

mmc2025

Microscience Microscopy Congress

incorporating **EMAG 2025**

organised by the Royal Microscopical Society (RMS)

X mmc_series  RoyalMicroSoc #mmc2025UK

*Supported by the Scientific
Journal of the RMS*

**Journal of
Microscopy**

1 - 3 July 2025, Manchester Central, UK

Conference Programme

AFM & SPM
Atomic Force Microscopy &
Scanning Probe Microscopy

IOP Institute of Physics
Electron Microscopy and
Analysis Group



Event Management by

 **RMS**
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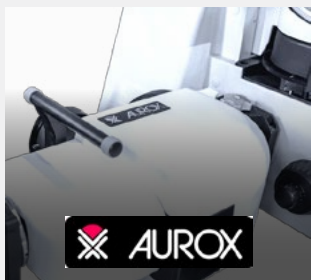
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Day 1: 17:00-17:30
Microscopy Integrations
Workshop 1
with Dr Steve Tovey

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Event Management by



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Welcome



mmc2025 Programme Chairs, Andy Brown and Maddy Parsons

On behalf of all the organisers of the Microscience Microscopy Congress 2025 (mmc2025), it is our great pleasure to welcome you back to the vibrant city of Manchester. This congress follows on from mmc2023, which saw record abstract submissions and mmc continues to be one of the largest international gatherings of global researchers in the field of microscopy. Once again, mmc2025 incorporates the Electron Microscopy and Analysis Group (EMAG) conference of the Institute of Physics, as well as our successful Frontiers in Bioimaging and Scanning Probe Microscopy (SPM) series, bringing the life and material sciences together under one roof with multiple parallel sessions.

mmc2025 has a cast of five plenary speakers, more than 65 invited speakers, around 190 contributed oral presentations and over 230 poster presentations – 413 abstracts in all! mmc2025 promises delegates the opportunity to listen, discuss, share and network, meet manufacturers and suppliers and peruse the exhibition to learn about the latest innovations in the microscopy and imaging industry. Attendees can also visit the learning zone, view the short-listed RMS scientific imaging competition entries and the poster village, visit commercial workshops and participate in a variety of social and outreach events.

Beyond the incorporation of EMAG, SPM and Frontiers in Bioimaging meetings, mmc2025 will host sessions organised by the RMS Engineering, Physical & Materials Sciences (EPMS), Data Analysis in Imaging (DAIM) and Flow Cytometry Sections that provide breadth and depth in covering the latest advances across all microscopy techniques. As well as the main event there are six additional workshops and meetings taking place: ImageJ, EMAG and Atomic Force Microscopy focused workshops, a BioImagingUK open community meeting and an Early Career Pre-Congress Symposium to promote networking opportunities. Following on after mmc2025, the ever-popular Super-resolution Workshop satellite event will take place in Leeds.

The Executive Scientific Programme Committee, primarily with the support of the Scientific Programme Committee, International Scientific Advisory Board, RMS Section Committees and RMS staff, have assembled an exciting programme covering a wide selection of topics, highlighting applications, tools and techniques in both the life and physical sciences. With six sessions running in parallel, mmc2025 is an exciting and diverse blend of light, electron, X-ray, ion beam and scanning probe microscopy and analysis.

We hope that everyone will find mmc2025 interesting and stimulating, and on behalf of the Executive Scientific Programme Committee, we wish you all a successful and enjoyable event and a very warm welcome to Manchester!



RMS President, Peter O'Toole

It is with great honour, that on behalf of the Royal Microscopical Society, I welcome everyone to mmc2025 incorporating EMAG 2025. This is one of the biggest microscopy conference and exhibition that goes from strength to strength. It is amazing to see so many abstracts submitted for both oral and poster presentations, which shows just how much exciting microscopy is ongoing within our community. A big thanks must go to the organisers and volunteers who have made this possible.

mmc is one of the few meetings that really brings many different microscopy communities together. From life to materials, light to electron and more besides. It incorporates a number of meetings, including EMAG: the Electron Microscopy and Analysis Group of the Institute of Physics, and Frontiers in Bioimaging. With our RMS Sections and Focused Interest Groups all helping to organise, the programme truly exemplifies all of our diverse specialised interests and will allow for cross fertilisation of ideas and inspiration. From complex data science for image analysis through to the multiple flavours of multimodal imaging.

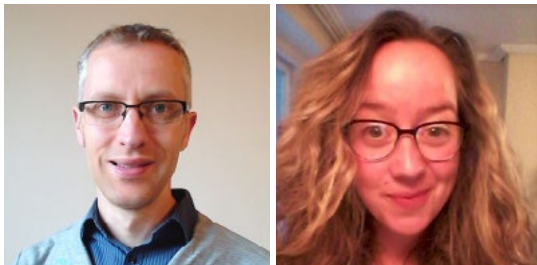
The mmc2025 exhibition is the largest, free to attend microscopy exhibition in 2025. A big thanks to all the companies that not only help support the event, but also come along with such enthusiasm and set-up interactive stands with live microscopes to explore. Plus, many are running workshops on a variety of themes that will certainly be of interest. Also inside the exhibition is the ever evolving Learning Zone, with talks on a wide range of different microscopical topics, and helpful volunteers with their microscopes ready to demonstrate a range of concepts for attendees and visitors.

The pre-congress events and courses are equally exciting and make for a fantastic opportunity for networking and getting up to speed with the latest updates for our community.

Another key networking aspect are the poster sessions, that are always highly engaging and interactive. With so many submissions this year, it will once again be a hotbed of conversation that often runs on well past the session itself.

I am pleased to see an increase in internal seating space, which further encourages and enables more networking and the opportunity to reconnect with friends and colleagues, as well as meeting new ones.

I look forward to seeing everyone at the congress, and I hope it will be a most enjoyable and productive event for everyone.



EMAG Chair, Donald MacLaren & Vice-Chair, Laura Clark

Welcome to sunny Manchester for the 2025 edition of Microscience Microscopy Congress 2025 incorporating EMAG. We hope that you share our excitement for the week ahead, kicking off with an EMAG workshop on Monday afternoon and ECR networking on Monday evening. The rest of the week is packed with a wide variety of talks, posters and demos alongside the extensive range of exhibitors and discussions awaiting you in the main exhibition hall. Please stop by the learning zone in the exhibition (where no question is too daft, believe me, we've tried) and the commercial stands (a great way to get insights into the latest developments to bring your projects forwards). We encourage you to visit the poster sessions, many of which will be presented by students and ECRs. To those newest members of our community: we especially hope that you feel welcomed and that you discover many new ideas from this event.

All of the above complement the main conference sessions: through most of this conference there are two EMAG sessions running in parallel (in rooms 'Charter 1' and 'Charter 3'), wherein we've built the theme for each session around the submitted abstracts, with the aim of reflecting the topics of most interest to our community. This year, a popular thread through submissions was 4-dimensional imaging (with an occasional foray into 5-dimensional and beyond), so we have compiled sessions focused on methods development and sessions focused on materials insights gained from the application of those methods. We've talks from groups working on STEM, TEM, SEM and FIB, experimental and theoretical, across the physical sciences. These sessions combine invited experts, contributed talks and flash talks and will give a snapshot of the current 'state of the art'. Remember that the flash talks act as adverts or signposts towards the poster session, to whet your appetite and prompt further discussion.

As is tradition, we will have keen eyes watching throughout, considering nominations for prizes for student presenters across EMAG (talks, flash talks and posters). Students will need to stay until the final closing ceremony to see if their work is selected.

A highlight to look forward to is the EMAG Plenary Talk on Thursday morning, from Prof Peter Crozier (Arizona State U., USA), guiding us through "Seeing Atomic-Level Structural Dynamics in Materials: Managing Temporal Resolution and Electron Dose Rates". Given his wide-ranging interests - from catalysts to ceramics, using EELS, in-situ, and deep learning methods - we are very excited for what is certain to be a tour de force of microscopy.

Perhaps less exciting - but still of great value to our community - we heartily encourage you to come along to the EMAG AGM on Wednesday after the morning sessions. These meetings enable us to

build plans and directions for the coming years and your input is hugely valuable to the EMAG committee. Consider it your reward after the AGM to join the EMAG Networking event on Wednesday evening at the brilliant Fazenda Rodizio Bar & Grill.

In order for such a large scale event to happen, we are incredibly grateful to the RMS and to our sponsors. The RMS Team make remarkable efforts to ensure the smooth running of this event (both before and during). Please do consider stopping by the RMS stand to extend your thanks - it is only by their tireless efforts that MMC incorporating EMAG is possible. Please also show your appreciation to our sponsors by stopping by their stands in the exhibition hall.

We are confident that we've something of great interest to all of you here. If the above isn't enough, there's a host of other MMC sessions to consider! On behalf of the EMAG Committee, we wish you a great few days of science ahead.



About the Royal Microscopical Society

The Royal Microscopical Society is at the forefront of new ideas and developments in microscopy, imaging and cytometry. It is the only truly international microscopical society, drawing distinguished members from all over the world. It also serves the needs of its company members who represent all the major manufacturers and suppliers of microscopes, equipment and services.

It is dedicated to advancing science, developing careers and supporting wider understanding of science and microscopy.

Its Council of Trustees and members drive the direction of the Society and determine its long-term strategy.

The Society publishes the Journal of Microscopy, a series of microscopy books and **infocus** Magazine (free to members of the RMS), as well as helping young scientists through bursaries. In addition, the Society pursues initiatives to encourage young microscopists who may go on to influence our future.

The RMS runs a number of meetings and courses each year covering life and physical sciences across the many disciplines of microscopy, imaging and cytometry.

For further information about RMS membership, to view other events run by the RMS or just more information in general, please visit the Royal Microscopical Society website www.rms.org.uk.

The Royal Microscopical Society is a registered charity, number 241990.

Executive Scientific Organising Committee

Co-chairs

Andy Brown
Maddy Parsons

RMS Conference Manager

Kate Wooding

RMS Organising Committee

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Asa Barber
Laura Clark

Rik Brydson-Drummond

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Rod Shipley
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Kerry Thompson
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Laura Clark
Alexander Eggeman
Sarah Harper
Emanuela Liberti
Donald MacLaren
Catriona McGilvery
Catalin Pruncu
Joanne Sharp
Thomas Slater

General Information

Registration

The Registration Desk in the entrance hall of Manchester Central will be open during the following times (all times are BST):

Monday 30 June: 0930 – 1900
Tuesday 1 July: 0800 – 1900
Wednesday 2 July: 0800 – 1830
Thursday 3 July: 0830 – 1500

Organisers Office

The Organisers Office is located by the Registration Desk. You can also contact the organiser by telephone: +44 (0)7545 438 793.

Badges

Participants and exhibitors are kindly requested to wear their badges during all congress events. Admittance to the conference sessions, exhibition and social events will be refused if the required badge cannot be presented.

Wifi

Free wifi is available throughout Manchester Central.

Congress App

The mmc2025 incorporating EMAG 2025 Congress App is available through vFairs. It offers a wide range of features including:

- Create your own personal itinerary
- Search and select sessions
- Connect with colleagues and speakers
- Identify exhibitors to add to your itinerary
- View venue information

How to access the vFairs mmc2025 Meeting App

- Step 1. Download the vFairs App from the Apple Store or Google Play Store.
- Step 2. Enter your email address.

- Step 3. Go to your inbox for an email with the One Time Code (OTC) from vFairs.
- Step 4. Copy across the OTC from the email to the App in the field called OTC.
- Step 5. Update your profile, take a tour of the App and start to network with other delegates.

Refreshment Breaks

All delegates will be able to obtain free tea and coffee all day in the exhibition from the central catering point.

Refreshments will be available to conference delegates in the poster area and around the exhibition on Tuesday from 1630 – 1830, and Wednesday from 1615 – 1815.

There will also be a number of free water points around the exhibition.

Breakfast, lunches and snacks will be available to purchase from the catering areas within the exhibition from Tuesday to Thursday.

Lunch vouchers are included in your conference registration, you will be given 1 - 3 vouchers depending on the number of days you have registered to attend. You can collect these from the Voucher Collection Point after you have collected your badge.

One lunch voucher will cover either:

Meal Deal 1: a sandwich or salad, a snack + a drink or,

Meal Deal 2: a substantial hot food item + a drink

Please note - No change given. Additional card payment will be required to cover purchases beyond stated 'Meal Deals'. Lost vouchers will not be replaced.

Thank you to TESCOAN for sponsoring the reusable water bottles and water coolers.



Transport and Parking

Information on travelling to and around Manchester is available on the Visit Manchester website – www.visitmanchester.com/travel

Exhibition Opening Times

The exhibition will be open as follows (all times are BST):

Tuesday 1 July: 0915 - 1830

Wednesday 2 July: 0915 - 1815

Thursday 3 July: 0915 - 1500

Poster Sessions

The poster sessions will take place in the poster area of the exhibition hall at the following times:

Tuesday 1 July: 1630 – 1830

Wednesday 2 July: 1615 – 1815

Sustainability

At the Royal Microscopical Society, we are committed to reducing waste, and making all of our activities more environmentally friendly and sustainable. This is especially important to us at our flagship event, mmc2025 incorporating EMAG 2025 event.

We have already made a number of improvements to the way we operate at the RMS. If you would like to hear more about our environmental activities, you can view the RMS Sustainability Statement.

Initiatives at mmc2025 incorporating EMAG 2025

- Working with event: decision to undertake a sustainability impact report which will help track our carbon footprint and benchmark mmc across environmental, social and governance standards
- Promoting the use of public transport
- Choosing a sustainable venue, with excellent transport links - Manchester Central Sustainability Strategy
- Not printing conference material but making it accessible online and through the conference app
- Reusing existing event materials like pens and notepads, no new materials created
- Where possible, using local suppliers
- Including vegan options and sustainable catering
- All bottled water in session rooms replaced with glass jugs

How can you help?

- Prioritise sustainable travel options, Manchester has an extensive multi-modal public transport network
- Help to minimise waste by bringing your own reusable items
- Make use of the recycling facilities within the venue
- Consider going vegan for one day
- Utilise digital versions of documents and programmes, most of which can be found on our app

Many thanks to our Sustainability Partners for their support.



Accessibility

The Royal Microscopical Society is committed to making mmc2025 incorporating EMAG a welcoming and inclusive environment for everyone.

We will have dedicated staff and volunteers around mmc2025 who can help assist with any accessibility query, they can be identified by purple lanyards.

Let us know in advance

If you would like to let us know of any accessibility requirement you may have in advance of mmc, please email katie@rms.org.uk.

Venue

Manchester Central is an accessible venue, the exhibition space is on the ground floor and can be easily accessed via the main entrance, which has ramp access and the doors are sensor-activated. Assistance dogs are welcome, and Induction Loop facilities are available on site. The conference rooms on the first floor can be accessed via stairs or lifts. The venue signage uses pictorial symbols and contrasting graphics on the wall-to-floor glazing.

Each lecture theatre has wheelchair spaces available, and any of the volunteers or staff will be able to show you where this seating is, or help find an accessible seating option.

The venue provides security for the congress, and these people can be identified by their blue blazers. You may be required to go through a bag check upon arrival, and be asked to scan your badge upon entry into the exhibition.

There will be a variety of food stations within the venue, as well as a number of water stations throughout the conference and exhibition.

Toilets are spaced around the venue, and an accessible toilet is available with a radar key, which can be collected from either the venue reception, or a member of RMS staff with a purple lanyard.

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Social Dinners

All three social dinners are taking place in wheelchair accessible venues. More information on the social dinners can be found on the Networking & Social Programme.

Please ensure you have notified the RMS staff of any allergens.

Quiet Room

For the first time this year mmc2025 will have a quiet room. This will be located in Central 8, in the foyer of Manchester Central next to the cloakroom, and is a free space for attendees to decompress from the hustle and bustle of the congress. The room will have noise defenders, fidget toys and a puzzles, as well as different seating options.

Attendees can enter the room on their own, and stay as long as they would like, all we ask is that you are respectful of others in the room. This room is not designed to be a working space, and we kindly ask that attendees refrain from using it as a meeting/work space.

Prayer Room

The prayer room can be accessed from the foyer, please speak to a member of RMS staff with a purple lanyard for more information.

Lactation Room

For breastfeeding, feeding and expressing, the lactation room can be accessed from the exhibition area. Please speak to a member of RMS staff with a purple lanyard.

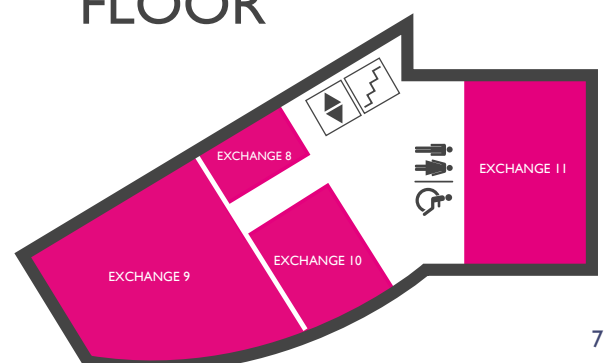
GROUND FLOOR



Key

-  Lift
-  Stairs
-  Toilets

FIRST FLOOR



Meetings & Workshops

Monday 30 June 2025, Workshops

Three workshops will take place on Monday 30 June (all times are BST).

They are a great way to learn the most up-to-date tips and techniques to help with your research.

The confirmed workshops are:

ImageJ

1330 - 1630, Exchange 6&7

ImageJ is a powerful public domain image processing and analysis program written in Java, freely available for download from the internet. Fiji is an ImageJ distribution focussed on the visualisation and analysis of microscope images in 2D, 3D, 4D and 5D.

This workshop gives a brief introduction on the use of ImageJ/Fiji and will account for all learning styles as a mix of lectures, demonstrations and hands-on sessions.

Introduction to Python for Electron Microscopists

1330 - 1630, Exchange 10

This workshop is aimed at researchers in electron microscopy who have no or little experience in coding, but would like to learn how to use the python programming language to acquire and analyse their data. We will guide participants through the basics of python, including loading and displaying images from the electron microscope. We will cover basic image analysis, including segmenting images and making measurements, with the aim to cover analysis of TEM and STEM images. Participants will be introduced to the large ecosystem of packages with python, with packages available to acquire data, analyse images and spectra, in addition to specific data such as atomic resolution images and 4D STEM.

