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MSI vacancies

For regular updates on MSI vacancies please see www.ms-imaging.org for more details.

MSIS Membership

Become a member of our community. To purchase the MSIS membership please visit:

<https://ms-imaging.org/wp/membership-account/membership-levels/>

Active Member	CHF 50.00
MSIS Young researcher	CHF 15.00

* Memberships expires after 1 Year

MSIS response on COVID-19 Future MSIS events

OurCon and MSISymposium Postponement

The COVID-19 pandemic has caused the cancellation of many meetings, social as well as professional, because of the dangers associated with public gatherings and the uncertainty regarding the length of time this will continue. Unfortunately, the MSIS board, in close discussion with local organizers and IMSS, has come to the conclusion that we need to postpone the OurCon 2020 conference (Nov. 2020, Japan) and the MSISymposium (Oct. 2020, Stockholm). While undoubtedly disappointing we do hope you can understand our priority must be the safety of our members and, secondly but important for the longevity of the society, was the need to act quickly to avoid sizeable financial liabilities in case of cancellation/poor participation.

Rest assured that MSIS and OurCon will continue, unabated and undiminished. To this end we have finalized the revised schedule of meetings for the next three OurCon conferences and the postponed MSISymposium, which you can find in the MSIS calendar in this newsletter. We hope to see you all again soon, but in the meantime please stay safe.

On behalf on the MSIS board
Liam McDonnell, president MSIS

Mass Spectrometry Imaging Society: Meet distinguished members of the MSI community

Marcel Niehaus

National Physical Laboratory, United Kingdom



Marcel Niehaus is currently working as a Higher Research Scientist at the National Centre of Excellence in Mass Spectrometry Imaging (NiCE-MSI) at the National Physical Laboratory (NPL) in London, UK. He is working on fundamentals of matrix-assisted laser desorption ionisation (MALDI), instrumentations of new ion source designs and ambient ionisation techniques. He is also part of the Cancer Research UK (CRUK) Grand Challenge consortium using MSI techniques to create a 'Google Earth of Cancer'.

Marcel graduated in 2013 with a MSc in physics from the University of Münster, Germany, working on MALDI fundamentals in the lab of Klaus Dreisewerd. He stayed for a PhD and started working on laser beam shaping techniques, mass spectrometry imaging applications and ion source designs. After receiving his PhD in 2018, he stayed for another year as a Postdoc working on high resolution MALDI-MSI approaching sub- μm pixel sizes before joining NPL in August 2019.



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MSIS Calendar

2021

OurCon VIII, Sheffield, UK

October 11-14, 2021.

Venue: Cutler's Hall and Sheffield Cathedral.

Local organizer: Malcolm Clench.

2022

OurCon IX, Sendai, Japan

Estimated October/November 2022.

Venue: Active Resorts Miyagi Zao.

Local organizer: Shuichi Shimma

2022

MSISymposium I, Uppsala, Sweden

Estimated November/December 2022.

Venue: TBD.

Local organizers: Per Andrén. Co-organized with the Swedish Pharmaceutical Society.

2023

OurCon X, Montreal, Canada

Estimated October/November 2023.

Venue: TBD.

Local organizer: Pierre Chaurand. Co-organized with IMSS.

More details available soon via www.ms-imaging.org

How you came to be involved in MSI?

It was not planned at all. After I received my bachelor's degree in physics in 2010 and wrote a very theoretical focused thesis in the Department for Non-Linear Physics in Münster, I decided that I would prefer a more applied field for my master studies. A friend of mine dragged me along to a seminar in Biophysics led by Klaus Dreisewerd. I was immediately interested, because the topics were exactly the kind of applied research I was looking for, and I consequently started my masters in the Dreisewerd group at the end of 2011, working on MALDI fundamentals. I stayed on for a PhD there and became more and more involved in MSI over the years.

What do you think MSIS brings to the MSI field? What else would you like to see from the society?

I think the funding of the society in 2017 was a crucial next step for the MSI community. The OurCon conferences were a huge success over the years and helped bringing everyone in the field together and grow the community. The society is the next step to strengthen the community for the things to come.

One thing maybe to be expected at some point in the future might be guidelines for publishing/data handling etc. I think there is much to do in the community and the society might be a good starting point to have a work group formed by members to discuss this.

Have you participated in OurCon and if yes what are your best memories?

I have participated in three OurCon conferences (Pisa 2015, Ustron 2016 and St. Malo 2019). OurCon is by far my favourite conference I have attended. It has exactly the right size: big enough but not too overwhelming. Everything is focused around MSI and you get to know everyone in the field and the work they are doing.

