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## MSIS Calendar

### OurCon VIII

Active Resorts Miyagi Zao, Sendai, Japan. 16-19/11/2020.

### MSISymposium I.

Focus on small molecule MSI.  
Uppsala, Sweden, 16-18/10/2020.

More details available soon via  
[www.ms-imaging.org](http://www.ms-imaging.org)



Ron Heeren, Richard Caprioli, Markus Stoeckli. Chairs of 2007 ASMS Sanibel conference on Imaging Mass Spectrometry.

## Mass Spectrometry Imaging Society:

### The birth of an inquisitive, hospitable child named MSIS.

In 1159 John Salisbury wrote in *Metalogicon* how "Bernard de Chartres used to compare us to dwarfs perched on the shoulders of giants.... that we see more and farther than our predecessors, not because we have keener vision or greater height, but because we are lifted up and borne aloft on their gigantic structure." In terms of scientific and technological development this truism is reflected in the fact that it is often the younger scientists that help drive innovation: instead of marveling at the developments that have taken place over the last 10 years a new student will see all but the very latest developments as the status quo. In the same manner Mass Spectrometry Imaging continues to evolve. The Mass Spectrometry Imaging Society (MSIS) was founded to serve this dynamic MSI community, to ensure effective dissemination of the latest developments in MSI, and to provide the training and opportunities needed for MSI to achieve its full potential. In recognition of the crucial role of early stage researchers in MSI the society explicitly promotes their active participation.

In the 20:20 vision of hindsight the establishment of MSIS may appear a natural development. It was in fact highly dependent on a series of projects and interpersonal relationships that, at the time, were far from certain. In this first MSIS newsletter we thought it apt to describe how MSIS came to be formed.

### Computis (FP6 project, 2006-2010)

COMPUTIS was a European 6th framework project that aimed to develop technologies and methods for MSI, from instrumental and sample preparation to data processing and its biological application. One of the aims of the Computis project concerned an open and universal data format for data sharing, data transparency, and enabling multimodal investigations. The open data format first developed in Computis, *imzML*, has since evolved into the de-facto internationally accepted MSI data standard. But, maybe more importantly it was the first sign of organization of European MSI researchers. The Computis project was initiated by leading principal investigators in European MSI (Heeren, Spengler, Laprévotte, Stoeckli) and involved several emerging MSI PI's (Roempp, McDonnell, Brunelle). The personal relationships formed during the Computis project were intrinsic to many subsequent developments in the establishment of MSIS.

### Sanibel, HUPO

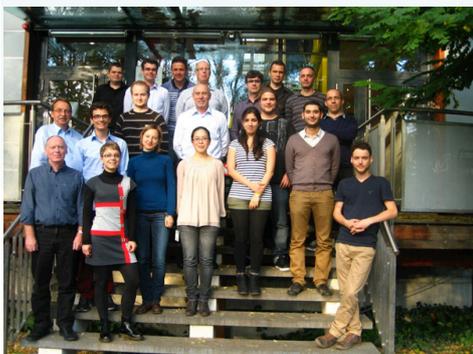
The 2007 ASMS Sanibel conference on imaging mass spectrometry was invaluable in that it was the first international conference on MSI in which MALDI, SIMS and biomedical applications were the major focus. It enabled effective exchange of ideas and, importantly, the emerging biomedical MSI network to grow and to form links with other networks. The links made with HUPO and the HUPO proteomics standards initiative (HUPO-PSI) enabled close alignment with established data standards, and to benefit from the ample experience within HUPO-PSI with developing data standards and reporting standards. We would like to acknowledge the somewhat hidden contribution of Juan Pablo Albar, a leading proponent of data and reporting standards within HUPO and principal investigator of the Spanish ProteoRed network.



## MSIS General Assembly News.

20:00 CET, 30<sup>th</sup> October 2019. Palais du Grand Large, Saint-Malo, France.

- Annual membership fee increased to 50 CHF for regular members but kept at 15 CHF for early stage researchers.
- Ingela Lanekof elected to secretary.
- Stefania Maneta-Stavarakaki elected to student representative.
- OurCon 2020 will take place in Sendai, Japan, 16-19<sup>th</sup> November.
- OurCon 2021 will be in Europe, and OurCon 2022 in North America. Locations for OurCon 2021 and 2022 to be confirmed.
- MSIS will organize an MSI symposium, to take place in Europe, when OurCon does not take place in Europe. The first MSISymposium will take place in Uppsala, 16-18 October, 2020. More details to follow on [www.ms-imaging.org](http://www.ms-imaging.org).
- MSIS members voted for this newsletter. Please contribute by informing MSIS of any and all MSIS related activities.
- A liaison committee has been established to streamline communication between the European and North American societies. Current members are Liam McDonnell, Martina Marchetti-Deschmann, Tiffany Porta, and Malcolm Clench (MSIS); Richard Drake, Chris Anderton, and Steve Castellino (IMSS).
- All current MSIS board members were re-elected. It was accepted that board membership should be longer than 1 year and elections staggered to ensure continuity.