Quantitative Electron Backscatter Diffraction (EBSD) interpretation: what do we do with all those acronyms?

1330 - 1630, Exchange 11

EBSD now routinely provides huge datasets of high quality and precision, and this highlights the need to understand how to analyse these quantitatively. This course will explain relevant methods and demystify the numerous acronyms we encounter.

- Topic 1: Crystal orientation data. How do we display and interpret these, mindful of crystal symmetry?
- Topic 2: Misorientation between measurement points. How do we calculate, display and interpret this information, again mindful of crystal symmetry?
- Topic 3: Intracrystalline distortion characterisation. There are several different ways to undertake this – how do the methods link back to the dislocations and/or elastic strains we aim to understand?
- Topic 4: Grain characterisation. How do we define grains and summarise their microstructural properties in useful ways?

Monday 30 June 2025, Meetings

The Microscience Microscopy Congress brings together a number of smaller meetings, allowing you to meet and discuss with colleagues working in your field as well as with cross-disciplinary peers, all at the same event.

As part of mmc2025 these will include:

BioImagingUK Meeting

Scientific Organiser: Georgina Fletcher

1200 - 1500, Exchange 9

This pre-congress meeting provides an opportunity for the UK Bioimaging community to discuss priorities and strategies in national infrastructure, technology development, training, careers and ways to share knowledge across different disciplines. The session will consist of short talks from members of the BioImagingUK community and industrial/institute collaboration partners to update on progress, new opportunities and initiatives. There will be interactive Q+A sessions to encourage discussion and enable emerging priorities and ideas to be highlighted. The meeting is open to everyone with an interest in bioimaging.

Early Career Symposium

Scientific Organisers: Katherine Paine, Alex Payne-Dwyer, Liam Rooney, Tim Young

1515 - 1815, Exchange 9

The Early Career Symposium is an interdisciplinary event aimed at students, postdocs and early career professionals working in the field of microscopy. This will be a great opportunity for you to network ahead of the main mmc2025 conference, as well as to showcase your research with peers.

Overall this will be a fantastic opportunity to meet fellow microscopists ahead of mmc2025.

Friday 4 July, Satellite Meeting

Super-resolution Workshop

Scientific Organisers: Aleks Ponjavic & Michelle Peckham

0845 - 1630, University of Leeds, UK

This meeting is designed to talk about the current challenges in developing and using super-resolution microscopy. With short talks and lots of time for discussion, the workshop will discuss recent advances in super-resolution imaging from new developments in imaging to analysis of super-resolution data. We particularly want to encourage early career researchers to attend and contribute to the meeting.

Associated Meetings

One of the great features of the Microscience Microscopy Congress Series is that it embraces established popular meetings to bring together different groups under one roof to network, learn, collaborate and of course, to enjoy one of Europe's largest microscopy and imaging events.

The meetings and groups incorporated with mmc2025 are:



RMS AFM & Scanning Probe Microscopies Meeting

The Annual RMS AFM & Scanning Probes Microscopies Meeting will be held during mmc2025. This meeting is unmissable for anyone using AFM or SPM in their work or studies and will cover

a wide range of topics associated with AFM and SPM including main techniques such as atomic force microscopy and scanning tunnelling microscopy as well as more specialised versions.

The AFM & Scanning Probe Microscopies Conference Sessions at mmc2025 are taking place on Wednesday 2 & Thursday 3 July, they are:

- AFM & SPM for Biosciences
- AFM & SPM in Materials Science
- Scanning Probe Microscopy of Single-molecule Assembly, Dynamics, and Reactions on Surfaces



Frontiers in Bioimaging 2025

The annual meeting in the successful Frontiers in Bioimaging series will be held during mmc2025.

Focusing on the latest biological applications and optical imaging developments, it brings together technology developers, application specialists and end users to share their work and future vision. The aim of the meeting is to create a network of multidisciplinary scientists focused on aspects of advanced imaging and its application.

With a mix of leading research leaders, their postdoctoral, PhD and technical staff, this is an ideal event for researchers to engage with a broad range of image approaches and to make useful contacts with key groups using similar technologies. We hope that this will lead to many future collaborations and ensure that recent funding awards are well promoted and benefits maximised.

The Frontiers in Bioimaging sessions take place on Wednesday 2 & Thursday 3 July, they are:

- Live Imaging Across Scales: From Single Cells to Whole Organisms in Development and Disease
- Advances in Cell and Organelle Tracking: Algorithms and Applications
- Pushing Boundaries in Multiphoton Microscopy: Deeper, Faster, Smarter
- Intravital and (Live) Tissue Imaging



EMAG 2025

Organised by the Institute of Physics' Electron Microscopy and Analysis Group (EMAG), the 2025 EMAG conference will be part of mmc2025.

In keeping with the established EMAG traditions, EMAG 2025 will include

- Three days of talks each with two parallel streams covering various electron microscopy themes in the life and physical sciences.
- Lively poster sessions.
- An impressive list of world class EMAG invited speakers.
- Plenty of networking activities with opportunities to catch up with old friends and to make new ones.

But by being a part of mmc2025, EMAG delegates can enjoy:

- A larger than usual trade exhibition of microscopy and imaging equipment.
- Benefit from the opportunities for interaction and cross disciplinary discussions with participants from other complementary meetings occurring simultaneously in the same venue including Scanning Probe Microscopy and Bioimaging UK.
- Links with more workshops and training events than were possible with a stand-alone EMAG, as well as opportunities for participants to contribute to the RMS International Scientific Imaging Competitions.

The EMAG 2025 conference sessions at mmc2025 are taking place throughout the three days and are as follows:

- Tomography and 3-Dimensional Electron Imaging
- Advanced Functional Materials in EM
- Spectroscopy in EM
- EM Techniques for Soft Matter
- 4D STEM Techniques
- Advances in EM Instrumentation and Techniques
- Beam Sensitive Materials
- High Resolution EM
- *In-situ* & Dynamic Microscopy Techniques

Conference Sessions

The conference at mmc2025 incorporating EMAG 2025 will consist of six parallel streams comprising 36 conference and EMAG sessions, with excellent speakers and vibrant supporting poster sessions.

The conference sessions are as follows:

AFM & Scanning Probe Microscopies Sessions

AFM & SPM for Biosciences

Wednesday 2 July, 1015 - 1215 & Thursday 3 July, 1015 – 1215, Exchange 9

Session Chairs: Ioanna Mela (University of Cambridge, UK) & George Heath (University of Leeds, UK)

Invited Speakers: Tanya Dahms (University of Regina, Canada), Shifra Lansky (Weizmann Institute, Israel), Jean-Luc Pellequer (Institute of Structural Biology of Grenoble, France) & Frank Lafont (Centre of Infection and Immunity of Lille, Institut Pasteur de Lille-CNRS, France)

Atomic Force Microscopy (AFM) offers powerful, label-free visualization and mechanical characterisation of biomolecules and cellular structures under native conditions. The AFM for Biosciences sessions will explore the latest advancements in AFM applications within biological and medical research, ranging from single cell down to sub-molecular scales to uncover new structural, mechanical and dynamic insights. Additionally, we will cover correlative and computational methods that enhance interpretation and data analysis to uncover the complexities of biological systems.

Keywords: Imaging, Mechanics, Biomolecules, Cells, Data Analysis.

Audience: Life, physical and multidisciplinary sciences, data analysts



These sessions are kindly sponsored by Bruker

AFM & SPM in Materials Science

Wednesday 2 July, 1415 – 1615, Exchange 9

Session Chair: Sohini Kar-Narayan (University of Cambridge, UK)

Invited Speakers: Giuliana Di Martino (University of Cambridge, UK) & Sarah Guerin (University of Limerick, Ireland)

Advances in scanning probe microscopy have continued to provide insights into nanoscale properties of a wide class of functional materials, such as polymers, oxides and 2D materials for applications in energy, neuromorphic computing, optoelectronics and sensing, to name a few. This session is dedicated to the latest developments in AFM & SPM techniques for advanced nanoscale imaging and characterisation of novel and emerging materials.

Scanning Probe Microscopy of Single-molecule Assembly, Dynamics, and Reactions on Surfaces

Thursday 3 July 1400 – 1600, Exchange 9

Session Chair: Kristina Rusimova (University of Bath, UK)

Invited Speakers: Alex Saywell (University of Nottingham, UK) & Martin Svec (Institute of Physics of the Czech Academy of Science, Czech Republic)

Scanning probe techniques (SPM) allow us to study molecules all the way down to the single chemical bond limit, as well as in direct interaction with other molecules in an ensemble. This session will explore the state-of-the-art in the field of molecular reaction dynamics on surfaces and explore the overlap with newer variations on SPM, including in combination with optical techniques.

Frontiers in Bioimaging Sessions

Live Imaging Across Scales: From Single Cells to Whole Organisms in Development and Disease

Wednesday 2 July 1015 – 1215, Charter 2

Session Chair: Periklis (Laki) Pantazis (Imperial College London, UK)

Invited Speakers: Richard White (University of Oxford and Ludwig Cancer Research, UK) & Raman Das (University of Manchester, UK)

This session highlights cutting-edge optical imaging approaches that span multiple biological scales - from single cells and organoids to intact organs and model organisms. We will explore how advanced imaging techniques reveal dynamic processes in development, tissue organisation and disease progression, with particular emphasis on cancer evolution. Presentations will showcase innovations in light microscopy that enable long-term visualisation of living systems while maintaining high spatiotemporal resolution. The session aims to foster discussion on complementary imaging strategies that bridge the gap between cellular mechanisms and organismal phenotypes.

Keywords: Live optical imaging, organoids, developmental biology, cancer imaging, intravital microscopy, light-sheet microscopy, model organisms, tissue dynamics

Audience: Developmental biologists, cancer researchers, microscopy specialists, cell biologists, and biomedical scientists interested in dynamic imaging of living systems

Advances in Cell and Organelle Tracking: Algorithms and Applications

Wednesday 2 July 1415 - 1615, Charter 2

Session Chair: Jean-Yves Tinevez (Institut Pasteur, France)

Invited Speakers: Léo Guignard (Turing Centre for Living Systems, France) & Julie Batut (University of Toulouse, France)

Life is all about dynamics and therefore tracking of biological components over time is a key topic in biology. From motors travelling on microtubules, to single cancer cells migrating, and cells flowing to build organs, the data generated with modern live cell microscopy can reveal unique information on the dynamics of Life. The goals and applications of these studies are very varied, but for them tracking is indispensable.

This session will focus on new approaches and applications of tracking for Life Sciences. It will feature invited and short talks covering both new algorithms for tracking, and innovative applications of tracking.

Speakers will present cutting-edge methodologies that enhance the accuracy and efficiency of tracking biological entities, as well as novel applications that shed light on fundamental biological processes. Topics may include advancements in machine learning for tracking, analysis tools suitable for large data, and the integration of tracking data with other biological datasets.

Pushing Boundaries in Multiphoton Microscopy: Deeper, Faster, Smarter

Thursday 3 July 1015 - 1215, Charter 2

Session Chair: Caroline Mullenbroich (University of Glasgow, UK)

Invited Speakers: Chris Xu (Cornell University, USA) & Ruth Sims (INSERM, France)

Advances in multiphoton microscopy are continually enhancing imaging performance and versatility. This session highlights cutting-edge techniques that enhance the imaging performance in challenging bioimaging applications with new and creative approaches. Examples include techniques to improve the depth penetration in scattering media, increasing speed or enhancing sensitivity and many more. Here we explore innovative solutions driving the future of nonlinear optical microscopy and their impact on biological and biomedical research.

Keywords: Nonlinear optics, multiphoton microscopy, instrumentation, microscope design,

Audience: Researchers in life and physical sciences, multiphoton microscopy experts, imaging instrumentation specialists, and data scientists in bioimaging and microscopy

Intravital and (Live) Tissue Imaging

Thursday 3 July 1400 - 1600, Charter 2

Session Chair: Leo Carlin (CRUK Scotland Institute /University of Glasgow, UK)

Invited Speakers: Leo Carlin (Cancer Research UK Scotland Institute, UK) & Katrin Heinze (University of Würzburg, Germany)

To generate better understanding of the mechanisms regulating cellular behaviour we must address cells in their endogenous microenvironment. This session will focus on microscopy approaches to reveal and measure the spatiotemporal dynamics, interactions, and activity of cells in (live) tissue and intact organisms.

Keywords: Intravital, biological imaging, microenvironment, spatiotemporal, live tissue imaging

Audience: Life, physical and multidisciplinary sciences

Life/Physical Science Sessions

Imaging and Measurement Techniques for Virology

Tuesday 1 July 1030 - 1230, Charter 2

Session Chairs: Stephen Carter (University of Glasgow, UK) & Lauren Orr (University of Glasgow, UK)

Invited Speakers: Rainer Kaufmann (Centre for Structural Systems Biology, Germany) & Thom Sharp (University of Bristol, UK)

Electrons offer several advantages over light for imaging different scales, from cellular to atomic. Fluorescence microscopy reveals a subset of labelled proteins, whereas cryo-ET can reveal labelled proteins at least an order of magnitude higher resolution than super-resolution

optical techniques. Advances in correlated cryogenic-super-resolution microscopy combined with cryo-ET now enables any fluorescence image to be complemented with a high-resolution cryo-tomogram of the same specimen. This session will showcase the latest developments in minimally disruptive, bright fluorescently-tagged proteins that hold great promise for cryo-fluorescence imaging. We will explore emerging studies that combine these labelling innovations with correlated cryogenic light and electron tomography to offer unprecedented insight into viral lifecycles and virus-cell interactions. We welcome contributions from researchers working across broader developments and applications in imaging virology-related biological phenomena across all scales.

Keywords: Tracking, fluorescent protein labelling, super-resolution microscopy, viral replication, virus-host interactions



This session is kindly sponsored by Microbiology

Imaging Host-Pathogen Interactions

Tuesday 1 July 1430 - 1630, Charter 2

Session Chairs: Liam Rooney (University of Glasgow, UK) & Rebecca McHugh (University of Glasgow, UK)

Invited Speakers: Lara Hundsdoerfer (University of Tübingen, Germany) & Jessica Mark Welch (ADA Forsyth Institute in Cambridge, Massachusetts, USA)

The latest advancements in microscopy and cytometry are transforming our understanding of host-pathogen interactions. This session focuses on how microbes establish and maintain infections while evading host defences and antimicrobial interventions. It will showcase innovative measurement techniques that reveal the dynamic interplay between pathogens and their host. New understandings of infection dynamics rely on the latest advancements spanning the disciplines of optical, scanning probe and electron microscopy, and see the adoption of advanced sample preparation techniques, such as optical clearing and 3D infection models, and the use of quantitative image analysis methods. This session aims to address both the microbial and immunological aspects of infection biology, using interdisciplinary approaches to understand the complexities of host-pathogen interactions across spatiotemporal scales.

Keywords: infection biology, inflammation, volumetric imaging, tissue models, infection/invasion models

Audience: Life, physical and multidisciplinary sciences. Optical, electron and scanning probe microscopists and data analysts



This session is kindly sponsored by Microbiology

FIB Applications and EM Sample Prep Techniques in Physical Sciences

Tuesday 1 July 1030 – 1230, Exchange 11

Session Chair: Xiangli Zhong (University of Manchester, UK)

Invited Speakers: Yu-Lung Chiu (University of Birmingham, UK) & Geoff West (Warwick University, UK)

Focused Ion Beam microscopy has become one of the main techniques in the physical sciences and multidisciplinary sciences in recent years thanks to the rapid development of innovative tools for sample preparation, 3D imaging and analytical spectroscopy, it has significantly enhanced our understanding from the macroscopic to the sub-nanometer level covering a range of systems from metals, ceramics, polymers, composites, and biomaterials. This session discusses recent advances in characterisation and sample preparation techniques not limited to ion or electrons beams, but also conventional methods in physical and multidisciplinary sciences, ranging from (not limited to) polishing, etching/coating to imaging techniques, for all type of microscopes, examples of the related techniques are serial-section EM/FIB, TEM/STEM imaging, in-situ EM, Electron and FIB imaging, micro CT, and tomography etc.

Keywords: Focused Ion Beam, Sample preparation, 3D imaging, Electron Microscopy, Materials, Imaging

Audience: Material, physical, and multidisciplinary sciences

FIB Applications and EM Sample Prep Techniques in Biological Sciences

Tuesday 1 July 1430 - 1630, Exchange 11

Session Chair: Michael Grange (Rosalind Franklin Institute, UK)

Invited Speakers: Philipp Erdmann (Human Technopole, Italy) & Kedar Narayan (Frederick National Laboratory, National Cancer Institute, NIH, USA)

The use of focused ion beams (FIB) has become central in the life sciences in recent years thanks to the rapid development of innovative hardware and method developments enabling complex sample shaping, etching, welding, 3D imaging and analytical spectroscopy approaches. It has significantly improved our ability to understand intracellular complexity, with applications to volume electron microscopy and structural biology covering a range of systems from biological materials, including tissues and cells.

This session discusses recent advances in characterisation and sample preparation techniques where the use of FIB is central to understanding biology. The session is not limited to ion or electrons beams, but will also discuss methods central to FIB applications, including sample preparation (fixation/vitrification), (cryo-) ultramicrotomy, serial-section EM/FIB, Electron Tomography, SBEM imaging, micro-CT, and array tomography.

This session aims to discuss frontier of FIB developments in biology, at room temperature and at cryo, from applications to hardware.

Keywords: Focused Ion Beam, Sample preparation, Tomography, Electron Microscopy, Biological sciences, Tissues and cells

Audience: Biological and multidisciplinary sciences

Bioimaging in Industry

Thursday 3 July 1400 – 1600, Charter 3

Session Chair: Richard Kasprovicz (GSK plc, UK)

Invited Speakers: Andy Nicholls (GSK, UK) & Aditi Pradhan (AstraZeneca, UK)

The use of imaging is pervasive within drug discovery, from high content screens for profiling tens-of-thousands of perturbagens in early discovery to the use of clinical imaging techniques to support monitoring and safety decisions post candidate selection. The vast information content that can be extracted from images, paired with low cost of data generation, is today bolstered by inferences that can be made from integration with ever-more sophisticated AI/ML analytics; such factors have driven the increasing adoption of imaging to provide decision-making data making at key discovery milestones. This session focusses on innovative approaches adopted in bioimaging in industry, highlighting how data from imaging technologies drives medicine development. The session will also highlight areas where industry and academia can collaborate for adoption of novel and innovative imaging solutions.