I have many great memories of the conferences. A particular moment that comes to mind is our walk up a mountain in Ustron on a windy day. Markus Stoeckli, for whatever reason, brought a huge folded alphorn with him, assembled it and started playing. That was something else.

The Dreisewerd lab in 2016 in Ustron, Poland after a windy hike. From left to right: Marcel Boskamp, Christoph Bookmeyer, Alexander Potthoff, Hans Kettling, Marcel Niehaus, Jens Soltwisch, Fabian Eiersbrock



Figure 1. The Dreisewerd lab in 2016 in Ustron, Poland after a windy hike. From left to right: Marcel Boskamp, Christoph Bookmeyer, Alexander Potthoff, Hans Kettling, Marcel Niehaus, Jens Soltwisch, Fabian Eiersbrock



Don't miss... In the next issue

Meet the host of 2022 OurCon
in Japan:

Professor Shuichi Shimma



And the new member of the
MSIS executive board and
student representative:
Stefania Maneta-Stavarakaki



What drives your enthusiasm for the field of MS imaging?

I think MSI will have a great impact in many areas of life sciences in the next decade. We see a lot of progress in the field, not only in research, but also in companies and industry now. For example, Imabiotech as a newly founded company, which is funding the mass spectrometry imaging award, is one of the key players in the field using MSI for pharmaceutical research. Many other companies are now establishing in-house labs for MSI and so we will hopefully see many real-life problems tackled by MSI soon. I am happy to contribute something to this evolving technique, even if I am more on the fundamentals and instrumentation side.

How do you think the field will be in 5-10 years from now?

Bigger, as stated above, a lot seems to be happening at the moment. As an example, many of my former colleagues from Muenster are still working in the field of MSI. Few scientific areas have that many PhD students actually finding work in industry or academia working on something so similar to their PhD.

What are the main challenges and the biggest success you have encountered in your career and what do you think can be improved in the field of MSI?

MSI is complicated. I think for most techniques used (mainly MALDI for me), no one really knows what exactly is happening during material ejection/ionization of molecules and measuring the ions. Most samples we are looking at are incredible complicated and so figuring out why you see that specific ion in that specific pixel/region is very challenging. And then you must make sense of it for a biological problem at hand and account for ion suppression and so forth. A lot of work will have to go into this before MSI can be regarded as a more routine, or quantitative application.

The biggest success for me over the years was certainly the project to build the transmission-mode MALDI-2 setup, which was published in Nature Methods in September last year. For this publication, I won the Imabiotech mass spectrometry imaging award at the OurCon conference in St. Malo.

What advice would you give to a student entering an MSc/PhD project?

Probably the same as for entering any new field, even if I can absolutely objectively say that they have chosen wisely to work in MSI because it is the best.

Don't be shy to ask for help, otherwise it is hard to get started.

Do the hard and unpleasant work to sit down and read the literature that you need to read to get an understanding for your project. Again, ask for help to know what to read. At the beginning, it is easy to get lost.

Take the time to get used to the instruments you are working with (or the data analysis tools you are using). Doing a set of optimization experiments at some point for your project will be worth a lot when your acquired data later is just of higher quality.



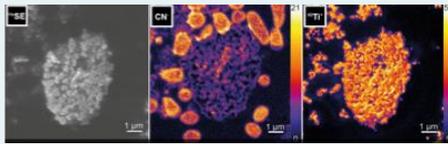
Join the community and shape the future of MSI...

For more information on COST action:

<https://ms-imaging.org/wp/introduction-2/>

MULTI-FORESEE:
<https://multiforesee.com>

COMULIS:
<https://www.comulis.eu>



Jelena Lovric, *E. coli* bacteria exposed to TiO₂ nanoparticles
Helium Ion Microscopy and Secondary Ion Mass Spectrometry – Luxembourg Institute of Technology

Current COST actions on or involving MS Imaging

COST Actions help connect research initiatives across Europe and beyond, and enable researchers and innovators to grow their ideas in any science and technology field by sharing them with their peers. COST Actions are bottom-up networks with a duration of four years that boost research, innovation and careers. Conferences, workshops, short-term scientific missions (research stays in collaborating research labs), workgroup meetings are exemplary tools that help to foster innovation.

