct 3D SIMS depth profiling images of biomaterials without correlated topography measurements  
**M. Kraft, M. Brunet, B. Gorman**  
Univ. Illinois Urbana-Champaign - Urbana (US)
- 09:30 #143 - Weakly supervised learning for enhanced spatial-spectral analysis of ToF-SIMS images  
**W. Gardner, P. Pigram**  
La Trobe Univ. - Bundoora (AU)
- 09:50 #210 - Identification of markers for papillomavirus-induced tumors using ToF-SIMS Imaging  
**M. Shamraeva<sup>1</sup>, T. Visvikis<sup>1</sup>, S. Zoidis<sup>1</sup>, J. Hu<sup>2</sup>, Y. Zhu<sup>3</sup>, N.D. Christensen<sup>2</sup>, I.G.M. Anthony<sup>1</sup>, S. Van Nuffel<sup>1</sup>**  
<sup>1</sup> Maastricht MultiModal Molecular Imaging Institute (M4i), Maastricht Univ. (NL)  
<sup>2</sup> The Jake Gittlen Laboratories for Cancer Research, Hershey (US)  
<sup>3</sup> Pathology department, Pennsylvania State Univ. College of Medicine, Hershey (US)

10:10

**Break 40'**

### GEO 3 / Geology, geo-and cosmochemistry, archaeology, environment

### Victory Room Chairs: C.E. Jilly & C. Bouvier

- 10:50 Characterization of traditional coloring materials using ToF-SIMS  
**Keynote lecture**  
**Ye. Lee<sup>1</sup>, J. Lee<sup>1</sup>, Y. Jung Jang<sup>1,2</sup>, Yo. Lee<sup>1,3</sup>**  
<sup>1</sup> Advanced Analysis and Data Center, Korea Institute of Science and Technology, Seoul (KR)  
<sup>2</sup> Department of Material Science and Engineering, Korea Univ., Seoul (KR)  
<sup>3</sup> Department of Chemistry, Yosei Univ., Seoul (KR)
- 11:30 #130 Constraining the meteorite flux of the inner solar system using LG-SIMS analysis of impact glass spherules – challenges and progress  
**M. Whitehouse<sup>1</sup>, A. Nemchin<sup>2</sup>, E. Salin<sup>3</sup>, M. Norman<sup>4</sup>, N. Timms<sup>2</sup>**  
<sup>1</sup> Swedish Museum of Natural History - Stockholm (SE)  
<sup>2</sup> Curtin Univ. - Perth (AU)  
<sup>3</sup> Åbo Akademi Univ. - Turku (FI)  
<sup>4</sup> Australian National Univ. - Canberra (AU)
- 11:30 #113 - Advances in fast mass microscopy for imaging of large areas  
**E. Sandström<sup>1</sup>, M. Shamraeva<sup>1</sup>, K.G. Garcia<sup>1</sup>, P. Huysmans<sup>2</sup>, P. Laeven<sup>2</sup>, R.M.A. Heeren<sup>1</sup>, S. Van Nuffel<sup>1</sup>, I.G.M. Anthony<sup>1</sup>**  
<sup>1</sup> M4i Institute, Maastricht Univ. - Maastricht (NL) - <sup>2</sup> IDEE, Maastricht Univ. - Maastricht (NL)
- 11:50 #023 - Application of ToF-SIMS to the analysis of samples from asteroid Bennu  
**W. Rickard<sup>1</sup>, N. Timms<sup>1</sup>, J. Barnes<sup>2</sup>, D. Saxy<sup>1</sup>, F. Jourdan<sup>1</sup>, P. Bland<sup>1</sup>, S. Reddy<sup>1</sup>, T. Ireland<sup>3</sup>, X. Sun<sup>1</sup>, A. Nguyen<sup>4</sup>, H. Connolly<sup>2</sup>, D. Lauretta<sup>2</sup>**  
<sup>1</sup> Curtin Univ. - Perth (AU) - <sup>2</sup> Univ. Arizona - Tucson (US)  
<sup>3</sup> Univ. Queensland - Brisbane (AU) - <sup>4</sup> ARES, NASA Johnson Space Centre - Houston (US)



# SIMS-24

24<sup>th</sup> International Conference on Secondary Ion Mass Spectrometry

8-13 September 2024

La Rochelle, France

[www.sims-24.com](http://www.sims-24.com)

*Last update: 11 September 2024*

# PHI nanoTOF 3

## Parallel Imaging MS/MS

### TOF-SIMS Tandem MS Imaging

#### The 7<sup>th</sup> Generation of TOF-SIMS from PHI

- Fully automated stage design with in-vacuum parking for reliable, high-throughput sample handling
- Bismuth LMIG cluster ion emitter with improved spatial resolution

#### Reliable automation and remote operation

- Highly configurable queuing system for automated unattended analysis and maximum efficiency
- Fully remote operation and advanced remote diagnostics
- Automatic sample bias and stage height optimization



#### Patented Dual-Beam Charge Neutralization

- Combination of pulsed low-energy electrons and low-energy Ar<sup>+</sup> ions for robust and truly turn-key insulator analysis in both +ve and -ve ion polarities

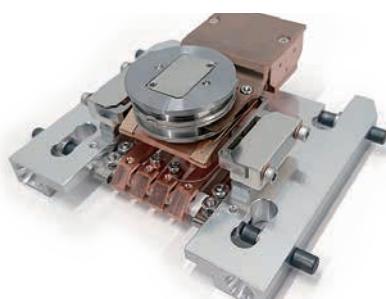
#### Patented Parallel Imaging MS/MS Spectrometer

- Flat and rough samples alike are easily analyzed by the 7<sup>th</sup> generation of PHI's triple-focus mass analyzer
- Parallel Imaging MS/MS takes TOF-SIMS peak identification from "I think" to "I know!"
- Lossless and high sensitivity tandem MS analysis of peaks down to < 20 ppm abundance

## Reliable Analysis of Air-Sensitive Samples Using the Inert Gas/Vacuum Transfer Vessel

#### Heating / Cooling Sample Holder can be Transferred without air exposure

The 25 mm-sample heating/cooling sample holder, well-recognized from the PHI *Genesis* and PHI *VersaProbe* series, is also available for use with the PHI *nanoTOF 3*. Furthermore, this sample holder enables sample transfer from a glove box to the analysis chamber without air exposure.



#### Transfer Vessel Compatible with Multiple PHI Surface Analysis Instruments

The inert gas/vacuum transfer vessel is an option for introducing samples into the *nanoTOF 3* without exposure to the atmosphere. Typically, the samples are mounted in a glove box and then transferred to the instrument. The samples can later be returned to the glove box after measurement without exposure to the atmosphere. This is ideal for samples that react easily with the atmosphere, such as lithium ion batteries.



25 mm Transfer vessel



Transfer vessel and transfer vessel adaptor



[www.sims-24.com](http://www.sims-24.com)

8-13 Sept. 2024

**La Rochelle (FR)**

24<sup>th</sup> international conference on  
Secondary Ion Mass Spectrometry

## POSTER PROGRAM



## POSTER SESSIONS

### Poster Session #1

Tuesday 10 September (11:10 – 15:00)

#### BIO / Biomaterials, life science and biotechnology, tissue imaging

**BIO-P1-008** SIMS 7F: Enhance nuclear safety with insights into processes and origins  
**D. Suhard, Y. Gueguen, G. Alkiviadis, C. Bouvier**  
IRSN (FR)

**BIO-P1-015** Molecule prediction in ToF-SIMS spectra for peptide and lipid mixture samples using machine learning  
**M. Iwahori, D. Hayash, S. Aoyagi**  
Seikei Univ. - Tokyo (JP)

**BIO-P1-056** Localization and impact of perfluorooctanoic acid (PFOA) in vitro and in vivo by multimodal imaging  
**J-N. Audinot<sup>1</sup>, C. Stoffels<sup>1</sup>, T. Angerer<sup>1</sup>, G. Frache<sup>1</sup>, S. Cambier<sup>1</sup>, H. Robert<sup>2</sup>, A. Gutleb<sup>1</sup>, T. Wirtz<sup>1</sup>, M. Mercier-Bonin<sup>2</sup>**  
<sup>1</sup> Luxembourg Institute of Science and Technology - Belvaux (LU)  
<sup>2</sup> INRAE - Toulouse (FR)

**BIO-P1-110** High-throughput quantitative analysis of amino acids in freeze-dried drops using Time-of-Flight Secondary Ion Mass Spectrometry  
**H. Lim, S. Lee, J.S. Jin, M.S. Kim**  
<sup>1</sup> Korea Basic Science Institute (KBSI) (KR)  
<sup>2</sup> Daegu Gyeongbuk Institute of Science and Technology (DGIST) (KR)