Keywords: High content imaging, Screening, Drug Discovery, Clinical Imaging

Audience: Pharmaceutical Industry, Contract Research, Academic, Life Scientists, Data Scientists.

Microscopy of Materials across Industry

Thursday 3 July 1015 – 1215, Charter 3

Session Chair: Andy Brown (University of Leeds, UK)

Invited Speakers: Eleanor Merson (NPL, UK) & Mark S'ari (Johnson Matthey, UK)

This session will cover the use and value of all types of microscopy for industrial applications from manufacturing quality control, failure analysis and metrology through to product innovation. The session aims to highlight developments for microscopy in the materials industries including where collaboration between industry and academia can be useful. Topics will range from machine learning and data analysis of microscopy that supports measurement in manufacturing to advanced electron microscopy techniques for development of materials and processes that will help enable the UK energy transition.

Keywords: Metrology, Manufacturing, Product Development and Innovation, Optical and Electron Microscopy

Audience: Materials and Manufacturing Industry, Contract Research, Academic, Materials Scientists, Data Scientists

Energy Materials: Microscopy and Analytical Advances

Wednesday 2 July 1015 - 1215, Exchange 11

Session Chair: Sean Collins (University of Leeds, UK)

Invited Speakers: Alice Merryweather (University of Cambridge, UK) & Mathias Uller Rothermann (Foshan Xianhu Laboratory, China)

The energy transition requires significant advances in nano- to atomic-scale structure-function principles for accelerated development of batteries and photovoltaics to electrolyzers and fuel cells and many other energy conversion and storage approaches. These technologies depend on the integration of multiple materials components, and microscopic analysis is therefore central to boosting the efficiencies of existing materials and leading on materials discovery. Across these

diverse materials, efficiency gains depend on quantitative, microscopic investigation of charge carrier transport physics as well as of the materials chemistry determined by variations in atomic structure, composition, and electronic structure throughout the materials microstructure and across interfaces. A common set of microscopy challenges draws these diverse materials together, notably the combined analysis of inorganic and organic fractions and high and low atomic number constituents. This session focuses on advances in all areas of microscopy (visible light, X-ray, scanning probe, ion microscopy, SEM, and TEM) for materials for energy applications, including inorganic, hybrid, and organic semiconductors, cathode/anode and binder materials, membranes and electrolytes, and related materials.

High Dimensional Bioimaging: Applications and Analysis

Tuesday 1 July 1430 – 1630, Charter 4

Session Chair: Philip Hobson (The Francis Crick Institute, UK) and Morag Rose Hunter (AstraZeneca, UK)

Invited Speakers: Joel Lüthi (University of Zurich, Switzerland) & Febe van Maldegem (Amsterdam University Medical Center, The Netherlands)

Image sets allow us to extract rich “high dimensional” datasets, with a large number of features. This has become increasingly accessible with recent developments of hardware and image analysis software. The complexity of the data has led to an explosion of machine learning- and artificial intelligence-based analysis approaches. We can now identify and differentiate complex, rare, and heterogeneous phenotypes with spatial resolution. This is useful for investigating basic biology, early to late drug discovery, and clinical applications.

Opportunities in SIMS Imaging

Tuesday 1 July 1430 – 1630, Exchange 9

Session Chair: David Scurr (University of Nottingham, UK)

Invited Speakers: John Fletcher (University of Gothenburg, Sweden) & Katie Moore (University of Manchester, UK)

Advances in secondary ion mass spectrometry (SIMS) have yielded significant improvements in spatial resolving power, molecular specificity and complexity of their associated imaging data-sets. These hyperspectral mass spectrometry imaging (MSI) data-sets are enabling new insights into a multidisciplinary range of academic and applied research areas from developing energy materials to novel understandings in cancer tumour heterogeneity. The increased complexity of these data-sets has been accompanied by the development of novel approaches to fully exploit the information content and the introduction of correlative workflows with other imaging techniques.

Cryo and In situ Imaging Techniques at the Chemistry-Biology Interface

Tuesday 1 July 1030 – 1030, Exchange 9

Session Chair: Sergio Bertazzo (University College London, UK)

Invited Speakers: James Douglas (Imperial College London, UK) & Fabio Nudelman (University of Edinburgh, UK)

Contemporary advances in microscopy and computational methods have greatly enhanced our understanding of the fundamental building blocks of living organisms. Today, it is possible to obtain the 3D structure of proteins and to see how they interact with specific chemical compounds. However, visualising interactions between

compounds in vivo remain one of the key research challenges in life sciences. This session will discuss new imaging methods and techniques that are helping us to better understand in vivo systems by freezing compounds in place (cryo methods) or by directly imaging biological systems.

Keywords: Cryo microscopy, in-situ microscopy, Biology, Medicine, Chemistry, Material Sciences, Imaging.

Audience: Researchers in physics, chemistry, material sciences and life sciences, cryo and in-situ microscopists.

Cryo-EM in the Life Sciences

Thursday 3 July 1015 - 1215, Exchange 11

Session Chair: Chris Parmenter (University of Nottingham, UK)

Invited Speakers: Saskia Bakker (University of Warwick, UK) & Michael Grange (Rosalind Franklin Institute, UK)

Electron Microscopy (EM) conducted at cryogenic temperatures has been a feature of life sciences research for over forty years. Both scanning and transmission electron microscopes play a part in understanding structures and organisation in life science samples.

An inherent challenge in this field is that such samples often contain a high degree of water, which must be stabilised before entering the vacuum of most EM's. Prior to observation in the TEM or SEM, correct sample preparation is key to preservation of structures in as close to native state as possible. Reproducibility and challenges of sample handling such as contamination are among the biggest challenges in cryo-EM.

This session will explore the improvements in sample preparation, overcoming cryo's biggest challenges and the resulting science unlocked by SEM and TEM.

Keywords: Cryo-SEM, Cryo-TEM, Sample preparation, contamination, soft-matter

Audience: Life-sciences, Soft-matter, Biological / Biomedical Sciences

Micro CT and Volume EM

Wednesday 2 July 1415 - 1615, Exchange 11

Session Chair: Ruslan Hlushchuk (Universität Bern, Switzerland)

Invited Speakers: Annapaola Parrilli (EMPA Swiss Federal Laboratories for Materials Science & Technology, Switzerland) & Adrian Andreas Wanner (Paul Scherrer Institute PSI, Switzerland)

Both microCT and volume EM are three-dimensional imaging techniques that have delivered new insights into biological systems in recent years. Volume EM encompasses imaging technologies based on both transmission and scanning electron microscopy enabling revealing of the 3D ultrastructure of the cells and tissue. MicroCT provides lower resolution in comparison to volume EM but is non-destructive and can therefore be combined ex vivo with other methods including volume EM.

This session is aimed to address recent advances in volume EM and ex vivo applications of microCT in preclinical and biomedical research (with or without contrasting agents or dyes), including correlative imaging using one of these approaches or both.

Keywords: ex vivo microCT, contrast-enhanced microCT, volume EM, correlative imaging, three-dimensional imaging

Quantitative Analysis and Modelling

Thursday 3 July 1400 - 1600, Exchange 11

Session Chair: Kurt Anderson (The Francis Crick Institute, UK) & Martin Jones (The Francis Crick Institute, UK)

Invited Speakers: Laura Clark (University of York, UK) & Guillaume Salbreux (UNIGE, Switzerland)

Image data can be used to inform a wide variety of quantitative models. Models can be used to inform the image acquisition process itself or to study physical and biological samples across multiple scales. The development and testing of models necessarily relies on the use of advanced image analysis methods to derive quantitative data from micrographs. This session will explore the interplay between imaging and the development of associated quantitative models.

EBSD Applications to Novel Materials and Minerals

Wednesday 2 July 1015 – 1215, Charter 4

Session Chair: John Wheeler (University of Liverpool, UK)

Invited Speakers: Paola Bassani (CNR, Italy) & Sandra Piazzolo (University of Leeds, UK)

EBSD is a fundamental tool for describing microstructures in crystalline materials, to understand better the processes that form them and how properties such as cost and reliability may be improved. It has often been applied to alloys of relatively restricted crystal symmetry (cubic and hexagonal) but in recent years has been extended to a greater variety of materials such as perovskites, high entropy alloys, shape memory alloys, light emitting diodes etc. some of which have lower symmetries (tetragonal, orthorhombic). In parallel, geologists have been investigating a wide range of minerals with different symmetries. In this session we invite contributions that illustrate the uses of EBSD on novel manufactured crystalline materials and on minerals, seeking emerging themes and challenges.

Keywords: EBSD, Alloy, Mineral, Crystalline material

Audience: metallurgists, ceramicists, geologists

EBSD Technique: Advances in Data Collection and Processing

Wednesday 2 July 1415 – 1615, Charter 4

Session Chair: Nathalie Gey (CNRS - Université de Lorraine, France)

Invited Speakers: Clément Lafond (CEA, France) & Jean-Charles Stinville (University of Illinois at Urbana-Champaign, USA)

Electron Backscatter Diffraction (EBSD) is a scanning electron microscope (SEM) based technique that gives the local crystal orientation in a sample. The progress made over the years has significantly improved the quality in the orientation determination while reducing the data acquisition time. So that today, EBSD is a powerful tool for enriched microstructure characterization from the millimeter to the nanometer scale.

The session will focus on the recent advances in the EBSD and related techniques, such as transmission Kikuchi diffraction (TKD), electron channelling contrast imaging (ECCI), 3D Orientation Imaging and could also question how machine learning could further assist future progress. The session will include state-of-the-art developments in new generation of detectors, in Kikuchi Pattern analysis for advanced material data extraction and in the latest data post-processing routes.

Coupling EBSD with other techniques such as in-situ deformation and temperature tests, nanoindentation and Raman experiments will also be in the scope of the session.

Keywords: Electron Microscopy, Orientation, Diffraction, Materials, Imaging

Audience: Researchers in physics, materials science and geology, electron microscopy experts and data analysts

Using X-rays in Biological Research

Thursday 3 July 1015 – 1215, Charter 4

Session Chair: Liz Duke (EMBL Hamburg, Germany)

Invited Speakers: Katie Dexter (University of Southampton, UK) & Rachel Williams (University of Liverpool, UK)

In recent years the usage of X-ray techniques, and particularly X-ray imaging, in biology has seen a significant increase. This is in part due to advances laboratory X-ray source technology but also due to exploitation of synchrotron facilities by biologists. In this session we will highlight the power of X-rays with their ability to probe deep into soft matter such as tissues and cells; where the results obtained using X-rays are at the heart of the work being presented, either standing alone or shoulder to shoulder alongside other techniques in order to provide answers to the biological question posed.

Keywords: X-rays, Imaging, Tissue, Cells

Audience: Those actively involved in using X-rays in their biological research and those interested in finding out what is possible with X-rays.

Nanoscale X-ray Imaging: Computation Imaging Techniques and Applications

Thursday 3 July 1400 – 1600, Charter 4

Session Chair: Silvia Cipiccia (University College London, UK)

Invited Speakers: Darren Batey (Diamond Light Source, UK) & Gerardina Carbone (MAX IV Laboratory Lund University, Sweden)

Computation imaging techniques including ptychography, holography and coherent diffraction imaging, have revolutionised the way in which microscopy is performed at the nanoscale. By replacing the lens with a computational algorithm, these techniques have overcome the limitations of conventional microscopy due to lens aberrations. This session aims to bring together researchers working on technique and algorithm development, as well as applications in the X-ray regime, from life science, to energy material and magnetic domains studies.

Keywords: Ptychography, X-ray, Computational Imaging, Coherent Diffraction Imaging, Holography

Audience: Those actively involved in nanoscale x-ray imaging technique and applications as well as anyone curious about nanoscale imaging and interested in knowing more

Late Breaking

Tuesday 1 July 1030 – 1230, Charter 4

Session Chairs: Gail McConnell (University of Strathclyde, UK) & Myfanwy Adams (John Innes Centre, UK)

Late breaking submissions are invited to report the very latest results in microscopy. This abstract deadline is not intended to be merely an extension of the general submission deadline: instead this session provides an opportunity for researchers to present the most exciting recent developments in the field.

EMAG 2025 Sessions

Tomography and 3-Dimensional Electron Imaging

Tuesday 1 July 1030 – 1230, Charter 1

Session Chairs: Laura Clark (University of York, UK) & Thomas Slater (Cardiff University, UK)

Invited Speaker: Mary Scott (University of California, Berkeley, USA)

Advanced Functional Materials in EM

Tuesday 1 July 1030 – 1230, Charter 3

Session Chairs: Catriona McGilvery (Imperial College London, UK) & Alexander Eggeman (University of Manchester, UK)

Invited Speaker: Peter van Aken (Stuttgart Center for Electron Microscopy, Max Planck Institute for Solid State Research, Germany)

Spectroscopy in EM

Tuesday 1 July 1430 – 1630, Charter 1

Session Chairs: Catriona McGilvery (Imperial College London, UK) & Donald MacLaren (University of Glasgow, UK)

Invited Speaker: Luiz Tizei (CNRS, France)

EM Techniques for Soft Matter

Tuesday 1 July 1430 – 1630, Charter 3

Session Chairs: Sarah Harper (JEOL, UK) & Catalin Pruncu (University of Birmingham, UK)

Invited Speaker: Martha Ilett (School of Chemical and Process Engineering, University of Leeds, UK)

4D STEM Techniques

Wednesday 2 July 1015 – 1215, Charter 1

Session Chairs: Donald MacLaren (University of Glasgow, UK) & Laura Clark (University of York, UK)

Invited Speaker: Ton van Helvoort (Norwegian University of Science and Technology (NTNU), Trondheim, Norway)

Advances in EM Instrumentation and Techniques

Wednesday 2 July 1015 – 1215, Charter 3

Session Chairs: Thomas Slater (Cardiff University, UK) & Joanne Sharp (University of Huddersfield, UK)

Invited Speaker: Lewys Jones (Trinity College Dublin, Ireland)

Beam Sensitive Materials

Wednesday 2 July 1415 – 1615, Charter 1

Session Chairs: Catalin Pruncu (University of Birmingham, UK) & Joanne Sharp (University of Huddersfield, UK)

Invited Speaker: Patricia Abellan (CNRS, France)

High Resolution EM (1)

Wednesday 2 July 1415 – 1615, Charter 3

Session Chairs: Alexander Eggeman (University of Manchester, UK) & Sarah Harper (JEOL, UK)

Invited Speaker: Ana Sanchez (University of Warwick, UK)

In-situ & Dynamic Microscopy Techniques

Thursday 3 July 1015 – 1215, Charter 1

Session Chairs: Alexander Eggeman (University of Manchester, UK) & Laura Clark (University of York, UK)

Invited Speaker: Oriol Gavalda-Diaz (Imperial College London, UK)

High Resolution EM (2)

Thursday 3 July 1400 – 1600, Charter 1

Session Chairs: Thomas Slater (Cardiff University, UK) & Catriona McGilvery (Imperial College London, UK)

Invited Speaker: Caterina Ducati (University of Cambridge, UK)



Plenary Speakers

Confirmed plenary speakers at mmc2025 incorporating EMAG 2025 (all times are BST):



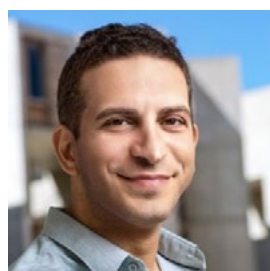
Peter Crozier

Arizona State University, USA

Talk title: *Seeing Atomic-Level Structural Dynamics in Materials: Managing Temporal Resolution and Electron Dose Rates*

Thursday 3 July 0900 – 0945, Charter 1

Peter A. Crozier is a Professor of Materials in the School for Engineering of Matter, Transport and Energy at Arizona State University. He has extensive experience in characterizing ceramics, metal nanoparticles and catalytic materials for applications related to energy and the environment. He has expertise in developing and applying advanced techniques of transmission electron microscopy, including in situ and operando methods to problems in ion conductors and catalytic materials. He is also applying electron energy-loss spectroscopy to determine the optical and vibrational properties of nanomaterials. Over the last 5 years, he has explored the effectiveness of various deep learning models for removing noise in electron images, spectra and diffraction patterns. He is a Fellow of the Microscopy Society of America and also a member of the Materials Research Society, the North American Catalysis Society and the American Ceramics Society. He served as the President of the Microscopy Society of America. He has organized numerous workshops, schools and symposia and has published 200 archival journal papers and book articles.



Uri Manor

University of California San Diego, USA

Talk title: *Novel tools for studying organelle dynamics in health and disease*

Thursday 3 July 1600 – 1645, Charter 1

Dr. Uri Manor is the Faculty Director of the Goeddel Family Technology Sandbox and Assistant Professor of Cell & Developmental biology at the University of California, San Diego School of Biological Sciences. The Manor Lab develops new methods and tools for studying cellular dynamics with nanometer precision (a sheet of paper is about 100,000 nanometers thick). This includes artificial-intelligence-based computational approaches (deep learning) that integrate data from microscopes to increase image resolution, sensitivity, and collection speed beyond what's possible with any other existing method. The Manor Lab also develops new imaging, genetic, and molecular tools

that facilitate the monitoring and manipulation of cellular structures implicated in diseases including neurodegenerative diseases and hearing loss. Using these advanced technologies, the Manor Lab connects structure to function. Their research advances scientists' understanding of these cellular processes and ultimately helps discover and create new therapies for treating these conditions.



Rachel Oliver

University of Cambridge, UK

Talk title: *Microscopy of Mesoporous Nitrides*

Wednesday 3 July 0900 – 0945, Charter 1

Prof Rachel Oliver FREng is a materials engineer, inventor and spinout founder, and Director of the Cambridge Centre for Gallium Nitride. Her passion for understanding and engineering the small-scale structure of semiconductor materials to enable new technologies has been recognised in 2021 by her selection as an IEEE Photonics Society Distinguished Lecturer and in 2023 by the award of a Royal Academy of Engineering Chair in Emerging Technologies. Rachel is an advocate for equality, diversity and inclusion in science and engineering, and has addressed the Parliamentary and Scientific Committee on these issues. She is also engaged with policy-making as a member of the Advisory Board to the All Party Parliamentary Group on Semiconductors.