Participants of the pharma MSI training course. Novartis Institute for Biomedical Research, 2010.

ProteoRed provided the inspiration for the ground-up framework for training and standardization in MSI. Transparency in data and methodology, open interactions between researchers, and extensive ground-up training were recognized as key elements for MSI to grow.

Another HUPO/EuPA member that was not particularly active within MSI, Garry Corthals, also lent valuable support to the developing MSI network. The first training course provided by the MSI network was enabled by funding secured by him from Nordic Signals, and is testament to his general commitment to education and training of young researchers across the breadth of mass spectrometry.

## Nordic Signals, EuPA, Novartis

The first Nordic Signals MSI training course was held at the FOM Institute AMOLF in Amsterdam in March 2009. The local organizer was Prof. Ron Heeren, who dedicated substantial instrument time and personnel to the course, both in terms of lectures and hands-on experimental training. It was quickly apparent that there was an urgent need for improved information exchange, transparency, and training within MSI. A second training course was organized for June 2009 in Uppsala by Prof. Per Andr n, and was supported by the European Proteomics Association (EuPA). These courses formed the basis of a wider training program that evolved with the support of our growing MSI community.

Garry Corthals and Liam McDonnell then organized an MSI bioinformatics course, again under the auspices of Nordic Signals. The course took place in December 2009 at Turku Biotechnology Center. All training courses were very well supported by the instrument manufacturers, in this instance exceedingly so as Soeren-Oliver Deininger of Bruker Daltonics lectured for two whole days. This meeting demonstrated the need for training in MSI data analysis, and unexpectedly also in tissue based mass spectrometry.

Finally in August 2010 a training course focused on pharmaceutical MSI was organized by Markus Stoeckli at the Novartis Institute of Biomedical Research, with the support of Novartis. Again the training course was very well attended and transformed the abilities of the participants.

The success of the four different training courses and the experiences gained constituted a clarion call for improved transparency, standardization, and training in MSI. It is important to be clear that this urgency did not reflect a shortcoming of any of the students or researchers, but rather reflected the highly multidisciplinary nature of MSI. In the absence of suitable training courses covering each element of MSI, compounded by a lack of transparency, the differing approaches adopted by different research groups were merely pragmatic solutions based on the infrastructure and expertise available within in each individual group. It was thus concluded that for MSI to develop into a recognized biomedical tool greater reproducibility and transparency was essential. To have any chance of achieving this goal MSI needed to establish community driven, standardized methods for data sharing, experimental reporting, and data comparison; create resources for the MSI community to aid the interpretation of MSI data; and ultimately to provide the training and mobility necessary for MSI investigations to be performed at the highest possible level, and utilizing the latest available infrastructure.

### News from OurCon VII

28-31<sup>st</sup> October 2019. Saint-Malo, France.  
Organizer: Charles Pineau

# Participants: 254  
# Presentations: 69  
# Posters: 96  
# Sponsors: 14  
# Workshops 3: MetaSpace, MALDI-STAR, MSI data analysis with Cardinal.

The conference was another very enjoyable OurCon with excellent science and amazing hospitality from our hosts (champagne and oysters during a coffee break!) and all participants.

A large number of high quality abstracts were submitted and presented. MSIS decided to promote young scientists. Charles explained this policy during the opening of the conference and expertly promoted young scientists throughout. The oral presentations and session chairs were largely young scientists, and those performing the experiments. It was highly successful, and is a policy that MSIS will maintain for future meetings.



Announcement of OurCon VIII (Sendai, Japan) during the conference dinner of OurCon VII (St. Malo, France) by its local organizer Shuichi Shimma.



Lunchtime scientific discussion at OurCon III, Pisa. PhD students and PI's design together a multicenter investigation of MSI reproducibility.