**BIO-P1-152** Measurement of metabolite and lipid changes in a 6-hydroxydopamine-induced Parkinson's disease mouse model using mass spectrometry  
**H. Shon<sup>1</sup>, S.Y. Lee<sup>1</sup>, J.H. Moon<sup>2</sup>, G.S. Lee<sup>2</sup>, T.G. Lee<sup>2</sup>, J.G. Son<sup>2</sup>**  
<sup>1</sup> Korea Research Institute of Science and Technology - Daejeon (KR)  
<sup>2</sup> Korea Research Institute of Bioscience and Biotechnology - Daejeon (KR)

**BIO-P1-168** 2D TMD-based LDI-ToF studies for therapeutic drug monitoring of human blood samples  
**T. Lee<sup>1</sup>, S. Joh<sup>1</sup>, J. Yoo<sup>1</sup>, H.K. Na<sup>1</sup>, Y.E.S.K.Y. Son<sup>1</sup>, S. Lee<sup>1</sup>, M.S. Jeong<sup>2</sup>, S.G. Lee<sup>3</sup>**  
<sup>1</sup> KRISS - Daejeon (KR)  
<sup>2</sup> Hanyang Univ. - Seoul (KR)  
<sup>3</sup> Yonsei Univ. College of Medicine - Seoul (KR)

**BIO-P1-174** Time-of-Flight Secondary Ion Mass Spectrometry for analyzing interactions between oral care products and dental hard tissues  
**N. Michler<sup>1</sup>, A. Kiesow<sup>1</sup>, M. Morawietz<sup>1</sup>, S. Gierth<sup>1</sup>, F. Lippert<sup>2</sup>, J. Gruner<sup>3</sup>, E. Schneiderman<sup>3</sup>, S. St. John<sup>3</sup>**  
<sup>1</sup> Fraunhofer Institute for Materials and Systems IMWS - Halle (Saale) (DE)  
<sup>2</sup> Indiana Univ. School of Dentistry - Indianapolis, IN (US)  
<sup>3</sup> The Procter & Gamble Company - Mason, OH (US)



- BIO-P1-205** Analyte migration in ME-SIMS imaging  
**T. Adolfs, M. Bäumer, R.E. Peterson, H.F. Arlinghaus, B.J. Tyler**  
Institute of Physics, Univ. Münster (DE)
- BIO-P1-267** Characterization of cellular pigment composition in chameleon chromatophors by ToF-SIMS imaging  
**T. Fu<sup>1</sup>, P.Y. Helleboid<sup>2</sup>, A. Tzika<sup>2</sup>**  
<sup>1</sup> Lab. of Advanced Technology, Dpt. Quantum Matter Physics, Univ. Geneva (CH)  
<sup>2</sup> Lab. of Artificial and Natural Evolution, Dpt. Genetics and Evolution, Univ. Geneva (CH)
- BIO-P1-269** Investigating the effects of X-ray irradiation on membrane lipids in breast cancer cells using ToF-SIMS  
**C. Rossi<sup>1</sup>, A.C. Heuskin<sup>2</sup>, L. Houssiau<sup>3</sup>**  
<sup>1</sup> Namur Institute of Structured Matter & NAmur Research Institute for Life Science, Univ. Namur (BE)  
<sup>2</sup> NAmur Research Institute for Life Science, Univ. Namur (BE)  
<sup>3</sup> Namur Institute of Structured Matter, Univ. Namur (BE)
- BIO-P1-272** ToF-SIMS investigation of the link between spatial oligodendrocytes lineage heterogeneity and myelin sheath lipid composition  
**A. Smits, X. Delvaux, L. Houssiau**  
Univ. Namur - LISE Research Unit - Namur (BE)

## COMP / Analysis of complex samples, depth profiling and imaging

- COMP-P1-073** ToF-SIMS analysis of transition metal oxide surfaces hosting 2D electron gases  
**A. Lucero Manzano<sup>1</sup>, E.A. Martínez<sup>2</sup>, E.D. Cantero<sup>3</sup>, O. Grizzi<sup>4</sup>, E.A. Sánchez<sup>3</sup>, F.Y. Bruno<sup>2</sup>**  
<sup>1</sup> Gerencia de Física, Centro Atómico Bariloche - S. C. De Bariloche (AR)  
<sup>2</sup> (GFMC) Dpt. de Física de Materiales, Univ. Complutense de Madrid (UCM) - Madrid (ES)  
<sup>3</sup> Instituto de Nanociencia y Nanotecnología (CNEA - CONICET), - S.C. de Bariloche (AR)  
<sup>4</sup> Centro Atómico Bariloche - S.C. de Bariloche (AR)
- COMP-P1-215** ToF-SIMS analysis of Au/Ge/Ni ohmic contacts for n GaAs  
**A. Lucero Manzano<sup>1</sup>, A. Prado<sup>2</sup>, L. Salazar Alarcón<sup>2</sup>, O. Grizzi<sup>3</sup>, H. Pastoriza<sup>2</sup>**  
<sup>1</sup> Gerencia de Física, Centro Atómico Bariloche - S.C. de Bariloche (AR)  
<sup>2</sup> Instituto Balseiro, Instituto de Nanociencia y Nanotecnología (CNEA - CONICET), Nodo Bariloche - S.C. de Bariloche (AR)  
<sup>3</sup> Centro Atómico Bariloche - S.C. De Bariloche (AR)
- COMP-P1-092** ToF-SIMS investigation of nanostructured TiO<sub>2</sub>-based Films for enhanced environmental remediation  
**E. Malannata, A. Auditore, A. Licciardello**  
Univ. Catania, Department of Chemical Sciences - Catania (IT)
- COMP-P1-096** Orbitrap™-SIMS to improve the accuracy of the As quantification in SiGe  
**A. Franquet<sup>1</sup>, A. Pirkli<sup>2</sup>, R. Tilmann<sup>1</sup>**  
<sup>1</sup> IMEC - Leuven (BE)  
<sup>2</sup> IONTOF - Munster (DE)
- COMP-P1-115** ToF-SIMS study on the SEI formation on hard carbon electrodes in sodium ion batteries  
**D. Schäfer, M. Rohnke**  
Justus Liebig Univ. - Giessen (DE)



- COMP-P1-129** Functional bevels created in ToF-SIMS for in situ cross-section characterisation of solid-electrolytes

**S. Sukumaran<sup>1</sup>, S. Fearn<sup>1</sup>, R. J Chater<sup>1</sup>, G. Cooke<sup>2</sup>, S. J Skinner<sup>1</sup>**

<sup>1</sup> Imperial College London - London (UK)

<sup>2</sup> Hiden Analytical - London (UK)

- COMP-P1-144** Characterization of ion-implanted 4H-SiC for dopant analysis in SiC power semiconductors

**T. Hong, T. Jang, M. Byeon, M. Kang**

Korea Basic Science Institute - Busan (KR)

- COMP-P1-184** Molecular and structural characterisation of individual lipid nanoparticles using 3D ToF-SIMS and TEM under cryogenic conditions

**P. Sjövall<sup>1</sup>, T. Nilsson-Pingel<sup>2</sup>, A. Altskär<sup>2</sup>, N. Lorén<sup>2</sup>, L. Pouł<sup>3</sup>**

<sup>1</sup> RISE Research Institutes of Sweden - Borås (SE)

<sup>2</sup> RISE Research Institutes of Sweden - Göteborg (SE)

<sup>3</sup> Curadigm SAS - Paris (FR)

- COMP-P1-195** Preparation and characterization of sodiated non-graphitic hard carbon anodes for sodium-ion batteries by ToF-SIMS

**P. Dippell, D. Schaefer, M. Rohnke**

Justus Liebig Univ. - Giessen (DE)

- COMP-P1-246** Characterization of passivation layers on graphite and NMC electrodes: insights from SIMS and HAXPES analysis

**A. Alsaedi, A. Walton, N. Lockyer**

School of Chemistry, Univ. Manchester (UK)

- COMP-P1-257** Ionic liquid based electroplating as an alternative to traditional deposition chemistries

**C. Longo, D. Sconyers, J. Maurer**

US Army DEVCOM AC - Watervliet (US)

- COMP-P1-264** Chemical and electrical characterization of Mg-doped GaN

**S. Vangelista<sup>1</sup>, M. Perego<sup>2</sup>, A. Patelli<sup>2</sup>, S. Spadoni<sup>1</sup>, R. Pezzuto<sup>1</sup>, F. Milanesi<sup>1</sup>,**

**P. Colpani<sup>1</sup>**

<sup>1</sup> STMicroelectronics - Agrate B.za (IT)

<sup>2</sup> IMM-CNR, Unit of Agrate Brianza - Agrate B.za (IT)

## CORR / Correlative analysis or multitechnique analysis

- CORR-P1-025** Design method and construction of the Schwarzschild microscope with high numerical aperture for Secondary Ion Mass Spectrometry

**Y. Chen, P. Chen, L. Haiyang**

Dalian Key Laboratory for Online Analytical Instrumentation, Dalian (CN)