Jess Wade

Imperial College London, UK

Talk title: *Navigating academia's hidden curriculum*

Wednesday 2 July 1800 – 1830, Charter 1

Dr Jess Wade is a Royal Society University Research Fellow and Lecturer in Functional Materials in the Department of Materials at Imperial College London. Her research considers new materials for optoelectronic devices and quantum technologies, with a focus on chiral systems and the identification of strategies to control photon and electron spin. Outside of the lab, Jess is involved with several science communication and outreach initiatives. She is committed to improving diversity in science, both online and offline.



Assaf Zaritsky
Ben-Gurion University of the Negev,

Talk title: *Extracting the invisible from live cell microscopy*

Tuesday 1 July 0905 – 0950, Charter 1

Assaf Zaritsky is an Associate Professor in the Department of Software and Systems Information Engineering at Ben-Gurion

University of the Negev (BGU), Israel. He performed his graduate training in computer science at Tel Aviv University, and postdoctoral training at UT Southwestern Medical Center at Dallas and joined BGU in October 2018. His research is in computational cell biology, at the interface of data science and cell biology. Motivated by fundamental questions in cell biology, his lab produces biological insights along with specialized analytic tools that reveal hidden patterns in dynamic and high-dimensional cell imaging data. The main research themes in the lab are multicellular information processing and interpretable AI in cell imaging. Research projects are interdisciplinary and involve close cooperation with experimental cell biologists.

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Programme Overview

Key						
EMAG Session	Life / Physical Science Session	AFM & Scanning Probe Microscopies Session	Frontiers in Bioimaging Session	Pre-Conference Workshop or Meeting	Plenary Talks	Commercial Workshops

Monday 30 June							
1200 - 1800	EMAG Workshop (1330 - 1630) Exchange 10	ImageJ Workshop (1330 - 1630) Exchange 6&7	Quantitative Electron Backscatter Diffraction (EBSD) Interpretation Workshop (1330 - 1630) Exchange 11	BioImagingUK Meeting (1200 - 1500) Exchange 9			
				Early Career Symposium (1500 - 1800) Exchange 9			
1800 onwards	BioImagingUK / Early Career Networking Event Central Foyer						
Tuesday 1 July							
0900 - 0905	Welcome Charter 1						
0905 - 0950	Plenary Talk: Assaf Zaritsky - Extracting the Invisible from Live Cell Microscopy Charter 1					0915 Exhibition opens	
0950 - 1030	Networking Coffee Break & Exhibition Exhibition Hall						
1030 - 1230	Tomography and 3-Dimensional Electron Imaging Charter 1	Advanced Functional Materials in EM Charter 3	Late Breaking Charter 4	Cryo and In situ Imaging Techniques at the Chemistry - Biology Interface Exchange 9	FIB Applications and EM Sample Prep Techniques in Physical Sciences Exchange 11	Imaging and Measurement Techniques for Virology Charter 2	Commercial Workshops (1030 - 1730) Workshops 1, 2 & 3
1230 - 1430	Lunch Break & Exhibition						
1430 - 1630	Spectroscopy in EM Charter 1	EM Techniques for Soft Matter Charter 3	High Dimensional Bioimaging: Applications and Analysis Charter 4	Opportunities in SIMS Imaging Exchange 9	FIB Applications and EM Sample Prep Techniques in Biological Sciences Exchange 11	Imaging Host - Pathogen Interactions Charter 2	
1630 - 1900	Poster Session One & Exhibition (1630 - 1830) Exhibition Hall			RMS Life Sciences Section AGM & Engineering, Physical & Material Sciences Section AGM (1645 - 1715) Charter 4			
				Outreach & Education Committee AGM & RMS AGM (1800 - 1900) Charter 1			

Wednesday 2 July								
0900 - 0945	Plenary Talk: Rachel Oliver - Microscopy of Mesoporous Nitrides <i>Charter 1</i>							
0915	Exhibition opens							
0945 - 1015	Networking Coffee Break & Exhibition <i>Exhibition Hall</i>							
1015 - 1215	4D STEM Techniques <i>Charter 1</i>	Advances in EM Instrumentation and Techniques <i>Charter 3</i>	EBSD Applications to Novel Materials and Minerals <i>Charter 4</i>	AFM & SPM for Biosciences <i>Exchange 9</i>	Energy Materials: Microscopy and Analytical Advances <i>Exchange 11</i>	Live Imaging Across Scales: From Single Cells to Whole Organisms in Development and Disease <i>Charter 2</i>	Commercial Workshops (1015 - 1715) <i>Workshops 1, 2 & 3</i>	
	EMAG AGM <i>Charter 1</i>							
1215 - 1415	Lunch Break & Exhibition			RMS AFM & SPM Section AGM (1215 - 1230) <i>Exchange 9</i>				
				RMS Scientific Imaging Competition Prize Giving (1330 - 1400) <i>Central Foyer</i>				
1415 - 1615	Beam Sensitive Materials <i>Charter 1</i>	High Resolution EM (1) <i>Charter 3</i>	EBSD Technique: Advances in Data Collection and Processing <i>Charter 4</i>	AFM & SPM in Materials Science <i>Exchange 9</i>	Micro CT and Volume EM <i>Exchange 11</i>	Advances in Cell and Organelle Tracking: Algorithms and Applications <i>Charter 2</i>		
1615 - 1830	Poster Session Two & Exhibition <i>Exhibition Hall</i>		RMS Data Analysis in Imaging Section AGM, RMS Electron Microscopy Section AGM & RMS Light Microscopy Section AGM (1645 - 1715) <i>Charter 4</i>					
			Plenary Talk: Jess Wade - Navigating academia's hidden curriculum (1800 - 1830) <i>Charter 1</i>					
1930 onwards	EMAG, Frontiers in Bioimaging and AFM & SPM Networking Events							
Thursday 3 July								
0900 - 0945	Plenary Talk: Peter Crozier - Seeing Atomic-Level Structural Dynamics in Materials: Managing Temporal Resolution and Electron Dose Rates <i>Charter 1</i>							
0915	Exhibition opens							
0945 - 1015	Networking Coffee Break & Exhibition <i>Exhibition Hall</i>							
1015 - 1215	<i>In-situ</i> & Dynamic Microscopy Techniques <i>Charter 1</i>	Microscopy of Materials across Industry <i>Charter 3</i>	Using X-rays in Biological Research <i>Charter 4</i>	AFM & SPM for Biosciences <i>Exchange 9</i>	Cryo-EM in the Life Sciences <i>Exchange 11</i>	Pushing Boundaries in Multiphoton Microscopy: Deeper, Faster, Smarter <i>Charter 2</i>	Commercial Workshops (1115 - 1345) <i>Workshops 1, 2 & 3</i>	
1215 - 1400	Lunch Break & Exhibition <i>Exhibition Hall</i>							
1400 - 1600	High Resolution EM (2) <i>Charter 1</i>	Bioimaging in Industry <i>Charter 3</i>	Nanoscale X-ray Imaging: Computation Imaging Techniques and Applications <i>Charter 4</i>	Scanning Probe Microscopy of Single-molecule Assembly, Dynamics, and Reactions on Surfaces <i>Exchange 9</i>	Quantitative Analysis and Modelling <i>Exchange 11</i>	Intravital and (Live) Tissue Imaging <i>Charter 2</i>		
1500	Exhibition closes							
1600 - 1645	Plenary Talk: Uri Manor - Novel Tools for Studying Organelle Dynamics in Health and Disease <i>Charter 1</i>							
1645 - 1700	Thank Yous & Poster Prize Awards <i>Charter 1</i>							
Friday 4 July								
	Super-resolution Workshop, University of Leeds							

Session Schedule:

Tuesday 1 July, Morning

Tomography and 3-Dimensional Electron Imaging Session Chairs: Laura Clark (University of York, UK) & Thomas Slater (Cardiff University, UK) Room: Charter 1	Advanced Functional Materials in EM Session Chairs: Catriona McGilvery (Imperial College London, UK) & Alexander Eggeman (University of Manchester, UK) Room: Charter 3	Late Breaking Session Chairs: Gail McConnell (University of Strathclyde, UK) & Myfanwy Adams (John Innes Centre, UK) Room: Charter 4
1030 - 1100 307 Invited Multidimensional characterization of nanomaterials with electron microscopy Mary Scott UC Berkeley, USA. Lawrence Berkeley National Lab, USA 1100 - 1115 62 Atoms on the move: Quantifying intraframe dynamics in ADF-STEM Tom Stoops University of Antwerp, Belgium 1115 - 1130 345 Structure determination from Structure determination of naturally-occurring bacterially derived protein-nanocrystals by use of electron diffraction methods Marcus Gallagher-Jones The Rosalind Franklin Institute, UK. 1130 - 1145 294 Developments in Atomic Resolution iDPC Tomography for Low-Dose Applications and Light Element Imaging Ella Kitching Cardiff University, UK 1145 - 1200 87 Advanced workflows for EDX and EELS electron tomography through automated acquisition and multimodal reconstruction Tatiana Kormilina Graz Centre for Electron Microscopy (ZFE), Austria. Graz University of Technology, Austria 1200 - 1215 85 Correlation of the morphology and microstructure of electrodeposited Ni films under the influence of Cl ions using high speed atomic force microscopy and 3D electron backscatter diffraction Ayesha Mubshrah University of Bristol, UK 1215 - 1230 70 Using electrons to 3D-Print ferromagnetic nanostructures and characterise their 3D magnetic states using tomographic model based iterative reconstruction Aurys Silinga University of Glasgow, UK	1030 - 1100 28 Invited Uncovering Novel Interfacial Phenomena in Functional Oxides: From Symmetry-Forbidden Interfaces to Tunable Magnetic Anisotropy Peter A. van Aken Max Planck Institute for Solid State Research, Germany 1100 - 1115 395 Grain-boundary recombination in CdTe and other solar cells Luka Blazejic Helmholtz Zentrum Berlin, Germany 1115 - 1130 221 Structure and lifetime of meta-stable graphitic nanoribbons Christopher Allen University of Oxford, UK. ePSIC, Diamond Light Source, UK 1130 - 1145 83 Electron Microscope Investigations of defects in Nano-LEDs Based on Micron Sized III Nitride Platelets Anders Gustafsson Southern University of Science and Technology, Shenzhen, China. Lund University, Sweden 1145 - 1200 47 Electron Microscopy of Novel Lithium Alloy Anodes for Solid State Batteries Ed Darnbrough University of Oxford, UK 1200 - 1215 424 Electric Fields in 4H-SiC MOS Capacitors measured by STEM EBIC Eoin Moynihan University of Warwick, UK 1215 - 1230 436 Strain Mapping in Heat-Treated Al-Cu-Li Alloy Using Scanning Electron Diffraction Vit Hornik Czech Academy of Sciences, Brno, Czech Republic	1030 - 1045 539 A cloneable tag for FWM-CLEM Sophie Williams University of Bristol, UK 1045 - 1100 490 Deep-learning-assisted SICM for enhanced real-time imaging of nanoscale biological dynamics Zahra Ayar EPFL, Lausanne, Switzerland 1100 - 1105 1086 Flash Phosphorescence and fluorescence lifetime imaging of eosin Y under nitrogen flow and atmospheric conditions Alexandra E. Bailie STFC, Oxford, UK 1105 - 1110 1093 Flash PolSpec – fast, flexible, cost-effective hyperspectral imaging Huihui Liu Imperial College London, UK 1110 - 1125 531 Imaging the Dynamics of Bacterial Stress Granules with Super Resolution Microscopy Lewis Frame University of York, UK 1125 - 1140 544 Accuracy improvement from calibration-sample free, deep learning based diffraction distortion correction for SAED and ptychography Arthur Blackburn University of Victoria, Canada 1140 - 1145 1094 Flash New method of imaging laterally extended tissue using mesoscale light sheet microscopy Sharika Mohanan University of Glasgow, UK 1145 - 1150 1096 Flash A theoretical framework for the necessity of structured illumination in near-field ptychography Natalie Nord The Rosalind Franklin Institute, UK. University of Warwick, UK 1150 - 1205 538 Live imaging and quantitative analysis of mesothelial cells dynamics, morphology and marker expression in a mouse omentum model Lucie Marx University of Liverpool, UK 1205 - 1210 1087 Flash Paving way to Understand Bacteria-Nanotopography Interactions by Cryo FIB/SEM and Cryo- soft X-ray Microscopy Chaturanga D. Bandara Helmholtz Centre For Geosciences (GFZ), Germany. University of Bristol, UK 1210 - 1215 1092 Flash Time of Flight Secondary Ion Mass Spectrometry in a dual beam Focused Ion Beam Scanning Electron Microscope (ToF-SIMS FIB-SEM) Rebecca Hughes University of Leeds, UK. Syngenta, UK 12:15 - 12:20 1098 Flash Fabricating Lenses Across Scales: From Small to Large Optics That Enhance Resolution and Contrast in Optical Microscopy Liam Rooney University of Glasgow, UK. University of Strathclyde, Glasgow, UK 12:25 - 12:30 1084 Flash Complementary Speckle STED Microscopy Payvand Arjmand Laboratory for Optics and Biosciences (LOB), Palaiseau, France

Cryo and <i>In situ</i> Imaging Techniques at the Chemistry - Biology Interface Session Chair: Sergio Bertazzo (University College London, UK) Room: Exchange 9	FIB Applications and EM Sample Prep Techniques in Physical Sciences Session Chair: Xiangli Zhong (University of Manchester, UK) Room: Exchange 11	Imaging and Measurement Techniques for Virology Session Chairs: Stephen Carter (University of Glasgow, UK) & Lauren Orr (University of Glasgow, UK) Room: Charter 2
1030 - 1100 67 Invited Mechanisms of biomineral formation in algae Fabio Nudelman University of Edinburgh, UK 1100 - 1115 429 Near-Hydrated ECM Hydrogel Imaging: Cryo-Negative Staining in High- and Low-Vacuum ESEM Nicola Weston University of Nottingham, UK 1115 - 1120 1069 Flash In situ characterisation of extracellular vesicle interaction mechanisms in metastatic prostate cancer Katie Choi University of Nottingham, UK 1120 - 1135 279 Nanoscale Insights: Exploring Crystallisation of Flufenamic Acid with Liquid Phase Transmission Electron Microscopy Sara Fatima University of Limerick, Ireland 1135 - 1140 1068 Flash Fluorescent Microscopy Reveals Interactions and Dynamics of Extraordinary Symbiosis in a Grain Pest Beetle Dongik Chang Max-Planck Institute for Chemical Ecology, Jena, Germany 1140 - 1155 232 Characterisation of bioengineered peptide-based structures using advanced bioimaging techniques Odette Donnachie University of Bristol, UK 1155 - 1200 1072 Flash A generalisable and targeted molecular biopsy approach for in-situ cryo electron tomography of vitreous brain tissue Calina Glynn The Rosalind Franklin Institute, UK 1200 - 1230 321 Invited Cryogenic microscopy in materials science - Challenges and developments James Douglas Imperial College London, UK	1030 - 1100 445 Invited The use of FIB and related techniques to characterise battery materials and steels Geoff West WMG, Coventry, UK 1100 - 1115 205 Utilising Femtosecond Laser for Large Area Preparation for EBSD: Optimising EBSD indexing by Addressing Three Critical Challenges Gareth Douglas University of Leicester, UK 1115 - 1120 1054 Flash Understanding creep deformation and creep cavity formation in Copper-Chromium-Zirconium alloy Muhammad Zeeshan Mughal The Open University, UK 1120 - 1125 1061 Flash Comparison Study of FIB, CryoFIB, and Ultramicrotome for Beam-Sensitive Coating Materials Xingjun Zhou University of Manchester, UK 1125 - 1130 1055 Flash Towards 3D Characterisation of Stress Corrosion Cracking in irradiated Boiling Water Reactor cladding Tamsin O'Reilly United Kingdom National Nuclear Laboratory, UK 1130 - 1145 236 Optimizing Cathodoluminescence Analysis in Solar Cells: A Correlative Workflow for Focused Ion Beam TEM Sample Preparation Stuart Robertson Loughborough University, UK 1145 - 1150 1056 Flash Application of Focused Ion Beam (FIB) to TEM Sample Preparation of Substable Materials Yi Qiao University of Science and Technology Beijing, China 1150 - 1155 275 Commercial A comparison of cross-sectioning techniques across length-scales and their application to research & manufacturing of energy storage materials Michael Dixon Hitachi High-Tech Europe, UK 1155 - 1200 1060 Flash Unravelling Creep Cavitation Mechanisms in Ta-Modified CSEF Steels via Plasma FIB Serial Sectioning and 3D Electron Microscopy Xiyu Zhang Loughborough University, UK 1200 - 1230 404 Invited Focused Ion beam for Metallurgy Research Yu-Lung Chiu University of Birmingham, UK	10:30 - 11:00 59 Invited In situ structural immunology: Protein structure determination from minimal systems towards whole cells Thomas Sharp University of Bristol, UK 11:00 - 11:15 323 Unravelling the architecture of arenavirus RNA synthesis machinery Nicholas Smith University of Leeds, UK. Astbury Centre for Structural Molecular Biology, Leeds, UK 11:15 - 11:30 467 Capturing the ultrastructure of PML nuclear bodies using cryo-CLEM, pFIB milling and cryo-ET Stephen Carter University of Glasgow, UK 11:30 - 12:00 191 Invited Developing cryo super-resolution fluorescence microscopy for the correlation with cryo-ET Rainer Kaufmann CSSB, Hamburg, Germany. University of Hamburg, Germany  This session is kindly sponsored by Microbiology