### COST and OurCon

The challenges facing the MSI community were well aligned with the research networks funded by COST (European Cooperation in Science and Technology). A group of PI's from the emerging MSI network put together an application for an MSI-focused COST Action (the name given to the networks funded by COST). The application was submitted in 2011 and was one of just 4 selected for funding from 117 applications. COST Action BM1104 started in November 2014. The founding tenets of the COST Action were Information Exchange (standardized data formats and reporting guidelines), Improved Education (training courses and enhanced researcher mobility through the extensive use of Short Term Scientific Missions), and Public Resources (Best Practice Guidelines and Standardized Methods through running multicenter studies). The COST Action was highly successful, over the course of the Action's 4 years the network:-

- organized 8 training courses, providing hands-on training to more than 100 early stage researchers;
- funded 45 short term scientific missions, in which researchers were awarded travel assistance for research visits to partner institutes;
- promoted and developed the *imzML* format for improved data transparency. Through the efforts of the COST Action *imzML* gained widespread support and established itself as the de facto MSI data standard for MSI.
- defined reporting guidelines for increased experimental transparency;
- generated databases of commonly detected molecular ions;
- organized round robin experiments to compare and contrast MSI methods. The MSI COST Action led to the first multicenter studies for MALDI MSI biomarker discovery, and was the seed that sprouted current efforts to further improve reproducibility between sites.
- initiated the OurCon conference series. The goal of the first OurCon (Ourense Conference on Imaging Mass Spectrometry), held in Ourense on 3<sup>rd</sup>-5<sup>th</sup> September 2012, was to provide a setting in which MSI experts and novices could gather and discuss the challenges facing MSI, to help it make the transition from an up-and-coming technique with high potential to a robust (semi) quantitative bioanalytical tool for biomedical research. The OurCon conference was a magnificent success with follow-up meetings organized in Antalya (OurCon II, 2014) and Pisa (OurCon III, 2015).

The OurCon III conference was the end-of-Action conference for the MSI COST Action, as well as the end of project conference for 3D MassOmics, an FP7 project coordinated by Theodore Alexandrov. The OurCon conference represents the only MSI focused conference in which MSI instrumentation, applications, and bioinformatics come together to discuss MSI science. It has thus developed into a highly efficient medium to reach many stakeholders /researchers, and the conference has supported individual projects/activities by providing time-slots for workshops/training courses. For instance at OurCon VII (2019, St. Malo, France) of the 253 conference participants, 165 attended one of the three workshops organized immediately prior to the conference.

## MSI vacancies

Researcher in Mass Spectrometry Imaging (MSI) at Uppsala University, Uppsala, SE.

Post-doc in Mass Spectrometry Imaging (MSI) Uppsala University, Uppsala, SE.

Senior scientist and post-doctoral researcher positions at AstraZeneca UK.

Post-doctoral researcher in neurochemistry at the University of Gothenburg, SE.

Technologist/Researcher position in MSI and proteomics, at Fondazione Pisana per la Scienza, Pisa, IT.

See [www.ms-imaging.org](http://www.ms-imaging.org) for more details.



Organizers of OurCon I (Liam McDonnell, Garry Corthals, Carlos Lodeiro, Jose Luis Capelo). Pictured with members of Galician government during the opening of OurCon.



Youth organization for OurCon V. Florian Barré, Alina Astefanei, Irena Dapic, Philippe Saudemont, Brenda Bakker, Lieke Lamont, and Pieter Kooijman.

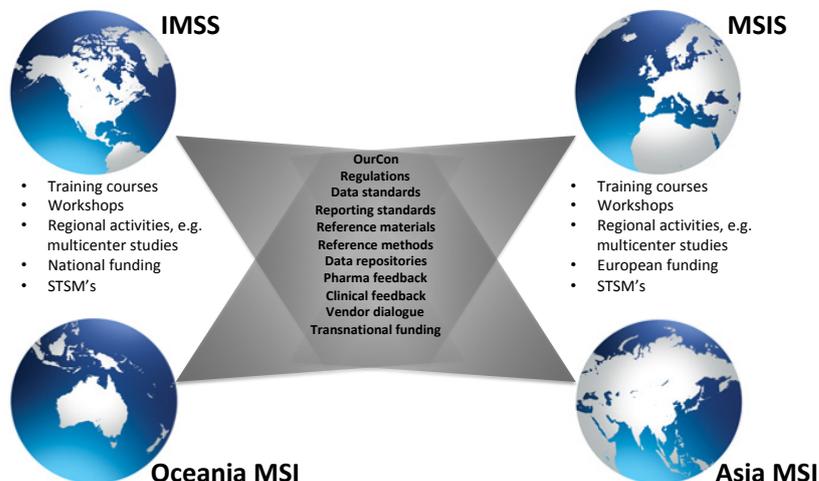
The success of the COST Action was heavily dependent on the support, drive, and selflessness of individual researchers. For instance the visibility of the Action and subsequently of MSIS were certainly aided by their homepages becoming synonymous with the long-established MS-imaging.org website, a website founded and maintained for 10+ years by Markus Stoeckli. One of the principal lessons learnt during the COST Action has been to support and nurture proactivity, as progress is utterly dependent on their energy and commitment. This is also true of the OurCon conference series. The local organizer and their support team have been responsible for the logistical organization of each conference. The local organizers for the OurCon conference series have been:-