- CORR-P1-052** Practical and easy-to-access tools for SIMS image data processing and correlative analysis

**P. Delfino, T. Wirtz, J.N. Audinot**

Luxembourg Institute of Science and Technology - Esch Sur Alzette (LU)

- CORR-P1-060** In-situ ToF-SIMS investigation of battery cells to unveil electrochemical reactions

**T. Weintraut, K. Vettori, A. Henss**

Justus-Liebig-Univ. - Giessen (DE)



- CORR-P1-146** Degradation of nickel-rich layered oxide cathode at high potentials in li-ion batteries  
**S. Schröder<sup>1</sup>, K. Vettori<sup>1</sup>, L. Ahrens<sup>2</sup>, R. Wilhelm<sup>3</sup>, A. Henss<sup>1</sup>, J. Jürgen<sup>1</sup>**  
<sup>1</sup> Institute of Physical Chemistry & Center of Materials Research, Univ. Giessen (DE)  
<sup>2</sup> GFE, RWTH Aachen Univ. and ER-C at Forschungszentrum Jülich - Aachen (DE)  
<sup>3</sup> Dpt. of Chemistry and Catalysis Research Center, Technical Univ. Munich, Munich (DE)
- CORR-P1-161** In-situ investigation of interfacial properties and stability of polymer electrolytes towards Na metal anode with ToF-SIMS and XPS  
**T. Meyer, T. Weintraut, A. Weiss, A. Henss**  
Institute of Physical Chemistry and Centre for Material Research, Univ., Giessen (DE)
- CORR-P1-173** Characterisation of Aluminium-lithium alloys using NanoSIMS and EPMA  
**Y. Ding, K. Moore, R. Joseph**  
Univ. Manchester (UK)
- CORR-P1-212** Toward implementing a new electrochemical cell for in-situ ToF-SIMS analysis of Solid-State Batteries  
**A. Lallaoui<sup>1</sup>, C. Courrèges<sup>1</sup>, C. Mawele Loudy<sup>2</sup>, H. Martinez<sup>1</sup>**  
<sup>1</sup> Pau et des Pays de l'Adour Univ., E2S UPPA, CNRS, IPREM - Pau (FR)  
<sup>2</sup> R&D Center - Bordeaux (FR)
- CORR-P1-233** Ion-beam analysis of calcium fluoride deposited on self-supporting nanoscale aluminum foils  
**S. Damache<sup>1</sup>, D. Moussa<sup>2</sup>, W. Yahia-Cherif<sup>1</sup>, A. Belhout<sup>2</sup>, S. Ouichaoui<sup>3</sup>**  
<sup>1</sup> CRNA, Algiers (DZ)  
<sup>2</sup> Faculty of Physics, USTHB, Algiers (DZ)  
<sup>3</sup> Retired - Algiers (DZ)
- CORR-P1-247** Dislocation analysis of epitaxial GaN by using SIMS, CL and TEM  
**M.-C. Huang, M. Wang, M. Hsu, P. Chiu, K. Hsu**  
Materials Analysis Technology Inc. - Hsinchu (Taiwan, CN)

## FUN / Fundamental science

- FUN-P1-031** Development of the imaging mass spectrometry by the addition of oaToFMS to QIT-ToF-SIMS  
**C. Choi, J.Y. Baek, J.Y. Eo**  
Korea Basic Science Institute - Cheongju-Si (KR)
- FUN-P1-070** Observation of ripple development on Si surface caused by oblique incident O<sub>2</sub><sup>+</sup> ion beam over a range of ion parameters  
**M. Hatada<sup>1</sup>, T. Miyamoto<sup>2</sup>**  
<sup>1</sup> Toray Research Center, Inc. (Retired) - Otsu (JP)  
<sup>2</sup> Toray Research Center, Inc. - Otsu (JP)
- FUN-P1-094** Secondary emission processes induced by MeV gold nanoparticles  
**S. Della Negra, D. Jacquet, I. Ribaud**  
IJCLab, UMR9012 – CNRS / Univ. Paris-Saclay / Univ. Paris Cité - Orsay (FR)
- FUN-P1-122** Energy loss straggling for protons in CaF<sub>2</sub> compound in the MeV/amu energy domain  
**D. Moussa<sup>1</sup>, A. Belhout<sup>1</sup>, S. Damache<sup>2</sup>, S. Ouichaoui<sup>1</sup>, W. Yahiacherif<sup>2</sup>, M. Saad<sup>2</sup>**  
<sup>1</sup> Faculty of Physics Univ. Sciences and Technology HB, Algiers (DZ)  
<sup>2</sup> DATN CRNA, Algiers (DZ)



- FUN-P1-133** Nanoprojectile-SIMS: a zeptomole probe with insight into nanoscale topography  
**E. Schweikert**  
Texas A&M Univ. - College Station, TX (US)

- FUN-P1-263** Investigation of sub-nm binary oxidic surface modifications on mixed ionic electronic conductors with ToF-SIMS: oxidic overlayer stability and ionic interdiffusion behavior  
**F. Fahrnberger<sup>1</sup>, M. Siebenhofer<sup>2</sup>, M. Hahn<sup>1</sup>, M. Sauer<sup>3</sup>, A. Foelske<sup>3</sup>, G. Friedbacher<sup>1</sup>, M. Kubicek<sup>1</sup>, H. Hutter<sup>1</sup>**  
<sup>1</sup> Institute of Chemical Technologies and Analytics, TU Wien, Vienna (AT)  
<sup>2</sup> Massachusetts Institute of Technology, Cambridge (US)  
<sup>3</sup> Analytical Instrumentation Center, TU Wien, Vienna (AT)

## GEO / Geology, geo-and cosmochemistry, archaeology, environment

- GEO-P1-077** Analytical procedure for the isotopic measurement of uranium at particle scale by LG-SIMS  
**M. Cornaton, A.L. Fauré, F. Pointurier**  
CEA - Arpajon (FR)

- GEO-P1-236** Novel approach to enhance organic acid adsorption on rock surfaces  
**K. Normman, A. Al-Yaseri**  
King Fahd Univ. of Petroleum and Minerals (KFUPM) - Dhahran (SA)

## HRES / High mass/lateral resolution analysis

- HRES-P1-059** High-lateral resolution and precise chemical information – Combination of HIM-SIMS and Hybrid-SIMS for interfacial analysis of Composite Polymer Electrolytes  
**T. Weintraut<sup>1</sup>, V. Benito Olmos<sup>2</sup>, J.N. Audinot<sup>2</sup>, A. Henss<sup>1</sup>**  
<sup>1</sup> Justus-Liebig-Univ. - Giessen (DE)  
<sup>2</sup> Luxembourg Institute of Science and Technology - Belvaux (LU)

- HRES-P1-225** Preliminary results of the VAMAS Interlaboratory comparison (TWA 2 A37): OrbiSIMS noise, linearity, and optimisation of secondary ion transmission  
**G.F. Trindade, I. Gilmore**  
National Physical Laboratory - London (UK)

- HRES-P1-266** Report of the 101<sup>st</sup> IUVSTA workshop on high performance SIMS instrumentation and machine learning / artificial intelligence methods for complex data  
**I. Gilmore<sup>1</sup>, G. Trindade<sup>1</sup>, T. Silva<sup>2</sup>, S. Aoyagi<sup>3</sup>, H. Tian<sup>4</sup>, J.N. Audinot<sup>5</sup>, S. Van Nuffel<sup>6</sup>**  
<sup>1</sup> National Physical Laboratory (UK), <sup>2</sup> Univ. Sao Paulo (BR), <sup>3</sup> Seikei Univ. (JP)  
<sup>4</sup> Univ. Pittsburgh (JP), <sup>5</sup> Luxembourg Institute of Science and Technology (LU)  
<sup>6</sup> Maastricht Univ. (NL)

## IND / Industrial applications (bio, organic, and inorganic)

- IND-P1-002** Using ToF-SIMS and PCA to qualify different foils in a chip picking process  
**S. Reichlmaier, A. Lyapin**  
Physical Electronics GmbH - Munich (DE)

- IND-P1-007** Industrial examples of glass analyses by ToF-SIMS and XPS  
**L. Dupuy, J. Amalric**  
SERMA TECHNOLOGIES - Ecully (FR)