Tuesday 1 July, Afternoon

Spectroscopy in EM Session Chairs: Catriona McGilvery (Imperial College London, UK) & Donald MacLaren (University of Glasgow, UK) Room: Charter 1	EM Techniques for Soft Matter Session Chairs: Sarah Harper (JEOL, UK) & Catalin Pruncu (University of Birmingham, UK) Room: Charter 3	High Dimensional Bioimaging: Applications and Analysis Session Chairs: Philip Hobson (The Francis Crick Institute, UK) & Morag Rose Hunter (AstraZeneca, UK) Room: Charter 4
1430 - 1500 21 Invited EELS and cathodoluminescence in STEM: from comparative to temporal coincidence experiments Luiz Tizei CNRS, Paris, France. Université Paris-Saclay, Orsay, France 1500 - 1515 127 Theory of Momentum-Resolved STEM-EELS for Nanoscale Magnon and Spin Structure Mapping Julio do Nascimento University of York, UK. York-JEOL Nanocentre, UK 1515 - 1530 287 5D-ToF-STIM Imaging with a keV He+ Focused Ion Beam for Ion Energy-Loss Mapping Dustin Andersen Luxembourg Institute of Science and Technology, Belvaux, Luxembourg 1530 - 1545 285 Multispectral imaging of secondary electrons in a SEM using a miniature electron energy analyser Christopher Walker University of York, UK 1545 - 1600 293 Transformative EDS performance brought about by strides in individualized detector characterization Katherine MacArthur Oxford Instruments, UK 1600 - 1615 16 High Resolution 2D and 3D EBSD Analysis of Alloy Composition Effects on Microstructure and Grain Boundaries in (Ag,Cu)(In,Ga)Se₂ Thin Films Zelong Wang The University of Manchester, UK 1615 - 1618 1040 Flash First steps towards improving measurement of interfacial segregation in SEM Thomas Walther University of Sheffield, UK 1618 - 1621 1004 Flash Inpainting for the Recovery of Low Dose EDS Datasets Zoë Broad University of Liverpool, UK 1621 - 1624 1024 Flash The use of advanced electron microscopy to explore the early stages of precipitate evolution in Cu-Cr-Zr alloys Siguang Meng The University of Manchester, UK 1624 - 1627 1008 Flash Low kV Secondary Electron Hyperspectral Imaging (SEHI) for High-Resolution Chemical Mapping of Biological Specimens Corneila Rodenburg University of Sheffield, UK 1627 - 1630 1028 Flash Leveraging new scripting capabilities in DigitalMicrograph for automated data acquisition and analysis of nanoparticles Zaeem Najeeb Johnson Matthey Technology Centre, UK	1430 - 1500 185 Invited Using liquid cell TEM to understand and characterise complex hydrated systems Martha Ilett University of Leeds, UK 1500 - 1515 320 Unveiling Chromosome Structure During Mitosis Using Cryo Low-Loss EELS Adrián Pedraza-Tardajos The Rosalind Franklin Institute, UK 1515 - 1530 419 In Situ Low-Dose Scanning Electron Diffraction to Monitor Dehydration of Theophylline - a Model Channel Hydrate Natalia Koniuch University of Leeds, UK 1530 - 1545 111 Room-temperature liquid-phase backscattered SEM (LPBSEM) of <i>Bacillus subtilis</i> spores via graphene encapsulation Jack Bromley The Rosalind Franklin Institute, UK. University of Cambridge, UK 1545 - 1600 412 4D-STEM of Soft Matter; supported by fast precession of the Tescan Tensor Zabeada Aslam University of Leeds, UK 1600 - 1615 217 Charging effects mitigation in SEM of cryogenic biological samples by interleaved scan Abner Velazco Torreon The Rosalind Franklin Institute, UK 1615 - 1618 1020 Flash Multi-Convergence-Angle Ptychography with Simultaneous Strong Contrast and High Resolution Yu Lei University of Warwick, UK 1618 - 1621 1007 Flash Hamiltonian-Preserving Symplectic Neural Networks for Robust Phase Retrieval in 4D STEM Ptychography Roberto dos Reis Northwestern University, Evanston, USA 1621 - 1624 1044 Flash Enhancing FIB-SEM Serial Sectioning Tomography towards a 24-Hour Turnaround Bartłomiej Winiarski Thermo Fisher Scientific, Czech Republic. 1624 - 1629 210 Commercial Optimising Sample Preparation for Enhanced Electron Microscopy Imaging Helena Bland Quorum Technologies, UK	1430 - 1500 30 Invited Fractal: An open-source framework for reproducible bioimage analysis at scale using OME-Zarrs Joel Lüthi University of Zurich, Switzerland 1500 - 1505 69 Commercial Single-cell identity in heterogeneous microenvironments: A deeper understanding of Spatial Biology using novel multiplex imaging workflows Annalisa Rizza Leica Microsystems, UK 1505 - 1520 8 Let there be light – Overcoming optical challenges that hinder quantitative RNA Imaging in plant cells Susan Duncan John Innes Centre, Norwich, UK 1520 - 1535 224 Twisting, stretching and imaging chiral biopolymers, such as DNA, in real time Mark Leake University of York, UK 1535 - 1550 189 Multispectral TIRF-IRM Microscopy for High-Resolution Imaging of Motor Protein Dynamics Megan Clapperton MRC Laboratory of Molecular Biology, Cambridge, UK 1550 - 1555 1070 Flash Elucidating Spatio-Temporal Nuclear Dynamics in 4D Using State-of-the-Art Imaging in Beating Hearts George Doherty King's College London, UK 1555 - 1600 206 Commercial High-Dimensional Spatial Multiomics: Combining RNA and Protein Analysis in Tissue Sections using the MACSima platform Jak Grimes Miltenyi Biotec, UK 1600 - 1630 176 Invited Cellular communities in the tumour microenvironment reflect immune regulation Febe van Maldegem Amsterdam University Medical Center, Netherlands

Opportunities in SIMS Imaging Session Chair: David Scurr (University of Nottingham, UK) Room: Exchange 9	FIB Applications and EM Sample Prep Techniques in Biological Sciences Session Chair: Michael Grange (Rosalind Franklin Institute, UK) Room: Exchange 11	Imaging Host-Pathogen Interactions Session Chairs: Liam Rooney (University of Strathclyde, UK) & Rebecca McHugh (University of Glasgow, UK) Room: Charter 2
I430 - I500 I17 Invited Bio-imaging with gas cluster ion beam secondary ion mass spectrometry (GCIB-SIMS) John Fletcher University of Gothenburg, Sweden I500 - I515 I90 3D-Cryo MSI at sub-micron resolution to metabolic variations in single cells by Water and C60 Cluster Secondary Ion Mass Spectrometry (Cluster SIMS) Kate McHardy Ionoptika Ltd., UK I520 - I525 I071 Flash Investigating the Effect of Hypoxia on Glycosaminoglycans in Cancer via Secondary Ion Mass Spectrometry Cell Surface Imaging Hannah Evans University of Nottingham, UK I525 - I540 357 The development of ToF-SIMS for label free glycosaminoglycan analysis Lorna Milne University of Nottingham, UK I540 - I555 470 The role of NanoSIMS in correlative imaging workflows in the life sciences: Where have we been and where can we go? Greg McMahon National Physical Laboratory, UK I555 - I625 I37 Invited Light element, isotopic and trace element mapping in materials science applications with high-resolution Secondary Ion Mass Spectrometry (NanoSIMS) Katie Moore The University of Manchester, UK. Henry Royce Institute, UK	I430 - I500 42 Invited SOLIST: Towards a Biopsy at the Nanoscale Philipp Erdmann Human Technopole, Milan, Italy I500 - I515 I77 Development of a prêt à porter/facility-ready 3D Correlative Light and Electron Microscopy workflow integrating live super-resolution and in-resin fluorescence imaging techniques Hélène Roberge Center for Brain & Disease Research, Leuven, Belgium I515 - I530 228 Multimodal Cryogenic Microscopy Reveals Subcellular Neurodegenerative Pathologies in <i>C. elegans</i> Models of Parkinson's Disease Victoria Garcia Giner The Rosalind Franklin Institute, UK I530 - I545 377 Near-Native State Imaging of the Glomerular Filtration Barrier using Cryo-FIB-SEM Lift-Out for Soft X-ray Microscopy and Transmission Electron Microscopy Haneen Packeer Ally University of Nottingham, UK I545 - I550 43 Commercial AI-Driven Volume Electron Microscopy: Smarter, Faster, and More Precise Imaging Rosy Manser Thermo Fisher, UK I550 - I620 550 Invited FIB-SEM as a volume EM approach - insights from imaging cellular ultrastructure in 3D Kedar Narayan NIH, USA	I430 - I500 319 Invited Micron-scale spatial organization illuminates taxon-taxon interactions in host-associated microbiomes Jessica Mark Welch ADA Forsyth Institute, Cambridge, USA. Marine Biological Laboratory, USA I500 - I512 I067 Label free imaging of fungal infection in plants using Stimulated Raman Scattering (SRS) microscopy Jessica Mansfield University of Exeter, UK I512 - I524 I063 Volume Correlative Light and Electron Microscopy (vCLEM) approaches to investigate the role of autophagy in the formation of tubulovesicular structures during <i>M. tuberculosis</i> infection Antony Fearn The Francis Crick Institute, London, UK I524 - I536 I066 Revealing Previously Unseen Channel Structures in <i>Pseudomonas aeruginosa</i> Biofilms with Multi-scale Imaging Connor MacDonald University of Strathclyde, Glasgow, UK I536 - I548 I064 Illuminating Host-Parasite interactions: Microscopy insights into filarial biology and host immune responses Frédéric Fercoq Muséum National d'Histoire Naturelle, CNRS, Paris, France I548 - I600 I065 A novel Correlative Light and Electron Microscopy (CLEM) approach to dissect evolutionarily conserved mechanisms of fungal phagosome biogenesis Elektra Nenedaki Foundation for Research and Technology-Hellas, Heraklion, Greece I600 - I630 31 Invited Collective elimination of bacterially-infected host cells is driven by mechanical cell competition coordinated via ERK activation waves Lara Hundsdoerfer University of Tübingen, Germany  This session is kindly sponsored by Microbiology

Wednesday 2 July, Morning

4D STEM Techniques Session Chairs: Donald MacLaren (University of Glasgow, UK) & Laura Clark (University of York, UK) Room: Charter 1	Advances in EM Instrumentation and Techniques Session Chairs: Thomas Slater (Cardiff University, UK) & Joanne Sharp (University of Huddersfield, UK) Room: Charter 3	EBSD Applications to Novel Materials and Minerals Session Chair: John Wheeler (University of Liverpool, UK) Room: Charter 4
1015 - 1045 152 Invited Find your way with 4D-STEM Antonius van Helvoort Department of Physics / Norwegian University of Science and Technology (NTNU), Trondheim, Norway 1045 - 1100 262 Demonstration of multi-slice electron ptychography over a range of samples and acceleration voltages at ePSIC Frederick Allars electron Physical Science Imaging Centre (ePSIC), UK 1100 - 1115 215 Drift correction methods for multi-pass 4D-STEM Ali Mostaed The Rosalind Franklin Institute, UK. University of Oxford, UK 1115 - 1130 362 Multidimensional and Multimodel 4D STEM and Electron Ptychography Peng Wang University of Warwick, UK 1130 - 1145 54 Concurrent Acquisition of Many 4DSTEM-EDX Data Pairs and Effective Data Analysis Workflow for Beam-sensitive Materials Jinseok Ryu Diamond Light Source, UK 1145 - 1200 103 Multislice Electron Ptychography for 3D Imaging of Colour Centres in Diamond Aidan Horne University of Warwick, UK 1200 - 1203 2038 Flash Advancing 4D-STEM with Computational Techniques Daniel Nicholls SenseAI Innovations Ltd., UK 1203 - 1206 2039 Flash A machine learning model to infer the illumination probe in electron ptychography Oriol Roche i Morgó Diamond Light Source, UK.	1015 - 1045 475 Invited Extreme Objective Lenses for Outlandish Imaging Lewys Jones Trinity College, Dublin, Ireland. turboTEM Limited, Dublin, Ireland 1045 - 1100 194 4D-STEM and EELS Data Simultaneous Acquisition With a Newly Developed Pixelated STEM Detector Damien McGrouther JEOL UK Ltd., UK 1100 - 1115 97 A genetic algorithm for the design and optimisation of bespoke TEM pole-pieces Theo Andrews Trinity College Dublin, Ireland 1115 - 1130 443 A Fast Simulation Framework for Damage Diffusion Distribution in Scanning Transmission Electron Microscopy Amirafshar Moshtaghpour The Rosalind Franklin Institute, UK 1130 - 1145 249 Automated Scanning Electron Nanobeam Diffraction Data Collection and Analysis Mohsen Danaie Diamond Light Source Ltd., UK. 1145 - 1200 133 Quantitative Electron Microscopy of Zeolites Using Aberration Corrected (S)TEM and Machine Learning Tahmid Choudhury University of Oxford, UK 1200 - 1205 112 Commercial Merlin T4: Pushing the Boundaries of STEM/TEM with the new Timepix4 ASIC Gearóid Mangan Quantum Detectors, UK	1015 - 1045 284 Invited Inside functional metals: application of EBSD to shape memory alloys and phase change materials Paola Bassani CNR ICMATE, Lecco, Italy 1045 - 1050 170 Commercial Strain Analysis using Pattern Matching in MapSweeper Kim Larsen Oxford Instruments, UK 1050 - 1105 391 Revealing the crystal nanostructure of the myostracum in king scallop shells by combining EBSD and Raman spectroscopy Roland Kröger University of York, UK 1105 - 1110 2104 Flash Using combined EBSD and a rapid nano-indentation mapping approach to measure the depth of the deformation layer from shot peening in superalloys for aerospace applications Theo Teasdale University of Warwick, UK 1110 - 1125 306 Evaluating the Grain Boundary Plane Distribution in Olivine with EBSD and TEM-based Orientation Mapping Alexandra C. Austin Imperial College London, UK. University of Oxford, UK 1125 - 1130 2103 Flash Direct Electron Detector for SEM applications: Kikuchi pattern acquisition and Imaging Nohayla El-khairaoui Université de Lorraine, CNRS, Metz, France 1130 - 1145 386 Correlating the Microstructure and Mechanical Behavior of Reduced Iron Ore Pellets by Combining Nanoindentation and EBSD Laurie Palasse Bruker Nano GmbH, Germany 1145 - 1215 342 Invited Pushing the limits of Electron Backscatter Diffraction (EBSD) analysis to decipher processes associated with mineral growth, reactions and deformation: case studies and new developments Sandra Piazzolo University of Leeds, UK

AFM & SPM for Biosciences Session Chair: George Heath (University of Leeds, UK) Room: Exchange 9	Energy Materials: Microscopy and Analytical Advances Session Chair: Sean Collins (University of Leeds, UK) Room: Exchange 11	Live Imaging Across Scales: From Single Cells to Whole Organisms in Development and Disease Session Chair: Laki Pantazis (Imperial College London, UK) Room: Charter 2
1015 - 1045 157 Invited High-Speed Atomic Force Microscopy Captures Rare and Dynamic Protein Events Shifra Lansky Weizmann Institute of Science, Rehovot, Israel 1045 - 1100 325 High-Resolution Imaging of MRSA Peptidoglycan Using Atomic Force Microscopy Abimbola Feyisara Adedeji-Olulana University of Sheffield, UK 1100 - 1105 420 Commercial Fast nanomechanical mapping and viscoelastic analysis using the Nanosurf DriveAFM Colin Grant Nanosurf UK Ltd., UK 1105 - 1120 261 Impact of the substrate on the phase transitions properties in supported lipid bilayers Nicolo Tormena University of Durham, UK 1120 - 1135 414 Royal Jelly extracellular vesicles impact microglial cell nanomechanics and membrane fluidity during inflammation Sebastian Aguayo Universidad Católica de Chile, Santiago, Chile 1135 - 1140 2065 Flash Advancing High-Speed AFM analysis of dynamic systems Maya Tekchandani University of Leeds, UK 1140 - 1145 2057 Flash Caught in action: visualising bacteriocins on living cells Yulianna Koziy University College London, UK 1145 - 1215 14 Invited AFM topography and integrative structural biology Jean-Luc Pellequer Institut de Biologie Structurale, Grenoble, France  <i>This session is kindly sponsored by Bruker</i>	1015 - 1045 81 Invited Revealing aging-induced asymmetric ion transport in Ni-rich cathode particles using operando optical scattering microscopy Alice Merryweather University of Cambridge, UK 1045 - 1100 370 Identical-location S/TEM and EELS Characterization of Solid Electrolyte Interphases (SEIs) on 2D antimonene for Battery Applications Xuyun Guo Trinity College Dublin, Ireland 1100 - 1115 184 Understanding impurity accumulation and degradation in SOECs via high-resolution characterization Catriona McGilvery Imperial College London, UK 1115 - 1130 290 In-situ (S)TEM study of thermally induced phase transitions in Titanium-based MAX and MXene Shiying Qin University of Liverpool, UK 1130 - 1145 324 Cathodoluminescence characterization of CdTe thin film solar cells in SEM and STEM Zhaoxia Zhou Loughborough University, UK 1145 - 1215 140 Invited Atomic-scale microstructure of lead halide perovskite thin films Mathias Uller Rothmann Xianhu Laboratory, Foshan, China	1015 - 1045 15 Invited Melanoma cell fate – from the inside and the outside Richard White Ludwig Institute Cancer Research, Oxford, UK 1045 - 1100 241 Direct-view oblique plane microscopy James Manton MRC Laboratory of Molecular Biology, Cambridge, UK 1100 - 1105 68 Commercial Live imaging of large multicellular systems with open top dual view light sheet microscopy Tom Philips Leica Microsystems, UK 1105 - 1110 2081 Flash Resolving the distribution of the glucose transporter GLUT4 in fat tissue using Ultrastructure-Expansion Mesoscopy Shannan Foylan University of Strathclyde, Glasgow, UK 1110 - 1115 2092 Flash Quantitative Force Mapping in the Beating Embryonic Zebrafish Heart Daniel Olesker University of Glasgow, UK 1115 - 1120 2093 Flash Sensing cell-level contractility deep inside cardiac organoids using microlasers Nachiket Pathak University of Cologne, Germany 1120 - 1135 104 A novel 3D spheroid model to study the role of $\gamma\delta$ T cells in the infiltration and killing of Prostate Cancer Aurora Campagna City St George's University of London, UK 1140 - 1145 352 Commercial Advancing Fluorescence Imaging: High-Speed Confocal and Super-Resolution Solutions by CrestOptics Francesco Bacchi CrestOptics Spa, Italy 1145 - 1215 463 Invited Cellular mechanisms directing neuronal differentiation during vertebrate development Raman Das University of Manchester, UK