	Place, Year	Local Organizer
<b>OurCon I.</b>	Ourense, Spain. 2012	José Luis Capelo Martínez
<b>OurCon II</b>	Antalya, Turkey. 2014	Aysel Ozpinar
<b>OurCon III</b>	Pisa, Italy. 2015	Liam McDonnell
<b>OurCon IV</b>	Ustron, Poland. 2016	Piotr Widlak
<b>OurCon V</b>	Doorn, the Netherlands. 2017	Pieter Kooijman & students of M4I
<b>OurCon VI</b>	Charleston, USA. 2018	Richard Drake
<b>OurCon VII</b>	St. Malo, France. 2019	Charles Pineau

## MSIS and international networks

At the gala dinner of the OurCon III conference it was decided by the vast majority of conference participants to form the Mass Spectrometry Imaging Society (MSIS). There followed a lengthy discussion regarding the exact form of the society, which was finally resolved at OurCon IV. It was decided to form an independent non-for-profit society, which was subsequently founded in February 2017 by Markus Stoeckli and Gerard Hopfgartner.

MSIS grew out of the European MSI COST Action, and thus has a large European membership. It is not, nor was it ever intended to be exclusively European. Currently there are MSIS members from North America, Asia, Oceania, and the Middle East. The benefits of a network for MSI researchers, whether through an informal network that organizes training courses, a large internationally funded research network (COST), or through a dedicated MSI society are now manifest. For the same reasons the North American Imaging Mass Spectrometry Society (IMSS) was founded to support North American MSI, and Asian/Oceanian societies are expected to be founded in the near future.



## OurCon 2021 & MSISymposium 2022.

Expressions of interest are sought to host the 2021 OurCon conference and MSISymposium 2022. If interested in hosting one of these MSIS meetings please contact [office@MS-imaging.org](mailto:office@MS-imaging.org) for more details.

## Knowing me, knowing your MSI PI

A future feature of the MSIS newsletter will be 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, drop a line to [office@MS-imaging.org](mailto: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.

MSI is international in nature, and MSIS researchers collaborate with partners from all continents. It is essential for MSIS members to be apprised of MSIS developments, irrespective of their country of origin, and to be able to identify prospective research collaborations in countries outside of Europe. Furthermore there are multiple activities that demand close international collaboration, ranging from experimental transparency, data transparency (*imzML*) including data repositories, as well as acting on feedback from our biomedical and industrial stakeholders. For these reasons MSIS works closely with our international partner organizations to ensure the international nature of MSI is reflected in MSIS activities, and to give MSIS support for meetings outside of Europe. For instance OurCon VI was held in Charleston (USA) in October 2018 and was co-organized with IMSS, and OurCon VIII will be held in Sendai (Japan) in November 2020. One of the challenges associated with the increasing international nature of MSI, and specifically OurCon as *the* international MSI conference, is ensuring support for young MSI researchers who are not able to travel to North America/Asia when the conference is outside of Europe. A new MSIS meeting, termed MSISymposia, has been announced that will focus on specific MSI themes and will take place in Europe when OurCon is elsewhere. In this manner MSIS seeks to continue to support younger MSI researchers (often those unable to travel afar) while ensuring international connectedness.

MSIS represents a thriving community that in cross-disciplinary collaborations is taking MS based molecular imaging to the next higher level. A clear image of the future has appeared!

## Thanks!

MSIS, OurCon, COST, and many other MSI activities have been and continue to be supported by instrument vendors, SME's, and industry. This support ranges from sponsorship to active participation to help shape MSI science to ensure it serves all stakeholders. While MSIS remains vendor neutral we acknowledge their support.

## MSIS Executive Committee



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Liam McDonnell



Vice president:  
Martina Marchetti-Deschmann



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