- IND-P1-172** Characterization of nanometric multilayered hard coatings by SIMS  
**J. Niclout, B. El Adib, J.B. Chemin, P. Choquet, N. Valle**  
Luxembourg Institute of Science and Technology - Belvaux (LU)
- IND-P1-193** Metallic 3D-print materials analysed by Secondary Ion Mass Spectrometry  
**D. Breitenstein<sup>1</sup>, A. Akhmetova<sup>1</sup>, M. Glauche<sup>2</sup>, D. Rommel<sup>3</sup>, M. Kluge<sup>4</sup>, E. Tallarek<sup>1</sup>**  
<sup>1</sup> Tascon GmbH - Münster (DE)  
<sup>2</sup> Implantcast GmbH - Münster (DE)  
<sup>3</sup> Concept Laser GmbH/GE Additive - Münster (DE)  
<sup>4</sup> Fraunhofer Research Institution for Additive Manufacturing (IAPT) - Münster (DE)
- IND-P1-197** Surface investigation of layer-by-layer grown SurMOFs for energy applications  
**A. Auditore, V. Spampinato, R. Ruffino, A. Licciardello**  
Univ. Catania (IT)
- IND-P1-273** Depth Profiling of AlScN and AlYN/GaN Heterostructures using ToF-SIMS  
**P. Stranak<sup>1</sup>, I. Streicher<sup>2</sup>, S. Leone<sup>1</sup>, M. Prescher<sup>1</sup>, L. Kirste<sup>1</sup>**  
<sup>1</sup> Fraunhofer Institute for Applied Solid State Physics IAF - Freiburg (DE)  
<sup>2</sup> CNR-Instituto di Microelettronica e Microsistemi CNR-IMM - Catania (IT)

## INST / Instrumentation & novel ion beams

- INST-P1-020** An innovative SIMS platform with a multi-ion species FIB for high-resolution nano-analytics and ion imaging  
**A. Ost<sup>1</sup>, T. Richter<sup>1</sup>, O. De Castro<sup>2</sup>, P. Gnauck<sup>1</sup>, J.N. Audinot<sup>2</sup>, T. Wirtz<sup>2</sup>**  
<sup>1</sup> Raith GmbH - Dortmund (DE)  
<sup>2</sup> Luxembourg Institute of Science and Technology (LIST) - Belvaux (LU)
- INST-P1-125** The new CAMECA NanoSIMS-HR  
**A. Thomen, M. Debliqui, C. Defouilloy, L. Arnoldi, N. Saquet, S. Vitcher Fichou, J. Farcy, L. Renaud**  
CAMECA (France)
- INST-P1-221** Correlative FIB / SEM / oToF-SIMS nano-characterization used for Li isotopic tracing in solid state battery field  
**J. Almoric<sup>1</sup>, T. Genieys<sup>1</sup>, T. Meyer<sup>2</sup>, E. De Vito<sup>3</sup>**  
<sup>1</sup> Orsay Physics - Faveau (FR)  
<sup>2</sup> Justus-Liebig-Univ. Giessen, IPC-Giessen - Giessen (DE)  
<sup>3</sup> Univ. Grenoble Alpes, CEA, DES, LITEN - Grenoble (FR)

## ML / Machine learning, data analysis

- ML-P1-014** Development of a new annotation method for predicting organic molecules in ToF-SIMS spectra using machine learning  
**T. Masuda<sup>1</sup>, M. Fujita<sup>2</sup>, T. Ueno<sup>2</sup>, D. Hayashi<sup>1</sup>, S. Aoyagi<sup>1</sup>**  
<sup>1</sup> Seikei Univ. - Tokyo (JP)  
<sup>2</sup> JSR Corporation - Mie (JP)
- ML-P1-157** Analysis of ToF-SIMS data using correlation analysis  
**K. Moritani, T. Nakamura, N. Inui**  
Univ. Hyogo - Himeji (JP)



## POSTER SESSIONS

### Poster Session #2

Thursday 12 September (11:10 – 15:00)

#### BIO / Biomaterials, life science and biotechnology, tissue imaging

- BIO-P2-013** The evaluation of the permeation of a beauty ingredient derived from a biomolecule to stratum corneum  
**E. Nakata<sup>1</sup>, M. Fujita<sup>2</sup>, T. Ueno<sup>2</sup>, D. Hayashi<sup>1</sup>, S. Aoyagi<sup>1</sup>**  
<sup>1</sup> Seikei Univ. - Tokyo (JP)  
<sup>2</sup> JSR Corporation - Mie (JP)
- BIO-P2-019** Microbial induced corrosion of glass by Paenibacillus polymyxa SCE2 using ToF-SIMS  
**G. Parker<sup>1</sup>, A. Plymale<sup>2</sup>, J. Hager<sup>2</sup>, J. Dhas<sup>2</sup>, Z. Zhu<sup>2</sup>, L. Hanley<sup>1</sup>, X.Y. Yu<sup>3</sup>**  
<sup>1</sup> Univ. of Illinois Chicago - Chicago (US)  
<sup>2</sup> Pacific Northwest National Laboratory - Richland (US)  
<sup>3</sup> Oak Ridge National Laboratory - Oak Ridge (US)
- BIO-P2-080** In situ matrix enhanced SIMS  
**A. Delcorte, T. Daphnis, B. Tomasetti, C. Nicolay, C. Poleunis, C. Dupont-Gillain**  
Univ. Catholique de Louvain - Louvain-la-Neuve (BE)
- BIO-P2-098** Imaging analysis of plant samples with SIMS and electron microscopy  
**M. Takeuchi<sup>1</sup>, A. Isogai<sup>2</sup>**  
<sup>1</sup> Institute of Engineering Innovation, Univ. Tokyo (JP)  
<sup>2</sup> Graduate School of Agricultural and Life Sciences, Univ. Tokyo (JP)
- BIO-P2-137** Plasmon-activated water successfully facilitates re-epithelialization process and wound healing through enhancing epidermal calcium expression: functional anatomical analysis by ToF-SIMS  
**H-M. Chang<sup>1</sup>, T.Y. Renn<sup>1</sup>, L.Y. Chen<sup>2</sup>, F.D. Mai<sup>1</sup>**  
<sup>1</sup> Taipei Medical Univ. (TW, CN)  
<sup>2</sup> Chung Shan Medical Univ. - Taichung (TW, CN)
- BIO-P2-140** Utilizing time-of-flight secondary ion mass spectrometry (ToF-SIMS) to analyze localized surface plasmon resonance-activated water enhances the anti-viral and anti-oxidative activities of melatonin  
**F-D. Mai, Y.C. Liu, H.M. Chang**  
Taipei Medical Univ., Taiwan (CN)
- BIO-P2-163** Insights into in vivo topical antibacterial permeation enabled using ToF-SIMS  
**M. Berrow, D. Scurr, F. De Cogan**  
Univ. Nottingham (UK)
- BIO-P2-170** Building bioactive enzyme surfaces in vacuo with gas cluster ion beams: from lysozyme (14 kDa) to Glucose Oxidase (80 kDa)  
**M. Lakhdar, B. Tomasetti, C. Dupont-Gillain, A. Delcorte**  
UCLouvain (BE)

**BIO-P2-178**

Molecular 3D analysis of skin – distribution of topically applied compounds and endogenous components in stratum corneum by ToF-SIMS

**P. Sjövall<sup>1</sup>, S. Gregoire<sup>2</sup>, W. Wargniez<sup>2</sup>, L. Skedung<sup>3</sup>, G.S. Luengo<sup>2</sup>**

<sup>1</sup> RISE Research Institutes of Sweden - Borås (SE)

<sup>2</sup> L'Oréal Research and Innovation - Aulnay-Sous-Bois (FR)

<sup>3</sup> RISE Research Institutes of Sweden - Stockholm (SE)

**BIO-P2-223**

OrbiSIMS spatial lipidomics reveals metabolic changes in the developing brain during environmental stress

**Y. Jin<sup>1</sup>, C. Newell<sup>1</sup>, I. Gilmore<sup>2</sup>, A. Gould<sup>1</sup>**

<sup>1</sup> The Francis Crick Institute - London (UK)

<sup>2</sup> National Physical Laboratory - London (UK)

**BIO-P2-250**

ToF-SIMS and XPS analysis of cholesterol-based nanoparticles for Huntington disease

**G. Ceccone<sup>1</sup>, M. Valenza<sup>2</sup>, G. Tosi<sup>3</sup>, J.T. Duskey<sup>3</sup>, B. Ruozzi<sup>3</sup>, I. Ottonelli<sup>3</sup>, G. Birolini<sup>2,4</sup>, M. Vitali<sup>2</sup>, D. Mehn<sup>1</sup>, F.R.A.N.C. Fumagalli<sup>1</sup>, E. Cattaneo<sup>2,4</sup>**

<sup>1</sup> European Commission Joint Research Centre - Ispra (IT)

<sup>2</sup> Univ. degli studi Milano Department of Biosciences - Milan (IT)

<sup>3</sup> Univ. di Modena e Reggio Emilia, Department of Life Sciences, Modena, - Modena (IT)

<sup>4</sup> Istituto Nazionale di Genetica Molecolare, Milan (IT)

**COMP / Analysis of complex samples, depth profiling and imaging****COMP-P2-044**

ToF-SIMS in the research of green energy materials

**L. Zhang, C. Dai**

Shenyang National Lab. for Materials Science, Institute of Metal Research, Chinese Academy of Sciences - Shenyang (CN)