Wednesday 2 July, Afternoon

Beam Sensitive Materials Session Chairs: Catalin Pruncu (University of Birmingham, UK) & Joanne Sharp (University of Huddersfield, UK) Room: Charter I	High Resolution EM (I) Session Chairs: Alexander Eggeman (University of Manchester, UK) & Sarah Harper (JEOL, UK) Room: Charter 3	EBSD Technique: Advances in Data Collection and Processing Session Chair: Nathalie Gey (CNRS - Université de Lorraine, France) Room: Charter 4
1415 - 1445 278 Invited The radiolysis of water ice interfaces and of aromatic compounds studied by electron energy loss spectroscopy Patricia Abellan CNRS, Institut des Matériaux de Nantes (IMN) Jean Rouxel, Nantes, France 1445 - 1500 300 Vibrational spectroscopy of macromolecular fluids using cryogenic STEM-EELS David McComb The Ohio State University, Columbus, USA 1500 - 1515 305 Investigation of beam damage in polymers using cryo and multipass EELS techniques Catriona McGilvery Imperial College London, UK 1515 - 1530 372 Enhancing the photocatalytic performance of carbon nitrides through controlled local structure modification Nadezda Tarakina Max Planck Institute of Colloids and Interfaces, Potsdam, Germany 1530 - 1545 239 Gas-cell in situ electron microscopy as a tool to investigate reversible transformations in reducible oxides under varying atmospheres Ramón Manzorro Universidad de Cádiz, Puerto Real, Spain 1545 - 1600 225 Ultra Low-Dose Atomic Resolution EELS Mapping at Cryogenic Temperature Liam Spillane Gatan Inc., USA 1600 - 1603 2029 Flash Phase reconstruction from 2D to 3D by electron Fourier ptychography Jingjing Zhao The Rosalind Franklin Institute, UK 1603 - 1606 2042 Flash Graphene liquid cells for atomic resolution imaging of adatom behaviour at the solid-liquid interface Sam Sullivan-Allsop University of Manchester, UK.	1415 - 1445 480 Invited Scanning Transmission Electron Microscopy to solve structural puzzles in oxide ferroelectrics Ana M Sanchez University of Warwick, UK 1445 - 1500 388 Studying the oxidation dynamics of iron nanoparticles in situ using an environmental TEM Roland Kröger University of York, UK 1500 - 1515 371 Low-Dose Programmable Scanning Patterns for Correlative Ptychography and EELS in Ferroelectric Thin Films Mariana Palos Imperial College London, UK 1515 - 1530 258 Electron beams as an imaging, synthesis and analysis tool for functional nanomaterials William J. Cull University of Nottingham, UK 1530 - 1545 288 Synthesis of Shell-free Crystalline Silicon Nanowires by Hot-Wire VLS Mechanism Nitin Arya Indian Institute of Technology Bombay, Mumbai, India 1545 - 1600 173 Investigating the time dependence of the reversible oxidation state in ceria using electron microscopy Ella Greenaway University of Oxford, UK 1600 - 1603 2047 Flash Context Informed Deep Convolutional Neural Networks for Image Denoising in STEM Alex Williams University of Liverpool, UK 1603 - 1606 2011 Flash Unveiling Atomic-Scale Insights: TEM Investigation of MOCVD-Grown Monolayer Graphene based Heterostructures Deepak Kumar Dinkar Queen Mary University of London, UK 1606 - 1609 2026 Flash AI-powered direct quantitative analysis of Metal-Metal interactions in correlated single-atom catalysts. Miguel Lopez-Haro Universidad de Cádiz, Spain 1609 - 1612 2023 Flash Feature Enhancement during Dictionary Learning Reconstructions of Scanning Transmission Electron Microscope Images Richard K. Jinschek University of Liverpool, UK 1612 - 1615 1002 Flash Studying Recrystallisation Dynamics of Swift Heavy Ion Tracks in $Y_3Fe_5O_{12}$ (YIG) Madeleine Badenhorst Nelson Mandela University, Gqeberha, South Africa	1415 - 1445 108 Invited Enabling Complex EBSD Analysis: Integrating Neural Network-Based Simulation with Efficient Dictionary Methods Clément Lafond CEA, Saclay, France 1445 - 1500 144 The application of spherical models of EBSD patterns for forward modelling indexing Rene de Kloe EDAX-Gatan, Netherlands 1500 - 1515 188 Optimizing Parameters for High Resolution Near Axis Transmission Kikuchi Diffraction Kim Larsen Oxford Instruments, UK 1515 - 1530 219 Sparse Sampling and Four-dimensional Inpainting in EBSD Imaging Zoë Broad University of Liverpool, UK 1530 - 1545 364 Deep Learning-Driven Pattern Enhancement of Low Exposure Images to Aid Simultaneous Acquisition of Spots and Kikuchi Patterns for Transmission Spot-Kikuchi Diffraction (TSKD) Yuxuan Zhang Technical University of Denmark (DTU), Kgs. Lyngby, Denmark 1545 - 1615 48 Invited Learning Metal Microstructural Heterogeneity through Spatial Mapping of Diffraction Latent Space Features J.C. Stinville University of Illinois Urbana-Champaign, USA

AFM & SPM in Materials Science Session Chair: Sohini Kar-Narayan (University of Cambridge, UK) Room: Exchange 9	Micro CT and Volume EM Session Chair: Ruslan Hlushchuk (Universität Bern, Switzerland) Room: Exchange 11	Advances in Cell and Organelle Tracking: Algorithms and Applications Session Chair: Jean-Yves Tinevez (Institut Pasteur, France) Room: Charter 2
1415 - 1445 66 Invited Nano-Investigation of Energy Materials with Light Giuliana Di Martino University of Cambridge, UK 1445 - 1500 405 Sub-wavelength SPM mapping of mid-IR photovoltaic response in graphene using adiabatic light compression in "campanile" probe Oleg Kolosov Lancaster University, UK 1500 - 1515 199 Exploring Topographically Induced Probe Deformation when Imaging High Aspect Ratio Structures with Atomic Force Microscopy Harrison Swift University of Sheffield UK 1515 - 1520 72 Commercial Enhancing atomic force microscopy with chemical insights from Raman spectroscopy William Leigh HORIBA UK LTD, UK 1520 - 1525 82 Commercial Introducing the new FX200 atomic force microscope from Park Systems Jonathan Moffat Park Systems, UK 1525 - 1530 2055 Flash Fast and quantitative nanomechanical mapping using photothermally actuated atomic force microscopy Colin Grant Nanosurf, Switzerland 1530 - 1545 423 Efficient zinc batteries demand smooth electrodes: scanning electrochemical microscopy (SECM) study of zinc metal electrodeposition Svetlana Menkin University of Cambridge, UK 1545 - 1615 44 Invited The hunt for sustainable piezoelectric crystals using multiscale characterisation Sarah Guerin University of Limerick, Ireland	1415 - 1445 110 Invited MicroCT Imaging for Fibrocartilaginous Tissues Annapaola Parrilli Empa - Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland 1445 - 1500 10 Full-field strain measurements in homogeneous solids enabling discovery of new material physics Zifan Wang University of Cambridge, UK 1500 - 1505 2122 Flash From Macro to Nano: Investigating Beetle Cuticle and Symbiotic Organs Using Micro CT and EM Dongik Chang Max-Planck Institute for Chemical Ecology, Jena, Germany 1505 - 1520 204 Depositing biological segmentation datasets FAIRly: a review of current practices in volume EM and recommendations for the future Elaine M. L. Ho The Rosalind Franklin Institute, UK 1520 - 1525 2125 Flash Building a Collaborative Computational Community for Volume Electron Microscopy Martin Jones Francis Crick Institute, London, UK 1525 - 1540 233 Unveiling cellular secrets: leveraging high strength transmission electron microscope sample support membranes and convolutional neural networks for three-dimensional reconstruction of plant cells Eudri Venter JEOL UK, UK 1540 - 1545 2130 Flash A multimodal observation of mitochondrial-nucleus contact sites in <i>Toxoplasma gondii</i> Leandro Lemgruber University of Glasgow, UK 1545 - 1615 465 Invited Probing the structure and function of the brain with X-rays, electrons and light Adrian Wanner Paul Scherrer Institute, Villigen-PSI, Switzerland	1415 - 1445 472 Invited Tracking cells and extracting modalities to understand olfactory organ morphogenesis in zebrafish Julie Batut CBI MCD, Toulouse, France 1445 - 1500 253 New Approach to Particle Tracking as a Dynamic Inverse Problem Dina Ratsimandresy MRC Laboratory of Molecular Biology, Cambridge, UK 1500 - 1515 327 SlimVar: tracking liquid condensates, oligomers and chromatin binding, tens of microns deep in live root tissue Alex Payne-Dwyer University of York, UK 1515 - 1520 163 Commercial The Kinetix CMOS Camera Enables Scientific Discovery Matthew Kose-Dunn Teledyne Photometrics, UK 1520 - 1535 431 Live tissue microscopy unveils integrin-mediated neutrophil slowing in the breast cancer pre-metastatic lung: determining implications for metastatic seeding Gemma Cairns Cancer Research UK Scotland Institute, Glasgow, UK 1535 - 1540 2088 Flash Developing dual view Oblique Plan Microscopy for applications in the study of the developing Zebrafish Jaw Ann Wheeler University of Edinburgh, UK 1540 - 1610 74 Invited Comprehensive Visualization and Analysis of Cell Lineage Trees Léo Guignard Institute of Developmental Biology of Marseille (IBDM), France. Turing Centre for living systems (CENTURI), Marseille, France. National Centre for Scientific Research (CNRS), Marseille, France

Thursday 3 July, Morning

In-situ & Dynamic Microscopy Techniques Session Chairs: Alexander Eggeman (University of Manchester, UK) & Laura Clark (University of York, UK) Room: Charter 1	Microscopy of Materials across Industry Session Chair: Andy Brown (University of Leeds, UK) Room: Charter 3	Using X-rays in Biological Research Session Chair: Liz Duke (EMBL Hamburg, Germany) Room: Charter 4
1015 - 1045 22 Invited Observing the crack tip behaviour at the nanoscale during fracture of ceramics Oriol Gavalda-Diaz Imperial College London, UK 1045 - 1100 302 Observing the crack tip behaviour at the nanoscale during fracture of ceramics Jack Fawcett-Houghton University of York, UK 1100 - 1115 283 In situ 4D STEM of supercooled metallic liquid with a fast MAPS detector Barnaby Levin Direct Electron LP, San Diego, CA, USA 1115 - 1130 348 In-situ dynamical studies of $\text{Ni}_3(\text{OH})_4(\text{NO}_3)_2$ and $\beta\text{-Ni}(\text{OH})_2$ phase transformation to NiO nanoparticles by TEM and EELS Leonardo Lari University of York, UK. The York-JEOL Nanocentre, UK 1130 - 1145 198 Investigating the thermal degradation mechanism of $2\text{D Nb}_4\text{C}_3\text{Tx MXene}$ through in-situ (S)TEM Xiaodong Liu University of Liverpool, UK 1145 - 1200 80 Studying the Activation Process of Co/TiO_2 Catalysts using In Situ Analytical STEM Matthew Lindley University of Manchester, UK 1200 - 1215 203 The Role of Astigmatism and Tilt in Measuring Picometre Displacements in Annular Dark Field Scanning Transmission Electron Microscope Datasets Lewys Jones Trinity College Dublin, University of Dublin, Ireland	1015 - 1045 146 Invited Industry through an Objective Lens Eleanor Merson NPL, UK 1045 - 1100 439 Advanced Electron Microscopy of Leached Glass Samples for the Immobilisation of Nuclear Waste Jamie Nanson United Kingdom National Nuclear Laboratory, UK 1100 - 1115 428 Characterisation of iron oxides in red gypsum using TEM: Towards valorisation of TiO_2 co-products Sarah Ferris University of Leeds, UK 1115 - 1130 304 Probing ultrafast phenomena with RF-driven electron microscopy Ryan Gnabasiak Euclid Techlabs LLC, USA 1130 - 1145 384 Automated 4D-STEM for Industrial Applications Daniel Nemecek TESCAN Group a.s., Czech Republic 1145 - 1215 65 Invited Driving Innovation at Johnson Matthey: The Role of Microscopy in Industrial Applications Mark S'ari Johnson Matthey, UK	10:15 - 10:45 399 Invited Preclinical in vivo Imaging Katie Dexter University of Southampton, UK 10:45 - 11:00 409 Three-dimensional visualisation and quantification of cellular components in mm-sized unstained tissue cores using high-content phase-based x-ray microscopy Michela Esposito University College London, UK 11:00 - 11:15 212 High-throughput X-ray tomography of human kidney tissue Matthew Lawson European Molecular Biology Laboratory, Hamburg, Germany. European Bioinformatics Institute, Cambridge, UK 11:15 - 11:30 398 3D Mapping of Actin Network-Endosome Interplay in Response to Inflammation with Cryo Correlative Light and X-ray Microscopy Ivy Wang Diamond Light Source, UK. University of Oxford, UK 11:30 - 11:45 301 Bridging the gap in cryo imaging: Introducing cryo soft X-ray tomography into the cryo-CLEM pipeline (cryo-CLXEM) Johannes Groen Institut Pasteur, Paris, France 11:45 - 12:15 26 Invited X-CT of Structures in the Eye in Health and Disease Rachel Williams University of Liverpool, UK

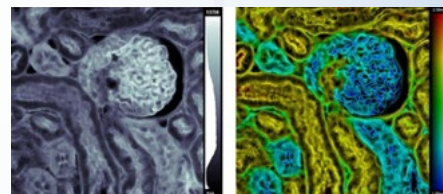
AFM & SPM for Biosciences Session Chair: Ioanna Mela (University of Cambridge, UK) Room: Exchange 9	Cryo-EM in the Life Sciences Session Chair: Chris Parmenter (University of Nottingham, UK) Room: Exchange 11	Pushing Boundaries in Multiphoton Microscopy: Deeper, Faster, Smarter Session Chair: Caroline Mullenbroich (University of Glasgow, UK) Room: Charter 2
10:15 - 10:45 458 Invited Inside and out: Functional cellular assays using correlative AFM-confocal Tanya Dahms University of Regina, Canada 10:45 - 11:00 299 The Fungal Cell Wall at the Nanoscale Cameron Colclough University of Sheffield, UK 11:00 - 11:15 318 Correlative fluorescence microscopy (STORM) and atomic force microscopy (AFM): STORMForce, to study how the nanometric architecture of bacteria results in ovococi shaped cells Laia Pasquina-Lemonche University of Sheffield, UK 11:15 - 11:30 200 Quantitative Mass and Stiffness Deconvolution in Nanomechanical Resonators for Biosensing Gourav Bhattacharya Ulster University, Belfast, UK 11:30 - 11:45 415 Revealing the unbinding mechanics of hyaluronan•receptor interactions on live cells Itzel Garcia-Monge University of Leeds, UK 11:45 - 12:15 36 Invited Recent technological advances: correlative light-atomic force-electron microscopy and AFM-based automation Frank Lafont Institute Pasteur de Lille, France  <i>This session is kindly sponsored by Bruker</i>	10:15 - 10:45 33 Invited Make Mine Milk: using cryo-TEM and cryo-SEM to investigate dairy products Saskia Bakker University of Warwick, UK 10:45 - 11:00 171 High-throughput Cryo-Scanning Electron Microscopy for plant imaging across scales Raymond Wightman Cambridge University, UK 11:00 - 11:15 368 Imaging ECM Hydrogel Architecture: A Comparative Study of Imaging Modalities and Preparation Methods Andreas Rialas University of Nottingham, UK 11:15 - 11:30 390 Cryo Volume Electron Microscopy (cvEM) a case for novel scan strategies Maryna Kobylynska King's College London, UK 11:30 - 11:35 2129 Flash Insights into Dhillonvirus BAS18:A Structural Study Rosheny Kumaran University of Otago, Dunedin, New Zealand 11:35 - 11:40 2126 Flash Unveiling the structure of protein-based hydrogels by overcoming cryo-SEM sample preparation challenges Dimitra Katrantzi University of Leeds, UK 11:40 - 11:45 2135 Flash Advances in plasma FIB and multiscale cryo-ET imaging for structural cell biology Helena Watson The Rosalind Franklin Institute, UK. University of Glasgow, UK 11:45 - 12:15 339 Invited In-situ structural biology from cells to tissues Michael Grange The Rosalind Franklin Institute, UK	10:15 - 10:45 19 Invited Pushing the limits of multiphoton imaging in living systems Chris Xu Cornell University, Ithaca, USA 10:45 - 10:50 240 Commercial Redefining Live Cell Imaging with the IX85 Inverted Microscope Christopher Storey Evident Scientific, UK 10:50 - 11:05 167 Optimisation of 3-photon microscopy for deep imaging in cardiac spheroids Lewis Williamson University of Glasgow, UK 11:05 - 11:10 2072 Flash Nonlinear Optical Microscopy in the Short-Wavelength Infrared Windows for Deep Tissue Imaging Konstantinos Bourdakos University of Southampton, UK 11:10 - 11:25 260 Investigating a 3D Organoid model with Repetition-controllable Gain-managed Nonlinear Fiber Amplifier laser – A comparison between traditional laser-scanning and light sheet multiphoton microscopy James Read University of Southampton, UK 11:25 - 11:30 400 Commercial The Universal Acquisition Software to Automate Your Microscope and Customise Your Imaging Workflow Olivier Chanteux INSCOPER, France 11:30 - 11:45 17 Multiphoton line-scanning FLIM for fast, dynamic 3D imaging of breast cancer spheroids Conor Treacy King's College London, UK 11:45 - 12:15 24 Invited Scanless two-photon voltage imaging Ruth Sims Institut de la Vision, Paris, France