MSIS members are involved in many activities. Current COST Actions of high interest to MSIS members, and including MSIS members include:

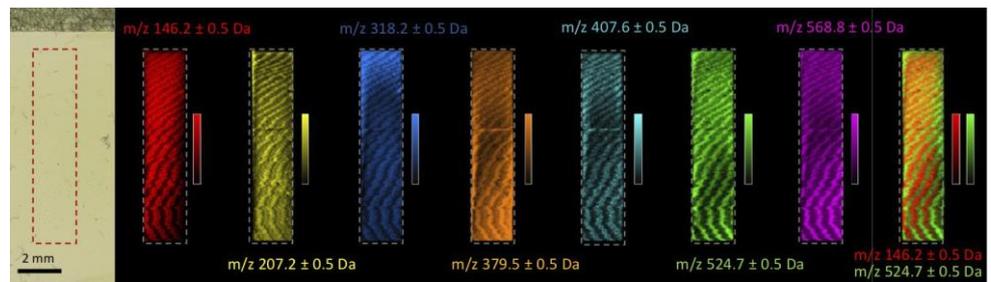
MULTI-FORESEE

The main objective of this Action, entitled **MULTI-modal Imaging of FOREnsic SciEnce Evidence (MULTI-FORESEE)**- tools for Forensic Science, is to promote innovative, multi-informative, operationally deployable and commercially exploitable imaging solutions/technology to analyse forensic evidence.

Forensic evidence includes, but not limited to, fingerprints, hair, paint, biofluids, digital evidence, fibers, documents and living individuals. Imaging technologies include optical, mass spectrometric, spectroscopic, chemical, physical and digital forensic techniques complemented by expertise in IT solutions and computational modelling.

Imaging technologies enable multiple physical and chemical information to be captured in one analysis, from one specimen, with information being more easily conveyed and understood for a more rapid exploitation. The enhanced value of the evidence gathered will be conducive to much more informed investigations and judicial decisions thus contributing to both savings to the public purse and to a speedier and stronger criminal justice system.

The Action will use the unique networking and capacity-building capabilities provided by the COST framework to bring together the knowledge and expertise of Academia, Industry and End Users. This synergy is paramount to boost imaging technological developments which are operationally deployable.



Martina Marchetti-Deschmann & Matthias Holzlechner, 2018, Fingerprints on Plastic surface images by MALDI-MSI after Ag-sputtering and matrix application (unpublished data)



Join the community and shape the future of MSI...

MSISymposium 2023.

Expressions of interest are sought to host the MSISymposium 2023. The symposium is specifically targeted as a low cost meeting for those that cannot attend the OurCon meeting (in 2023 OurCon will be in Montreal, Canada). Please send all expressions of interest to office@MS-imaging.org for more details.

Knowing me, knowing your MSI PI

A new feature of the MSIS newsletter, debuted here, is an up-close-and-personal interview with MSI researchers. The idea is to get to know the person behind the science. If there are any questions you would like to ask MSI researchers or people you would like to be interviewed, drop a line to office@MS-imaging.org.



Get involved.

One of the goals of the newsletter and the MS-imaging.org website to communicate all MSI-related activities to our members and MSI stakeholders. Your help on this matter is essential. Please report all MSI activities so that we can ensure all interested parties are aware of MSI activities.

COMULIS

Correlated multimodal Imaging in Life Sciences (COMULIS) aims at fuelling urgently needed collaborations in the field of correlated multimodal imaging (CMI), promoting and disseminating its benefits through showcase pipelines, and paving the way for its technological advancement and implementation as a versatile tool in biological and preclinical research. CMI combines two or more imaging modalities to gather information about the same specimen. It creates a composite view of the sample with multidimensional information about its macro-, meso- and microscopic structure, dynamics, function and chemical composition. Since no single imaging technique can reveal all these details, CMI is the only way to understand biomedical processes and diseases mechanistically and holistically. CMI relies on the joint multidisciplinary expertise from biologists, physicists, chemists, clinicians and computer scientists, and depends on coordinated activities and knowledge transfer between academia and industry, and instrument developers and users. Due to its inherently multidisciplinary and crossfunctional nature, an interdisciplinary network such as this Action is indispensable for the success of CMI. Nevertheless, there is currently no European network in the field. Existing scattered efforts focus on correlated light and electron microscopy or (pre)clinical hybrid imaging. COMULIS will consolidate these efforts, establish commonly accepted protocols and quality standards for existing CMI approaches, identify and showcase novel CMI pipelines, bridge the gap between preclinical and biological imaging, and foster correlation software through networking, workshops and open databases. The network will raise awareness for CMI, train researchers in multimodal approaches, and work towards a scientific mindset that is enthusiastic about interdisciplinary imaging approaches in life sciences.

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