**COMP-P2-071**

Etching monitoring of advanced forksheet devices using AKONIS SIMS tool

**A.-S. Robbes<sup>1</sup>, O. Dulac<sup>1</sup>, K. Soulard<sup>1</sup>, M. Adier<sup>1</sup>, S. Choi<sup>1</sup>, A. Merkulov<sup>2</sup>, R. Tilmann<sup>2</sup>, P.A.W. Van Der Heide<sup>2</sup>, A. Franquet<sup>2</sup>**

<sup>1</sup> CAMECA - Gennevilliers (FR)

<sup>2</sup> IMEC - Leuven (BE)

**COMP-P2-081**

Artifacts in multilayer depth profiling: origin and quantification of a double peak layer profile of Ag in ToF-SIMS depth profiles of an Ag/Ni multilayer by MRI model

**J. Kováč<sup>1</sup>, J. Ekar<sup>1</sup>, S. Hofmann<sup>2</sup>, J.Y. Wang<sup>3</sup>**

<sup>1</sup> Jozef Stefan Institute - Ljubljana (SI)

<sup>2</sup> Max Planck Institute for Intelligent Systems - Stuttgart (DE)

<sup>3</sup> Shantou Univ. - Shantou (CN)

**COMP-P2-093**

Impurity analysis of synthetic diamond for electronics and quantum physics

**E. Loire, F. Jomard, M.A. Pinault-Thaury**

Univ. Paris-Saclay, UVSQ, CNRS, GEMaC (FR)

**COMP-P2-127**

Development and surface analysis of 3D-printed titanium alloy composites for implantable medical devices

**K. Varda<sup>1</sup>, M. Knez Marevcí<sup>1</sup>, Ž. Knez<sup>1</sup>, I. Drstvenšek<sup>2</sup>, M. Finšgar<sup>1</sup>**

<sup>1</sup> Univ. Maribor, Faculty of Chemistry and Chemical Engineering - Maribor (SI)

<sup>2</sup> Univ. Maribor, Faculty of Mechanical Engineering - Maribor (SI)



**COMP-P2-135** Identifying the composition, origin and formation pathways of pollution inducing engine deposits with OrbiSIMS

**J. Viggars<sup>1</sup>, M. Edney<sup>2</sup>, J. Barker<sup>2</sup>, C. Snape<sup>1</sup>, D. Scurr<sup>1</sup>**

<sup>1</sup> Univ. Nottingham (UK)

<sup>2</sup> Innospec Inc., Chester (UK)

**COMP-P2-145** SIMS study of a semiconductor opening switch diode

**F. Jomard<sup>1</sup>, M.R. Degnon<sup>2</sup>, A. Gusev<sup>3</sup>, M.A. Pinault-Thaury<sup>1</sup>**

<sup>1</sup> Univ. Paris-Saclay, UVSQ, CNRS, GEMaC - Versailles (FR)

<sup>2</sup> Univ. Pau et des Pays de l'Adour, E2S UPPA, SIAME, Pau // ITOPP, Thégra - Pau (FR)

<sup>3</sup> Univ. Pau et des Pays de l'Adour, E2S UPPA, SIAME - Pau (FR)

**COMP-P2-177** Insights into battery chemistry using ToF-SIMS, XPS, and AES

**J. Schmidt, G. Fisher, S. Zaccarine**

Physical Electronics - Chanhassen (US)

**COMP-P2-181** ToF-SIMS physico-chemical characterization of hybrid organic photovoltaic cells

**G. Ragusano, A. Auditore, N. Tuccitto, A. Licciardello, V. Spampinato**

UNICT - Catania (IT)

**COMP-P2-222** Preliminary results from a VAMAS Interlaboratory study to determine sensitivity and repeatability of drug dosed tissue homogenate reference materials

**J-L. Vorng, I. Gilmore**

National Physical Laboratory (UK)

**COMP-P2-226** Depth profiling of thin metal layers by ToF-SIMS: what about the oxidation state

**H. Montigaud<sup>1</sup>, T. Cretin<sup>2</sup>, J. Voronkoff<sup>2</sup>**

<sup>1</sup> Laboratoire SVI CNRS-Saint Gobain-UMR125 - Aubervilliers (FR)

<sup>2</sup> Saint Gobain Research Paris - Aubervilliers (FR)

**COMP-P2-258** SIMS method improvements for non-ideal sample types

**J. Angle, N. Sievers, R. Reedy, M. Zimmer, E. Mcgarrah**

Pacific Northwest National Laboratory - Richland (US)

## CORR / Correlative analysis or multitechnique analysis

**CORR-P2-058** Multimodal SIMS Imaging of PS-PMMA polymer blend and polymer fragmentation

investigation of its homopolymers using light primary ion beam

**V. Benito Olmos, A. Biesermeier, T. Wirtz, J.N. Audinot**

Luxembourg Institute of Science and Technology - Esch-Sur-Alzette (LU)

**CORR-P2-106** Metabolomic and proteomic analysis via OrbiSIMS and LC-MS/MS- reveals molecular alterations of ApoE4 gene carrying H4 neuroglioma cells

**L. Lu<sup>1</sup>, A. Kotowska<sup>1</sup>, M. Fang<sup>2</sup>, M. Alexander<sup>1</sup>, D. Scurr<sup>1</sup>, Z. Zhu<sup>1</sup>**

<sup>1</sup> Univ. Nottingham (UK)

<sup>2</sup> Medicines and Healthcare products Regulatory Agency - South Mimms (UK)

**CORR-P2-155** Exploring the SIMS matrix effect in high-entropy alloy thin-films

**E. John, M. Weise, M. Sahre, J.M. Stockmann, T. Lange, J. Radnik,**

**V.D. Hodoroaba**

Bundesanstalt für Materialforschung und -prüfung - Berlin (DE)



- CORR-P2-167** Characterization of the surface of cement clinker corn with different methods  
**F. Kakar, Y. Badran, C. Pritzel, M. Killian**  
Chemistry and Structure of Novel Materials, Univ. Siegen (DE)

- CORR-P2-183** Enhancing lithium-ion battery material characterization with FIB-SEM Integrated ToF-SIMS and 3D ToF-SIMS tomography  
**T. Šamořil<sup>1</sup>, J. Dluhoš<sup>1</sup>, J. Honč<sup>1</sup>, T. Sui<sup>2</sup>, Y. Xuhui<sup>3</sup>**  
<sup>1</sup> TESCAN GROUP - Brno (CZ)  
<sup>2</sup> School of Mechanical Engineering Sciences, Univ. Surrey - Guildford (UK)  
<sup>3</sup> National Physical Laboratory - Teddington (UK)

- CORR-P2-239** Correlative ToF-SIMS & XPS for the analysis of dopants for organic light-emitting diodes layers  
**J-P. Barnes, C. Guyot, O. Renault, D. Mariolle, T. Maindron**  
Univ. Grenoble Alpes, CEA, Leti, Grenoble (FR)

- CORR-P2-249** Detection of Lithium traces in microelectronics materials: a preliminary study  
**V. Thoréton, D. Truffier-Boutry, J.P. Barnes**  
Univ. Grenoble Alpes, CEA, Leti - Grenoble (FR)

- CORR-P2-270** Deciphering three-dimensional and atomically-dispersed microstructures of ion channels in deep-sea snails  
**Z. Ying<sup>1</sup>, N. Wang<sup>2</sup>, L.T. Weng<sup>1</sup>**  
<sup>1</sup> The Hong Kong Univ. of Science and Technology - Guangzhou (CN)  
<sup>2</sup> The Hong Kong Univ. of Science and Technology - Hong Kong (HK)

## FUN / Fundamental science

- FUN-P2-032** Secondary Ion Mass Spectrometry imaging using home-built Ar-GCIB and ToF-SIMS  
**J. Baek, C.M. Choi**  
Korea Basic Science Institute - Cheongju (KR)

- FUN-P2-076** Impact of boron doping on the sputtering dynamics of graphene: a molecular dynamics simulation study  
**S. Louerdi<sup>1</sup>, Ş. Bektaş<sup>2</sup>, K. Wyrwich<sup>1</sup>, M. Kański<sup>1</sup>, Z. Postawa<sup>1</sup>**  
<sup>1</sup> Jagiellonian Univ., Dpt. of Physics, Astronomy and the Applied Computer Science - Krakow (PL)  
<sup>2</sup> Izmir Institute of Technology - Izmir (TR)