Thursday 3 July, Afternoon

High Resolution EM (2) Session Chairs: Thomas Slater (Cardiff University, UK) & Catriona McGilvery (Imperial College London, UK) Room: Charter 1	Bioimaging in Industry Session Chair: Richard Kasprowitz (GSK plc, UK) Room: Charter 3	Nanoscale X-ray Imaging: Computation Imaging Techniques and Applications Session Chair: Silvia Cipiccia (University College London, UK) Room: Charter 4
14:00 - 14:30 335 Invited Exploring the evolution of inorganic and hybrid halide perovskites-based devices in the STEM Caterina Ducati University of Cambridge, UK 14:30 - 14:45 274 Seeing Twisted 2D materials with Electron Channelling Contrast Imaging Evan Tillotson University of Manchester, UK 14:45 - 15:00 277 Alternative scan pattern mitigates radiation damage in beam sensitive battery material LiF Hannah Nickles Jäkel CNRS-IMN, Nantes, France 15:00 - 15:15 446 SIGMA-enhanced compositional and phase-orientation study of halide perovskites Xin Chen University of Cambridge, UK 15:15 - 15:30 255 STEM analysis of pressure-induced instability of high-entropy sulfides Alexander Eggeman University of Manchester, UK 15:30 - 15:45 197 Automated High-Throughput Correlated Electron and Optical Microscopy of Semiconductor Nanowires Greg Chu University of Cambridge, UK 15:45 - 16:00 135 Linking Structure to Performance in Hybrid Perovskites Using Correlative Multimodal Microscopy Thomas Selby University of Cambridge, UK	14:00 - 14:30 160 Invited Bioimaging from Cell to Organ: Enhancing Our Understanding of Drug and Target Andrew Nicholls GSK, UK 14:30 - 14:45 432 Leveraging Longitudinal High Content Imaging, Computer Vision and Mechanistic Modelling for Functional Genomics Studies of Human Adipose Tissue Plasticity Alexander Zagajewski Novo Nordisk, UK 14:45 - 14:50 183 Commercial Simultaneous 2 and 3 photon microscopy by using new type of compact ultrafast lasers Oliver Prochnow VALO Innovations GmbH - A Part of Hübner Photonics, Germany 14:50 - 15:05 295 Correlative Submicron IR (O-PTIR) Spectroscopy and Imaging: Advances in Spatial Resolution, Sensitivity & Multi-modality (IR, Raman & Fluorescence) Mustafa Kansiz Photothermal Spectroscopy Corp, USA 15:05 - 15:20 264 Understanding cellular tropism with ex-vivo microscopy for the rational design of LNPs Rebecca Kelly Medicines Discovery Catapult, UK 15:20 - 15:25 162 Commercial Nikon BioImaging Lab – Your Bioimaging Partner! Joseph Thottachery Nikon Healthcare UK 15:25 - 15:55 119 Invited In-house built AI/ML-powered tool, PhenoSpace, enables robust high-content imaging assay development Aditi Pradhan AstraZeneca, UK	14:00 - 14:30 473 Invited Next frontiers of crystal microscopy Dina Carbone MAX IV Laboratory, Sweden 14:30 - 14:45 374 The Critical Role of Nanoscale X-Ray CT in Laboratory Research Tobias Neubrand Waygate Technologies, Germany 14:45 - 15:00 269 Study of metal injection moulded Ti6Al4V using synchrotron X-ray tomography and ptychography Kudakwashe Jakata Diamond Light Source, UK 15:00 - 15:15 96 Application of X-ray Microscopy and Machine Learning in Analyzing Metal Matrix Syntactic Foams Ria Mitchell Carl Zeiss Microscopy, UK 15:15 - 15:30 282 Sampling requirements in near-field ptychography Luca Fardin University College London, UK 15:30 - 16:00 281 Invited Sub-hour 3D ptychography at I13-1: Coherence, Diamond Light Source Darren Batey Diamond Light Source, UK

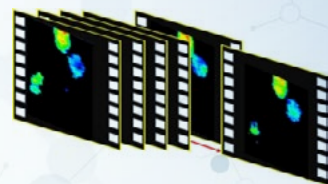
Scanning Probe Microscopy of Single-molecule Assembly, Dynamics, and Reactions on Surfaces Session Chair: Kristina Rusimova (University of Bath, UK) Room: Exchange 9	Quantitative Analysis and Modelling Session Chairs: Kurt Anderson (The Francis Crick Institute, UK) & Martin Jones (The Francis Crick Institute, UK) Room: Exchange 11	Intravital and (Live) Tissue Imaging Session Chair: Leo Carlin (CRUK Scotland Institute / University of Glasgow, UK) Room: Charter 2
14:00 - 14:30 13 Invited Accessing the photophysics of single chromophores and clusters with scanning probe Martin Švec Czech Academy of Sciences, Prague, Czech Republic 14:30 - 14:45 406 Variational Autoencoders as Feature Extractors for Break-Junction Data Analysis Sam Harley Lancaster University, UK 14:45 - 15:00 211 Measuring competing outcomes of a single-molecule reaction reveals classical Arrhenius chemical kinetics Pieter Keenan University of Bath, UK 15:00 - 15:15 329 Operando 3D-NRM and UFM: A complementary approach for improved insights into SEI nanostructure in real Na-ion battery electrodes Mangayarkarasi Nagarathinam Lancaster University, UK 15:15 - 15:30 407 Changing the Seebeck Coefficient Polarity of a Self-Assembled Monolayer by Surface Interaction Charlie Wells Lancaster University, UK 15:30 - 16:00 79 Invited On-surface chemistry: It's not the destination, it's the journey Alex Saywell University of Nottingham, UK	14:00 - 14:30 341 Invited Collective cellular dynamics during development: from imaging to theory Guillaume Salbreux Université de Genève, Switzerland 14:30 - 14:45 267 Redox-dependent binding and conformational equilibria govern the fluorescence decay of NAD(P)H in living cells Thomas Blacker University College London, UK 14:45 - 15:00 123 A Data Augmentation Pipeline for Generation of Diverse Tissue Images and their Corresponding Segmentation Masks Siddharth Srivastava University of Warwick, UK 15:00 - 15:15 118 ClusterNet: A classification model for single-molecule localisation microscopy fields of view using supra-cluster graphs Alistair Curd University of Leeds, UK 15:15 - 15:30 181 Assessing and predicting fluorescence image quality without a reference Richard Marsh King's College London, UK 15:30 - 16:00 447 Invited Quantitative material insights enabled by modelling and analysis (of 4D-STEM data) Laura Clark University of York, UK	14:00 - 14:30 156 Invited Translational super-resolution microscopy of peripheral neuropathies Katrin Gertrud Heinze Julius-Maximilians-Universität Würzburg (JMU), Germany 14:30 - 14:45 25 Intravital FLIM imaging of targeting treatment resistance in BRCA2 deficient PDAC Max Nobis The University of Manchester, UK. Garvan Institute of Medical Research, Sydney, Australia. VIB-KU Leuven Center for Cancer Biology, Leuven, Belgium 14:45 - 14:50 55 Commercial Revolutionising live tissue imaging: FLIMera and InverTau push the boundaries of Fluorescence Lifetime Microscopy Giorgia Marucci HORIBA UK, UK 14:50 - 15:05 413 Fast, gentle and deep imaging of 3D cell models: comparative study of fluorescence microscopy techniques for organoids and thick samples Alessandro Ciccarelli The Francis Crick Institute, London, UK 15:05 - 15:10 312 Commercial 3i: Advanced Multimodal Microscopy Systems from Light Sheet to Spinning Disk to Multiphoton Benjamin Atkinson 3i - Intelligent Imaging Innovations Ltd, UK 15:10 - 15:25 356 Clear as mud: Tissue clearing considerations for real life Peter Gordon Sainsbury Wellcome Centre, London, UK 15:25 - 15:55 349 Invited 4D regulation of myeloid cells in cancer Leo Carlin Cancer Research UK Scotland Institute, Glasgow, UK

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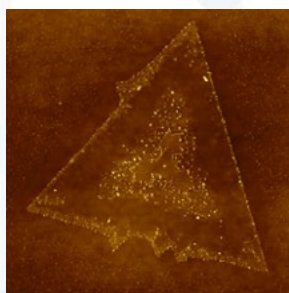
Fluorescence
Lifetime



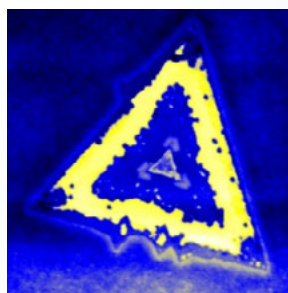
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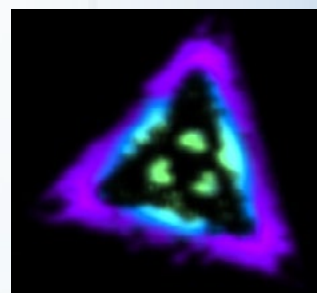
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Poster List

Poster Session One

1630 - 1830 Tuesday 1 July 2025, Exhibition Hall

I001 Mathematical methods in particle size distributions for catalysts applications **Eneith S. Aguilar** University of Liverpool, UK

I002 Studying Recrystallisation Dynamics of Swift Heavy Ion Tracks in $Y_3Fe_5O_{12}$ (YIG) **Madeleine Badenhorst** Nelson Mandela University, Gqeberha, South Africa

I003 ToF-SIMS analysis for assessment of crosstalk in Li-ion batteries **Maria Balart** University of Warwick, UK

I004 Inpainting for the Recovery of Low Dose EDS Datasets **Zoë Broad** University of Liverpool, UK.

I006 Effect of heat treatment on corrosion performance of additively manufactured 316L SS. **Tushar Dandekar** University of Portsmouth, UK

I007 Hamiltonian-Preserving Symplectic Neural Networks for Robust Phase Retrieval in 4D STEM Ptychography **Roberto dos Reis** Northwestern University, Evanston, USA

I008 Low kV Secondary Electron Hyperspectral Imaging (SEHI) for High-Resolution Chemical Mapping of Biological Specimens **Corneila Rodenburg** University of Sheffield, UK

I009 Investigating the Mitigation of Li Smearing in Battery Anode Cross-Sections Using Cryo-PFIB and FIB-SIMS **James Gott** University of Warwick, UK

I010 In situ TEM for understanding of the electrochemical performance of iridium based OER catalysts **Jack Harrison** The University of Manchester, UK

I011 Nanoscale Imaging of Plasmon-Enhanced Localized Field Using Advanced Electron Microscopy Techniques **Wanting He** McGill University, Montreal, Canada

I012 Applications of Secondary Electron Hyperspectral Imaging for Nanoscale Chemical Mapping of Chemical Products and Carbon Contamination in the SEM **Daniel Hopper** University of Leeds, UK

I013 Lorentz TEM Characterization of Magnetic Skyrmions above Room Temperature in a van der Waals Ferromagnet Fe_3GaTe_2 **Aidan Horne** University of Warwick, UK

I014 Development of MEMS based In situ TEM chips and its Applications **Youhong Jiang** Xiamen University, China

I015 Development of MEMS based In situ TEM techniques and its Applications **Youhong Jiang** Xiamen university, China. University of Warwick, UK

I016 Understanding Catalyst Preparation via Electron Microscopy for Carbon Dioxide Conversion **Sana Khalid** Cardiff University, UK

I018 TEM observation of non-homogeneous microstructural evolution in monoclinic zirconia at intermediate swift heavy ion fluences **Michael Lee** Nelson Mandela University, Gqeberha, South Africa

I019 TEM observation of UV induced microstructural alteration of granulovirus occlusion bodies **Michael Lee** Nelson Mandela University, Gqeberha, South Africa

I020 Multi-Convergence-Angle Ptychography with Simultaneous Strong Contrast and High Resolution **Yu Lei** University of Warwick, UK

I023 Using Komodo Dragon Teeth as models for dental adaptations in Dinosaurs – a structural and chemical study **Catriona McGilvery** Imperial College London, UK

I024 The use of advanced electron microscopy to explore the early stages of precipitate evolution in Cu-Cr-Zr alloys **Siguang Meng** University of Manchester, UK

I025 Spectroscopy of Low-Energy Electron Interactions for Auger Electron Radiotherapy Development **Alfredo Vigny Mercado Quintero** University of York, UK

I026 In-situ ultra-high speed X-ray imaging the dynamics of ultrasonic atomisation of viscous fluids **Jiawei Mi** University of Hull, UK

I027 Comparative analysis of in-situ and ex-situ transformation between anatase and rutile phases of TiO_2 **Rola Moussa** University of York, UK

I028 Leveraging new scripting capabilities in DigitalMicrograph for automated data acquisition and analysis of nanoparticles **Zaeem Najeem** Johnson Matthey Technology Centre, UK

I029 Accelerating Large Volume Electron Microscopy Through Sparse Sampling **Daniel Nicholls** SenseAI Innovations Ltd, UK

I030 Correlative In-situ High-pressure Gas Cell Transmission Electron Microscopy, Scanning Electron Microscopy, and X-ray Spectroscopy of Heterogenous Catalysts **Calvin Parkin** Hummingbird Scientific, USA

I031 Statistical analysis of microstructural properties of battery cathode material **Daniela Proppentner** University of Warwick, UK

I032 Thermal Annealing-Induced Defect Evolution in Compound Semiconductors: Atomic-Scale Structural Dynamics and Dual Modulation of Carrier Transport and Magnetic Properties **Yang Qiu** Southern University of Science and Technology, ShenZhen, China

I033 Streamlining Graphene Liquid Cell Preparation: VitroTEM's Naiad System **Sheetal Bhardwaj** Vitrotem, Netherlands

I034 Influence of Melt Pool Boundaries on Fatigue Crack Propagation in LPBF AISi10Mg **Sethupathi Rangaraj** The University of Manchester, UK

I035 Energy Differences Between Structural Isomers of Deposited, Size-Selected Au Nanoclusters **Morgan Rees** Swansea University, UK

I036 In-situ charge-discharge observation and analysis for Si anode of all solid-state batteries by using SEM-EDS-SXES method **John Scott** JEOL UK Ltd., UK

I039 Comparison of different scanning electron microscopy methods (SEM, WDX, μ XRF) to detect thin In(Ga)As layers deposited on top of GaAs **Thomas Walther** University of Sheffield, UK

I040 First steps towards improving measurement of interfacial segregation in SEM **Thomas Walther** University of Sheffield, UK

I041 Structural characterisation of Ni_4Ti_3 precipitate in NiTi Shape Memory Alloy **Zifan Wang** Diamond Light Source, UK

I042 Atomic-Scale Investigation of Structural Disorder in Cycled NMC-811 Cathode via 3D Δ -PDF Analysis **Yanxuan Wang** University of Manchester, UK

- 1043** The Environmental Instability and Degradation Mechanism of α -In₂Se₃ **Robert Wells** University of Warwick, UK
- 1044** Enhancing FIB-SEM Serial Sectioning Tomography towards a 24-Hour Turnaround **Bartłomiej Winiarski** Thermo Fisher Scientific, Czech Republic
- 1045** Observing the role of Zn self-dissolution in the anode corrosion process in Zn-ion batteries **Yi Yuan** University of Warwick, UK
- 1046** 3D characterisation of bimetallic fuel cell catalyst nanoparticles using STEM **Alessandro Zanre** University of Oxford, UK
- 1047** Correlative Light, Electron, and Soft X-ray Microscopy (CLEXM) for Advancing Biomedical Research **ShaoSen Chueh** University College Dublin, Ireland. SiriusXT, Ireland
- 1049** Demonstrating Soft X-Ray Tomography in the lab for correlative cryogenic biological imaging using X-rays and light microscopy **Sergey Kapishnikov** SiriusXT, Ireland. University College Dublin, Ireland
- 1050** Cryo soft X-ray tomography for efficient targeting and volume context in CLEM and volume EM correlative workflows **Sergey Kapishnikov** SiriusXT, Ireland. University College Dublin, Ireland
- 1051** Novel 3D EBSD sample preparation for severely deformed and cracked samples **Xiangli Zhong** University of Manchester, UK. Henry Royce Institute, Manchester, UK
- 1052** The ZEISS Crossbeam FIB-SEM with integrated fs-laser for sample preparation and materials research **Ria Mitchell** Carl Zeiss Microscopy Ltd., UK
- 1053** Crafting for electron microscopy **Jon Moss** University of Edinburgh, UK
- 1054** Understanding creep deformation and creep cavity formation in Copper-Chromium-Zirconium alloy **Muhammad Zeeshan Mughal** The Open University, Milton Keynes, UK
- 1055** Towards 3D Characterisation of Stress Corrosion Cracking in irradiated Boiling Water Reactor cladding **Tamsin O'Reilly** UK National Nuclear Laboratory, Sellafield, UK
- 1056** Application of Focused Ion Beam (FIB) to TEM Sample Preparation of Substable Materials **Yi Qiao** University of Science and Technology Beijing, China
- 1057** 3-Dimensional Characterisation of Hydrated Bone ECM Hydrogels using High-Pressure Freezing, Cryo-FIB-SEM and Cryo-Negative Staining **Andreas Rialas** University of Nottingham, UK
- 1058** Charting the molecular landscape across the mammalian hippocampus using electron cryotomography **Jake Smith** University of Oxford, UK. Rosalind Franklin Institute, UK
- 1059** FIB lift-outs on solid immersion lenses for correlative cryo-STORM and ET **Gea T. van de Kerkhof** STFC, UK
- 1060** Unravelling Creep Cavitation Mechanisms in Ta-Modified CSEF Steels via Plasma FIB Serial Sectioning and 3D Electron Microscopy **Xiyu Zhang** Loughborough University, UK
- 1061** Comparison Study of FIB, CryoFIB, and Ultramicrotome for Beam-Sensitive Coating Materials **Xingjun Zhou** University of Manchester, UK
- 1062** Compact Cell Imaging Device (CoCID) provides insights into the cellular origins of viral infections **Kenneth Fahy** SiriusXT, Ireland
- 1063** Volume Correlative Light and Electron Microscopy (vCLEM) approaches to investigate the role of autophagy in the formation of tubulovesicular structures during *M. tuberculosis* infection **Antony Fearn** The Francis Crick Institute, London, UK
- 1064** Illuminating Host-Parasite interactions: Microscopy insights into filarial biology and host immune responses **Frédéric Fercoq** Muséum National d'Histoire Naturelle, CNRS, Paris, France.
- 1065** A novel Correlative Light and Electron Microscopy (CLEM) approach to dissect evolutionarily conserved mechanisms of fungal phagosome biogenesis **Elektra Nenedaki** Foundation for Research and Technology-Hellas, Heraklion, Greece.
- 1066** Revealing Previously Unseen Channel Structures in *Pseudomonas aeruginosa* Biofilms with Multi-scale Imaging **Connor MacDonald** University of Strathclyde, Glasgow, UK
- 1067** Label free imaging of fungal infection in plants using Stimulated Raman Scattering (SRS) microscopy **Jessica Mansfield** University of Exeter, UK
- 1068** Fluorescent Microscopy Reveals Interactions and Dynamics of Extraordinary Symbiosis in a Grain Pest Beetle **Dongik Chang** Max-Planck Institute for Chemical Ecology, Jena, Germany.
- 1069** In situ characterisation of extracellular vesicle interaction mechanisms in metastatic prostate cancer **Katie Choi** University of Nottingham, UK
- 1070** Elucidating Spatio-Temporal Nuclear Dynamics in 4D Using State-of-the-Art Imaging in Beating Hearts **George Doherty** King's College London, UK
- 1071** Investigating the Effect of Hypoxia on Glycosaminoglycans in Cancer via Secondary Ion Mass Spectrometry Cell Surface Imaging **Hannah Evans** University of Nottingham, UK
- 1072** A generalisable and targeted molecular biopsy approach for in-situ cryo electron tomography of vitreous brain tissue **Calina Glynn** Rosalind Franklin Institute, UK
- 1074** High speed Raman mapping of plant root cells using adaptive step size based on image contrast **William Leigh** HORIBA UK LTD, UK
- 1075** Under the Microscope: a new flagship public engagement programme for electron microscopy **Luke Norman** University of Nottingham, UK
- 1076** The establishment of cryo correlative light and electron microscopy workflows for native-state bioimaging **Christopher Parmenter** University of Nottingham, UK
- 1077** Track, bind and fix: a novel single-molecule imaging and analysis pipeline for carbon-fixing biomolecular condensates **Alex Payne-Dwyer** University of York, UK
- 1078** Surface and Subsurface Characterization of Lithium-Ion Battery Materials Using FIB-SEM with Integrated ToF-SIMS and 3D ToF-SIMS Tomography **Petr Klímek** TESCANA GROUP, Czech Republic
- 1079** High-resolution 3D imaging of chemicals and lipids in hair by Cluster SIMS using Water GCIB and C60 cluster beam at cryo temperatures **Kate McHardy** Ionoptika Ltd., UK
- 1080** Advanced FLIM Techniques Reveal Metabolic Insights in HER2+ Breast Cancer Cell Models **Joseph Navaratne** King's College London, UK