- FUN-P2-117** Bond-specific ion-induced fragmentation of biomolecules at high ion energies  
**M. Dürr<sup>1</sup>, P. Keller<sup>1</sup>, P. Schneider<sup>1</sup>, I. Schubert<sup>2</sup>, M. Bender<sup>3</sup>, C. Trautmann<sup>4</sup>**  
<sup>1</sup> Justus Liebig Univ. Giessen - Giessen (DE)  
<sup>2</sup> GSI Helmholtzzentrum für Schwerionenforschung - Darmstadt (DE)  
<sup>3</sup> GSI Helmholtzzentrum für Schwerionenforschung & Hochschule RheinMain - Wiesbaden (DE)  
<sup>4</sup> GSI Helmholtzzentrum für Schwerionenforschung & Technische Univ. Darmstadt - Darmstadt (DE)

- FUN-P2-131** Fundamental aspects of nanoparticle SIMS operating in transmission mode  
**S. Verkhoturov<sup>1</sup>, D. Verkhoturov<sup>1</sup>, M. Kański<sup>2</sup>, S. Louerdi<sup>2</sup>, P. Hirchenhahn<sup>1</sup>, Z. Postawa<sup>2</sup>, M. Eller<sup>3</sup>, S. Della Negra<sup>4</sup>, E. Schweikert<sup>1</sup>**  
<sup>1</sup> Dpt. of Chemistry, Texas A&M Univ., College Station, Texas (US)  
<sup>2</sup> Dpt. of Physics, Astronomy & the Applied Computer Science, Jagiellonian Univ., Kraków, (PL)  
<sup>3</sup> Dpt. of Chemistry and Biochemistry, California State Univ. Northridge, CA (US)  
<sup>4</sup> Laboratoire de Physique des 2 Infinis Irène Joliot-Curie, Orsay (FR)



**FUN-P2-169** Effects of sample mechanical property on secondary ion yield of organicmolecules in Ar cluster SIMS

**K. Moritani, T. Toku, N. Inui**

Univ. Hyogo - Himeji (JP)

## GEO / Geology, geo-and cosmochemistry, archaeology, environment

**GEO-P2-220** A ToF-SIMS analytical study of a lithium ore from flotation test products

**B. Almusned<sup>1</sup>, B. Hart<sup>1</sup>, T. Di Feo<sup>2</sup>, C. Hill-Svehla<sup>1</sup>, M. Biesinger<sup>1</sup>**

<sup>1</sup>Surface Science Western, Univ. Western Ontario - London (CA)

<sup>2</sup>CanmetMINING, Natural Resources Canada - Ottawa (CA)

**GEO-P2-268** Study of speleothems colours by XPS and ToF-SIMS

**A. Felten<sup>1</sup>, M. Dechamps<sup>2</sup>, M. Vlieghe<sup>3</sup>, L. Houssiau<sup>2</sup>, J. Yans<sup>3</sup>**

<sup>1</sup>SIAM platform, Univ. Namur (BE)

<sup>2</sup>Namur Institute of Structured Matter, Univ. Namur (BE)

<sup>3</sup>Institute of Life, Earth and Environment, Univ. Namur (BE)

## HIRES / High mass/lateral resolution analysis

**HIRES-P2-213** Cs+ Low temperature ion source: a high-brightness, low-energy-spread ion source for SIMS

**B. Knuffman, A.V. Steele**

zeroK NanoTech Corporation - Gaithersburg (US)

**HIRES-P2-228** Light element mapping in metals with High-Resolution SIMS

**K. Moore, K. Li, Y. Aboura, Y. Ding**

Univ. Manchester (UK)

## IND / Industrial applications (bio, organic, and inorganic)

**IND-P2-005** Some examples of industrial applications using ToF-SIMS

**L. Dupuy, J. Amalric**

SERMA TECHNOLOGIES - Ecully (FR)

**IND-P2-016** ToF-SIMS analysis to solve a case of molecular contamination in the cleanroom in a new lithography mask zone

**V. Guyader<sup>1</sup>, Y. Borde<sup>1</sup>, C. Coquand<sup>1</sup>, M. Cascarano<sup>1</sup>, G. Beatini<sup>1</sup>, J. Lavie<sup>1</sup>, J.P. Barnes<sup>2</sup>, F. Pierre<sup>2</sup>, P. Hirchenhahn<sup>2</sup>**

<sup>1</sup>STMicroelectronics - Crolles (FR)

<sup>2</sup>CEA-Leti - Grenoble (FR)

**IND-P2-191** Leveraging SIMS for the understanding of critical mineral and precious metal ores for the mining and mineral processing industries

**C. Hill-Svehla, B. Almusned, J. Hedberg, M. Biesinger**

Surface Science Western, Univ. Western Ontario - London (CA)

**IND-P2-194** Combination of SIMS and machine learning as a screening technique in an industrial context

**B. Hagenhoff<sup>1</sup>, D. Heller-Krippendorf<sup>1</sup>, J. Tröger<sup>1,2</sup>, E. Tallarek<sup>1</sup>**

<sup>1</sup>Tascon GmbH - Münster (DE)

<sup>2</sup>Univ. Münster (DE)



**IND-P2-214** Absolute quantification of alkali metals in diamond-type semiconductors

**B. El Adib<sup>1</sup>, D. Colombara<sup>2</sup>, N. Valle<sup>1</sup>**

<sup>1</sup> Luxembourg Institute of Science and Technology - Belvaux (LU)

<sup>2</sup> Univ. degli Studi di Genova, Genoa (IT)

**IND-P2-274** Bonding and responding: ToF-SIMS in Sputter Target Manufacturing

**R. Goacher**

*Materion Corporation – Buffalo, NY (US)*

## INST / Instrumentation & novel ion beams

**INST-P2-102** Preliminary study on a pulsed electrospray droplet ion source for Secondary Ion Mass Spectrometry

**S. Ninomiya<sup>1</sup>, L.C. Chen<sup>2</sup>, K. Hiraoka<sup>1</sup>**

<sup>1</sup> Clean Energy Research Center, Univ. Yamanashi - Kofu (JP)

<sup>2</sup> Graduate Faculty of Interdisciplinary Research, Univ. Yamanashi - Kofu (JP)

**INST-P2-149** Combining immunohistochemistry with fast mass spectrometry imaging

**M. Shamraeva, E. Sandström, K.G. Garcia, R.M.A. Heeren, I.G.M. Anthony, S.Van Nuffel**

*Maastricht MultiModal Molecular Imaging Institute (M4i), Maastricht Univ. - Maastricht (NL)*

## ML / Machine learning, data analysis

**ML-P2-012** Quantitative and qualitative analyses of mass spectra of organic electroluminescent (OEL) mixed samples using supervised machine learning

**Y. Kiuchi<sup>1</sup>, M. Lagator<sup>2</sup>, N. Lockyer<sup>2</sup>, K. Ishikawa<sup>3</sup>, M. Okamoto<sup>3</sup>, Y. Murayama<sup>4</sup>, D. Hayashi<sup>1</sup>, S. Aoyagi<sup>1</sup>**

<sup>1</sup> Seikei Univ. - Tokyo (JP)

<sup>2</sup> Univ. Manchester (UK)

<sup>3</sup> Kao Corp - Wakayama (JP)

<sup>4</sup> Canon Inc - Shizuoka (JP)

**ML-P2-154** Tree based algorithm for ToF-SIMS spectra classification of plastic samples and feature extraction

**J. Son, H.K. Shon, I.H. Lee, T.G. Lee**

*Korea Research Institute of Standards and Science - Daejeon (KR)*



# SIMS-24

24<sup>th</sup> International Conference on Secondary Ion Mass Spectrometry

8-13 September 2024

La Rochelle, France

[www.sims-24.com](http://www.sims-24.com)



[www.sims-24.com](http://www.sims-24.com)

8-13 Sept. 2024

**La Rochelle (FR)**

24<sup>th</sup> international conference on  
Secondary Ion Mass Spectrometry

## EXHIBITION

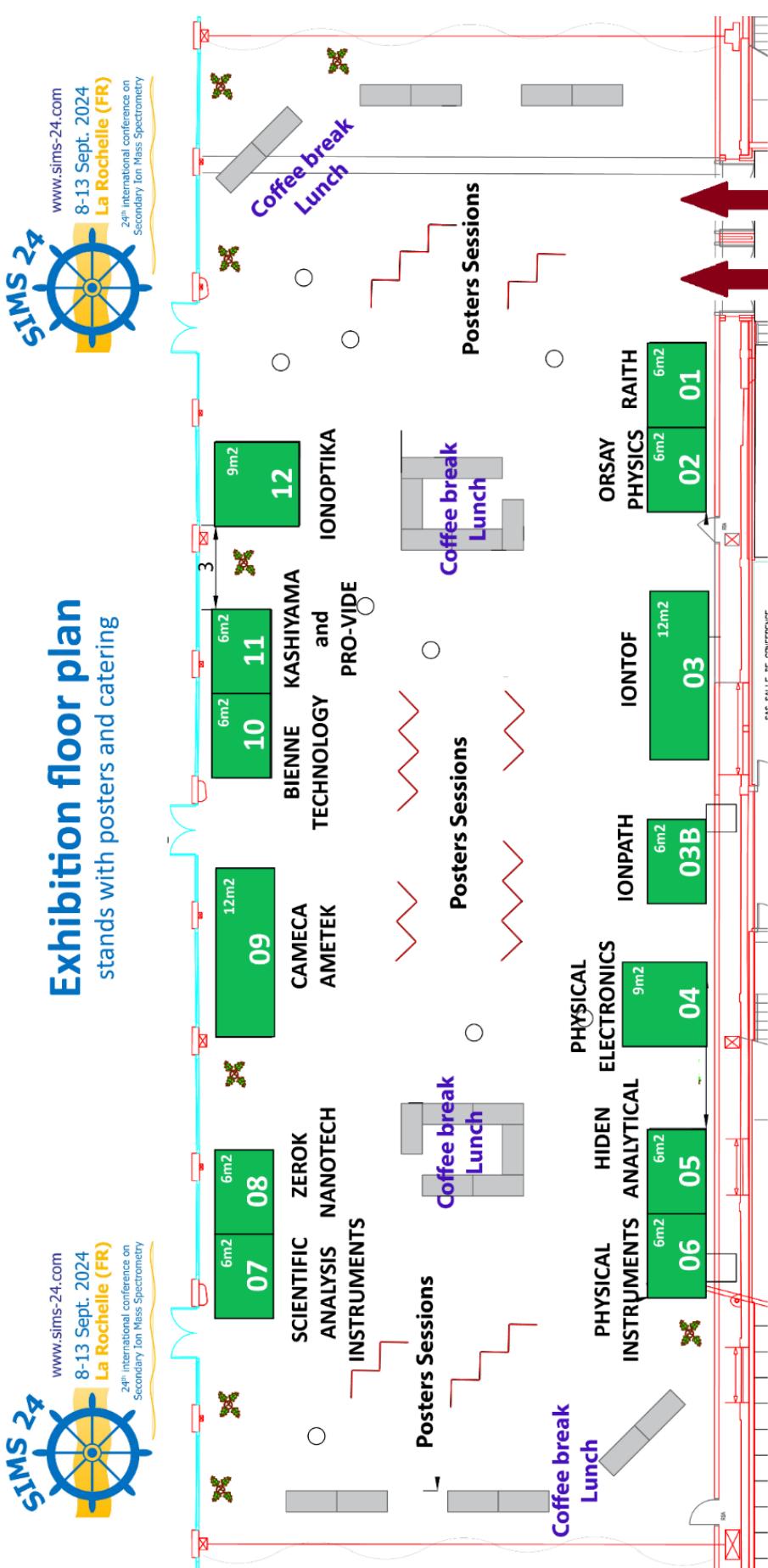


# SIMS-24

24<sup>th</sup> International Conference on Secondary Ion Mass Spectrometry

8-13 September 2024  
La Rochelle, France  
[www.sims-24.com](http://www.sims-24.com)

## Exhibition floor plan stands with posters and catering





## BIENNE TECHNOLOGY

### Stand # 10

Bienn Technology LLC is the manufacturer of the Orion Mk II, the only instrument capable of providing chemical and molecular information from domains as small as 20 nm. Applications across a broad spectrum of industries ranging from semi-conductor to biomedical, from downstream O&G to the defense sector. Bienn Technology LLC is a partnership of 5 individuals with over 175 years of demonstrated success and proven expertise in mass spectrometer design and manufacturing with expertise in data collection and analysis. At Bienn Technology LLC we provide advanced solutions for your research and technology needs.



#### Bienn Technology, LLC

12986 Tonkaway Lake Rd, Ste 711

College Station, TX, 77845

USA

[richard.rickman@biennetechology.com](mailto:richard.rickman@biennetechology.com)

[www.biennetechology.com](http://www.biennetechology.com)

## CAMECA - AMETEK

### Stand # 09

CAMECA is a world-leading supplier of Dynamic Secondary Ion Mass Spectrometry (D-SIMS) and Atom Probe Tomography (APT) analytical solutions. Our instruments measure elemental and isotopic composition down to atomic resolution and equip the most prestigious government and university labs as well as leading high-tech industrial companies around the world.

Celebrating 95 years of innovation, CAMECA just released the next generation of its world-acclaimed NanoSIMS. The NanoSIMS-HR delivers breakthrough instrumental advances that will boost the versatility of this unique ion microprobe, improve data quality, and enable scientists and engineers to accelerate discovery and innovation under ever increasing workloads and tighter deadlines.



#### CAMECA

29 quai des Grésillons

92622 Gennevilliers Cedex

France

+33 (0)1 43 34 62 00

[cameca.info@ametek.com](mailto:cameca.info@ametek.com)

[www.cameca.com](http://www.cameca.com)

## HIDEN ANALYTICAL

### Stand # 05

Hiden Analytical celebrates over 40 years of design, development and manufacture of quadrupole mass spectrometers. Our products address a diverse range of applications - precision gas analysis, plasma diagnostics by direct measurement of plasma ions and ion energies, SIMS probes for UHV surface science, catalysis performance quantification, thermo-gravimetric studies - over a pressure range extending from 30 bar processes down to UHV/XHV. With sales and service centres situated across the globe, Hiden Analytical is committed to providing a fast, friendly and professional response, through our teams of application specialists, wherever our customers are located.



#### Hiden Analytical Ltd

420 Europa Boulevard

Warrington WA5 7UN

UK

+44 [0] 1925 445 225

[info@hiden.co.uk](mailto:info@hiden.co.uk)

[www.HidenAnalytical.com](http://www.HidenAnalytical.com)



## IONOPTIKA

# IONOPTIKA

ion beam technology

### Stand # 04

Ionoptika is celebrating 30 years of Ion beam excellence. At the forefront of surface analysis, we enable transformative research with our high-performance ion beams and expertise in cluster ion beams for SIMS. Our innovative instruments drive groundbreaking discovery in the study of disease, physiological processes and material sciences.

We are delighted to introduce our new J series III at SIMS-24 in La Rochelle. This new instrument will extend the use of Cluster SIMS into a wide range of novel applications. Please come along to our booth or attend our lunchtime seminar on Thursday 12 September to find out more!

### ionoptika

Unit B6, Millbrook Close,  
Chandler's Ford, SO53 4BZ  
United Kingdom  
+ 44 (0) 23 8027 0735  
[sales@ionoptika.co.uk](mailto:sales@ionoptika.co.uk)  
[www.ionoptika.com](http://www.ionoptika.com)

## IONPATH



### Stand # 03B

Ionpath, Inc., is a pioneer in high-definition spatial proteomics, revolutionizing tissue imaging and analysis to accelerate medical discovery and improve human health. Ionpath's MIBI™ (multiplexed ion beam imaging) platform breaks through the limitations of traditional immunohistochemistry (IHC), enabling a deeper understanding of the tissue microenvironment with highly multiplexed, quantitative single-cell analysis. With MIBI technology and the expertise of world-class pathology and data science teams, Ionpath provides actionable insights to translational and clinical researchers at leading pharmaceutical, biotechnology, and research organizations in immuno-oncology, immunology, neuroscience, and infectious disease research.

### ionpath, Inc.

960 O'Brien Dr.  
Menlo Park, CA 94025  
USA  
+1 (833) 466-7284  
[research@ionpath.com](mailto:research@ionpath.com)  
[www.ionpath.com](http://www.ionpath.com)

## IONTOF



### Stand # 03

IONTOF is a manufacturer of innovative instruments for surface analysis. The IONTOF group consists of four different companies. IONTOF GmbH, which sells, produces and services all IONTOF analytical instruments. IONTOF Technologies GmbH which is in charge of all R&D projects. The subsidiaries IONTOF USA and IONTOF Japan which are responsible for sales and customer service in the United States and Japan.

Since 1989, IONTOF has introduced many technological innovations to the field and more than 450 instruments are in operation in industrial and academic laboratories worldwide.

### IONTOF GmbH

Heisenbergstr. 15  
48149 Münster  
Germany  
+49 251 1622 100  
[sales@iontof.com](mailto:sales@iontof.com)  
[www.iontof.com](http://www.iontof.com)



## KASHIYAMA

### Stand # 11

Kashiyama is a manufacturer of reliable and low-maintenance dry Multi-Stage Roots Pumps offering a wide range of pumping speed options from 7 m<sup>3</sup>/h to 300 m<sup>3</sup>/h with the NeoDry series.

Since our founding in 1951, we have supplied Multi-Stage Roots and Screw Vacuum Pumps for semiconductor and various coating applications and continue to be the market leader in Japan to this day.

In 2018, Kashiyama opened a new way for European customers with "Quality made in Japan". The growing Munich team will support you in all matters of sales and service.

# Kashiyama

Vacuum Solutions

### Kashiyama Europe GmbH

Leopoldstraße 244

80807 München

Germany

+ 49 (0)89 / 208039 455

[keg@kashiyama.com](mailto:keg@kashiyama.com)

<https://de.kashiyama.com/>

## ORSAY PHYSICS

### Stand # 02

With more than 30 years of experience and leadership in the charged optic's particles field, **ORSAY PHYSICS** is the world leader in customized Focused Ions Beams (**FIB**) columns, Scanning Electron Microscope (**SEM**) as well as associated equipment such as Gas Injection Systems (**GIS**), Secondary Electron Detectors (**SED**), or Time of Flight SIMS (**TOF-SIMS**) or a fully integrated and modular UHV FIB-SEM system, called **NanoSpace**. Recently, ORSAY PHYSICS launched officially its new dedicated implantation tool, called **QuiiN**, which includes an in-situ heating stage. This new innovative solution gives access to a wide range of species for the implantation application.



# ORSAY PHYSICS

TESCAN GROUP

### ORSAY PHYSICS

ZAC Saint Charles

N°95, 3<sup>e</sup> Avenue

13710 Fuveau

France

+33 442 538 090

[jeremie.silvent@orsayphysics.com](mailto:jeremie.silvent@orsayphysics.com)

[www.orsayphysics.com](http://www.orsayphysics.com)

## PHYSICAL ELECTRONICS

### Stand # 04

Physical Electronics is a subsidiary of ULVAC PHI, the world's leading supplier of surface analysis instrumentation. PHI's innovative XPS, AES, and SIMS technologies provide customers with powerful tools to solve challenging materials problems and accelerate the development of new processes and products.

As the only supplier that provides a full range of high performance XPS, AES, and SIMS instruments, PHI is in a unique position to provide complete surface analysis solutions to potential clients in a broad range of high technology fields including photovoltaics, nanotechnology, microelectronics, magnetic media, catalysis, biomaterials, pharmaceuticals, and basic materials such as metals, polymers, composites and coatings.



# PHYSICAL ELECTRONICS

A DIVISION OF ULVAC-PHI

### Physical Electronics

Lake Drive East

Chanhassen, MN 55317

USA

952-828-6100

[sales@phi.com](mailto:sales@phi.com)

[www.phi.com](http://www.phi.com)



## PHYSICAL INSTRUMENTS

### Stand # 06

Founded in 2005, PHYSICAL Instruments is a distribution company operating on the French market. We offer a complete range of high-voltage DC power supplies and DC-to-DC HV converters with high accuracy, low time drift, low thermal drift, very low ripple and noise, and very good linearity. We also offer a wide range of HV cables and connectors up to 100 kV.

We collaborate with expert engineers, physicists, production and quality specialists, enabling us to offer excellent products. The entire development and production process takes place in Germany.



#### Physical Instruments

45 chemin du Vieux Chene  
38240 Meylan  
France  
+33 (0)1 43 34 62 00  
[ludovic.ruse@physical-instruments.fr](mailto:ludovic.ruse@physical-instruments.fr)  
[www.physical-instruments.fr](http://www.physical-instruments.fr)

## RAITH

### Stand # 01

RAITH is the global leader in maskless nanofabrication and characterization systems, serving industrial and scientific customers worldwide. Our technologies drive innovation across various sectors, including connectivity, mobility, green energy, and healthcare. With extensive experience, we offer high-precision writing and imaging tools that create efficient solutions for research and industry. RAITH's advanced systems enable customers to develop and produce cutting-edge devices, contributing to the digital future's key application.



#### RAITH GmbH

Konrad-Adenauer-Allee 8  
44263 Dortmund  
Germany  
+49 (231) 95004 0  
[info@raith.com](mailto:info@raith.com)  
[www.raith.com](http://www.raith.com)

## SCIENTIFIC ANALYSIS INSTRUMENTS

### Stand # 07

Scientific Analysis Instruments has been designing and manufacturing innovative SIMS instruments in Manchester, England since 1995. They include not only standard product ranges such as the R&D100 award winning desktop MiniSIMS and higher performance MidiSIMS, but also customised designs, including for OEM use. The combination of economical high vacuum based system design and continuous primary ion beam operation through the use of high duty cycle orthogonal reflectron ToF mass analysers ensures the highest sample throughput, both in terms of reduced pump down times and rapid data acquisition. Come visit us at booth 7 to discover our easy to use SIMS offerings in person.



SCIENTIFIC ANALYSIS INSTRUMENTS

#### Scientific Analysis Instruments Ltd

Media House, Wright Street, Old Trafford,  
Manchester M16 9HB  
UK  
+44 (0)161-850-1231  
[sales@saiman.co.uk](mailto:sales@saiman.co.uk)  
[www.saiman.co.uk](http://www.saiman.co.uk)



## ZEROK NANOTECH

### Stand # 08

zeroK Nanotech Corporation specializes in high-performance cesium ion source technology, with their Low Temperature Ion Source (LoTIS) achieving nanometer-scale focal spot sizes and performing effectively across a broad current and energy range. zeroK offers OEM / Custom solutions with compatibility for integration into a wide variety of existing ion beam instruments or products. Additionally, zeroK provides a complete sample preparation and correlative microscopy solution featuring a Cesium LoTIS, high-resolution SEM, and a magnetic sector or TOF spectrometer.



#### zeroK Nanotech Corp.

401 Professional Drive, Suite 125

Gaithersburg, MD 20879

USA

+1 (240) 702-0081

[info@zerok.com](mailto:info@zerok.com)

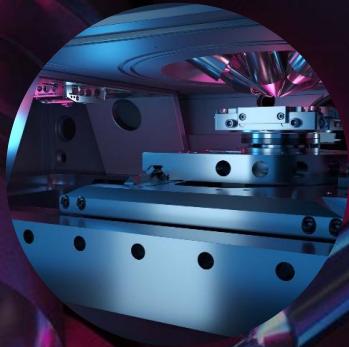
[www.zerok.com](http://www.zerok.com)

## Advanced Ion Beam Technology for Surface Analysis



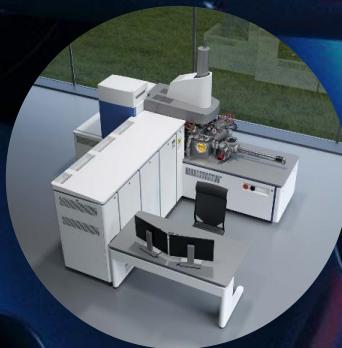
M6

The M6 is the latest generation of high-end TOF-SIMS instruments developed by IONTOF. Its design guarantees superior performance in all fields of SIMS applications.



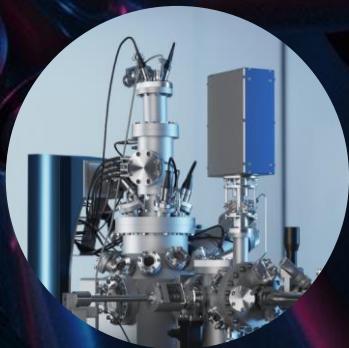
M6 Plus

The M6 Plus is the optimal tool for nano technology. The combination of high-end SIMS and SPM enables true 3D chemical characterisation.



M6 Hybrid SIMS

With the Orbitrap™ extension for the M6, IONTOF offers the first commercial SIMS instrument combining highest mass resolution and mass accuracy with high resolution cluster SIMS imaging.



Qtac

The Qtac is a high sensitivity low energy ion scattering (LEIS) instrument. It is extremely surface sensitive, providing small spot quantitative elemental characterisation of the top atomic layer.

Sunday 8 Sept.		Monday 9 Sept.		Tuesday 10 Sept.		Wednesday 11 Sept.		Thursday 12 Sept.		Friday 13 Sept.			
		Auditorium Cépau	Hermione	Victory	Auditorium Cépau	Hermione	Victory	Auditorium Cépau	Hermione	Victory	Auditorium Cépau	Hermione	Victory
08:00 - 08:30													
08:30 - 08:50													
08:50 - 09:10													
09:10 - 09:30													
09:30 - 10:00													
10:00 - 10:30													
10:30 - 10:50													
10:50 - 11:10													
11:10 - 11:30													
11:30 - 11:50													
11:50 - 12:10													
12:10 - 12:30													
12:30 - 12:50													
12:50 - 13:30													
13:30													
14:00													
14:40 - 15:00													
15:00 - 15:20													
15:20 - 15:40													
15:40 - 16:00													
16:00 - 16:20													
16:20 - 16:40													
16:40 - 17:00													
17:00 - 17:20													
17:20 - 17:40													
17:40 - 18:00													
18:00 - 18:20													
18:20 - 18:40													
18:40													

Topics:  
 1\_Biomaterials    4\_Geology    7\_Machine learning  
 2\_Complex samples    5\_High resolution    8\_Instrumentation  
 3\_Fundamental    6\_Industrial    9\_Correlative  
■ Posters sessions, exhibition, refreshment breaks  
■ lunches are located in the "Grande Halle" Exhibition area