I081 Confocal for everyone: towards an OpenFlexure laser-scanning confocal microscope **Freya Whiteford** University of Glasgow, UK

I082 FocalPlane, the community site where biology meets microscopy
Helen Zenner, Seema Grewal FocalPlane, UK

I083 Geraniol inhibited biofilm formation, its potential applications **Ryath Al-Hemedawi** Medical City Hospitals Campus, Baghdad, Iraq

I084 Complementary Speckle STED Microscopy **Payvand Arjmand**
Laboratory for Optics and Biosciences (LOB), Palaiseau, France

I085 Multiple scattering fluorescence conjugation using a wavefront sensor
Payvand Arjmand Saints-Pères Paris Institute for the Neurosciences,
Paris, France. Laboratory for Optics and Biosciences (LOB), Palaiseau,
France

I086 Phosphorescence and fluorescence lifetime imaging of eosin Y under
nitrogen flow and atmospheric conditions **Alexandra E. Bailie** STFC, UK

I087 Paving way to Understand Bacteria-Nanotopography Interactions by
Cryo FIB/SEM and Cryo- soft X-ray Microscopy **Chaturanga D. Bandara**
Helmholtz Centre For Geosciences (GFZ), Potsdam, Germany.
University of Bristol, UK

I088 Investigating Semiconductor Materials using 4D Scanning Transmission
Electron Microscopy (4D-STEM) **Tiantian Chai** University of Leeds, UK

I089 The Four Color Theorem for Cell Instance Segmentation **Ye Zhang**
Leibniz-Institut für Analytische Wissenschaften – ISAS – e.V., Dortmund,
Germany. Harbin Institute of Technology, Shenzhen, China

I090 Unraveling the Molecular Basis of Antibiotic Resistance in *S. aureus*
Focusing on Plasmid-Mediated Mechanisms **Kiran Fatima** green biotec,
Germany

I091 A Convolutional Neural Network approach for improved Transmission
Kikuchi Diffraction crystal orientation mapping **Mattias Houen** DTU
Nanolab, Denmark

I092 Time of Flight Secondary Ion Mass Spectrometry in a dual beam
Focused Ion Beam Scanning Electron Microscope (ToF-SIMS FIB-SEM)
Rebecca Hughes University of Leeds, UK. Syngenta, UK

I093 PolSpec – fast, flexible, cost-effective hyperspectral imaging **Huihui Liu**
Imperial College London, UK

I094 New method of imaging laterally extended tissue using mesoscale light
sheet microscopy **Sharika Mohanan** University of Glasgow, UK

I095 Mass spectacular parasites: Applications of secondary ion mass
spectrometry and imaging mass spectrometry in parasitology **Katie Moore**
University of Manchester, UK

I096 A theoretical framework for the necessity of structured illumination in
near-field ptychography **Natalie Nord** The Rosalind Franklin Institute,
UK. University of Warwick, UK

I097 The limits of under-sampling in 4D STEM **John Rodenburg**
University of Sheffield, UK

I098 Fabricating Lenses Across Scales: From Small to Large Optics That
Enhance Resolution and Contrast in Optical Microscopy **Liam Rooney**
University of Glasgow, UK. University of Strathclyde, Glasgow, UK.

I100 The Intergration of Super-resolution Microscopy and Artificial
Intelligence in Advance Cellular and Molecular Visualization **Areeba Sattar**
University of Agriculture, Faisalabad, Layyah, Pakistan

I101 One Pipeline to Rule Them All: Developing a Comprehensive Analysis
Pipeline for Volume Correlative Light and Electron Microscopy **Jack Thorne**
University of Bristol, UK

I102 Global BioImage Analysts' Society - GloBIAS **Christa Walther**
German BioImaging, Konstanz, Germany. GloBIAS, Klosterneuburg,
Austria

Poster Session Two

I6:15-18:15 Wednesday, 2 July, 2025, Exhibition Hall

2001 Enhanced Bioactivity of Robotically Microplasma Sprayed Zirconium
Coatings for Orthopedic Implants **Darya Alontseva** D. Serikbayev East
Kazakhstan Technical University, Ust-Kamenogorsk, Kazakhstan

2002 Determining the image sensitivity of low-dose 4D-STEM **Ellie-Mae Bambrick-Sattar** University of York, UK

2003 Evaluating bone quality with the Renishaw inLux™ SEM Raman
interface **Dale Boorman** Renishaw, UK

2004 Studying degradation of nickel-based superalloy using high-speed
atomic force microscopy. **Benedict Brown** University of Bristol, UK

2005 Streamlining cathodoluminescence data collection and analysis using
autonomous control **Douglas Cameron** Gatan Inc., USA

2006 Electron Nano-Analysis of MOF Glasses **Robert Carroll** University
of Leeds, UK

2007 High-resolution orientation mapping via 4D STEM and
DigitalMicrograph **Fernando Castro, Liam Spillane** Gatan, USA

2008 Atomic-resolution imaging of PST-PMW perovskites via aberration-
corrected STEM **Xin Chen** University of Cambridge, UK

2009 Correlative study of coupled plasmonic gold nanoparticles via electron
microscopy and optical techniques **Rowena Davies** University of
Cambridge, UK

2010 Understanding Catalyst Metal-Support Interfaces Through Electron
Ptychography **Joshua de Boer** Diamond Light Source, UK. Cardiff
University, UK

2011 Unveiling Atomic-Scale Insights: TEM Investigation of MOCVD-Grown
Monolayer Graphene based Heterostructures **Deepak Kumar Dinkar**
Queen Mary University of London, UK

2012 Towards Implementing Cloud-based Workflows for Near Real-Time
Processing of Large 4D STEM Experimental Datasets **Roberto dos Reis**
Northwestern University, Evanston, USA

2013 Polarised Fourier ptychography for enhanced imaging of hemozoin
crystals in malaria-affected red blood cells: A simulation approach **Fraser Eadie**
University of Strathclyde, Glasgow, UK

2014 Controlling domain wall widths in magnetic racetrack memory systems
using focused electron beam induced deposition **Keir Edgar** University of
Glasgow, UK

2015 Developing specimen handling tools for efficient and reproducible cryo
correlative workflows integrating soft X-ray tomography into cryo-FIB/SEM
and cryo-ET **Roland Fleck** King's College London, UK

2017 Automated, robust & novel software for Electric Field & Electron Pair Distribution Function Mapping from 4D-SPED **Athanassios Galanis** NanoMEGAS SPRL, Belgium

2018 A multi-scale SEM-EBSD-TEM microscopy and image processing approach to investigate creep cavitation mechanisms in Grade 91 steel **Eirini Galliopoulou** University of Bristol, UK

2019 Ferroelastic Domain Behaviour with Machine Learning: Insights from In-Situ Heating STEM Analysis **Luka Geddis Zellmann** Queen's University Belfast, UK

2020 Compton scattering investigation of the electronic structure of PbS quantum dots **Samuel Hayes** Durham University, UK

2021 Cryo-Electron Microscopy Study of Pickering Emulsions **Nicole Hondow** University of Leeds, UK

2022 Semi-correlation analysis of bacterial samples by cryogenic Scanning Electron Microscopy and cryogenic Raman microspectroscopy **Kamila Hrubanova** Institute of Scientific Instruments of the CAS, Brno, Czech Republic

2023 Feature Enhancement during Dictionary Learning Reconstructions of Scanning Transmission Electron Microscope Images **Richard K. Jinschek** University of Liverpool, UK

2025 Applications of a MAPS direct detector for high-resolution, low-keV electron microscopy **Barnaby Levin** Direct Electron LP, USA

2026 AI-powered direct quantitative analysis of Metal-Metal interactions in correlated single-atom catalysts **Miguel Lopez-Haro** Universidad de Cádiz, Spain

2027 H5OINA: The latest updates to Oxford Instruments' open-source file format **Katherine MacArthur** Oxford Instruments, UK

2029 Phase reconstruction from 2D to 3D by electron Fourier ptychography **Jingjing Zhao** The Rosalind Franklin Institute, UK

2030 Innovations in 3D Correlative Microscopy: Bridging Nano X-Ray CT and DualBeam Methods **Bartłomiej Winiarski** Thermo Fisher Scientific, Czech Republic

2031 4D-Explorer: a user-friendly graphical interface for 4D-STEM data analysis **Xiaopeng Wu** University of Warwick, UK

2032 Moving with the times: predictive drift correction of multi-frame STEM **Matthew Mosse** Trinity College Dublin, Ireland

2033 Phase and Orientation Mapping of Topological Thin Film Heterostructure using 4D-STEM **Ben Muggleton** University of Leeds, UK

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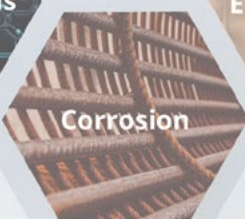
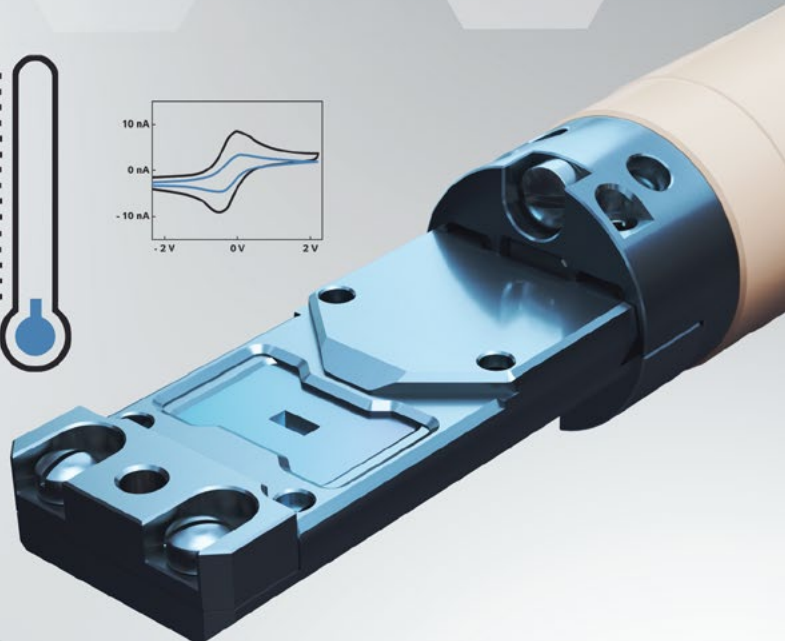
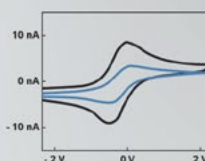
Unmatched
chemical
compatibility



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analysis, and offline
data processing



No interference
from crosstalk



- 2035** *Towards Cinematic STEM and Beyond: Fast Frame Rates Using Overdriven Scan Shaping* **Jonathan Peters** Trinity College Dublin, Ireland
- 2037** *Fast-frame imaging in the TEM with Timepix4* **Fred Rendell-Bhatti** University of Glasgow, UK
- 2038** *Advancing 4D-STEM with Computational Techniques* **Daniel Nicholls** SenseAI Innovations Ltd. UK
- 2039** *A machine learning model to infer the illumination probe in electron ptychography* **Oriol Roche i Morgó** Diamond Light Source, UK
- 2040** *The impact of applied ion energy on low-damage (S)TEM sample preparation caused by various ion species in FIB-SEM* **Martin Slama** TESCAN Group, Czech Republic
- 2041** *Anti Curtaining Table for generating smooth cross sections in inhomogeneous materials* **Andrew Jonathan Smith** Kleindiek Nanotechnik, Germany
- 2042** *Graphene liquid cells for atomic resolution imaging of adatom behaviour at the solid-liquid interface* **Sam Sullivan-Allsop** University of Manchester, UK
- 2043** *Data Stewardship and Curation Practices in AI-Driven Genomics and Automated Microscopy Image Analysis for High-Throughput Screening Studies: Promoting Robust and Ethical AI Applications* **Mengistu Tasew** University of Gondar, Ethiopia
- 2044** *The effects of thermal sensitisation of microstructural properties of stainless steel* **Kamil Ulatowski** University of Bristol, UK
- 2045** *Measuring bismuth content of thin GaAsBi layers in cross-sectional STEM-EDXS* **Thomas Walther** University of Sheffield, UK
- 2046** *Quantification of Elements in Olivine; How Quant Optimised EDS and SEM-WDS compare to EPMA* **Francesca M. Willcocks** University of Leicester, UK
- 2047** *Context Informed Deep Convolutional Neural Networks for Image Denoising in STEM* **Alex Williams** University of Liverpool, UK
- 2048** *Optimal conditions for low kV 'sweet spot' imaging of battery raw materials using FE-SEM* **Ria Mitchell** ZEISS Microscopy, UK
- 2049** *3D characterization of pharmaceutical powder and pressed tablet formulations using X-ray Microscopy, deep learning, and AI* **Ria Mitchell** ZEISS Microscopy, UK
- 2050** *The X-ray imaging challenge for low z materials: Contrast enhancement, fringe artefact removal, and faster segmentation using advanced reconstruction* **Ria Mitchell** ZEISS Microscopy, UK
- 2051** *Integration of AFM data into open-source tomography analysis pipelines and its application to bacterial cell division* **Matthew Barker** The University of Sheffield, UK
- 2052** *Harnessing Nonlinear Harmonics for High-Resolution Image Contrast and Material Differentiation* **Gourav Bhattacharya** Ulster University, Belfast, UK
- 2053** *AFM studies of improved conductance and stability in Mo₂-based self-assembled monolayers* **Cerys Cooper** Lancaster University, UK
- 2054** *Improving the Precision of Thermoelectric Atomic Force Microscopy Measurements* **Sam Harley** Lancaster University, UK
- 2055** *Fast and quantitative nanomechanical mapping using photothermally actuated atomic force microscopy* **Colin Grant** Nanosurf, Switzerland
- 2056** *Combining SPM and FEA modelling to uncover the physical origins of geometric thermoelectricity* **Stuart Finch** Lancaster University, UK
- 2057** *Caught in action: visualising bacteriocins on living cells* **Yulianna Koziy** University College London, UK
- 2058** *Shining Light on Single Molecule Dynamics: One Photon at a Time* **Eric Lundgren** University of Bath, UK
- 2059** *Intramolecular Dissociation of Bromobenzene Adsorbed on Si(111)-7x7* **Hannah Martin** University of Bath, UK
- 2060** *Atomic Force Microscopy Reveals the Molecular Architecture of the Streptococcus pneumoniae Cell Wall during Division* **Nishan Nathoo** The University of Sheffield, UK
- 2061** *The influence of magnesium ion on amine adhesion at quartz surface* **Maira Rievers Nogueira Alvares** Center for Mineral Technology, Rio de Janeiro, Brazil. Vale Institute of Technology, Ouro Preto, Brazil
- 2062** *High throughput nanoscale assessment using dynamic scanning probe microscopy* **Oliver Payton** Bristol Nano Dynamics Ltd., UK. University of Bristol, UK
- 2063** *Video-rate AFM topography with simultaneous measurements of properties such as relative stiffness and electrical conductivity* **Loren Picco** University of Bristol, UK. Bristol Nano Dynamics, UK
- 2065** *Advancing High-Speed AFM analysis of dynamic systems* **Maya Tekchandani** University of Leeds, UK
- 2066** *Fluorescence-Based Characterization of the Tumor Microenvironment in Cervical Cancer: Integrating Spatial Imaging and Molecular Profiling to Advance Therapeutic Strategies* **Wasiu Sanusi** Fountain University Osogbo, Nigeria
- 2067** *Hooked on growth: 3D confocal microscopy reveals the mechanism of apical hook folding* **Viraj Alimchandani** Université de Montréal, Canada
- 2068** *Developing live ex vivo tissue in vitro systems to recapitulate the lung and liver premetastatic niche* **Lindsey Arnott** CRUK Scotland Institute, Glasgow, UK. University of Glasgow, UK
- 2069** *3D neurosphere imaging reveals migration and microtubule defects in MAPT knockout iPSC-derived neurons* **Katie Holden** University of Oxford, UK
- 2070** *Membrane Proteins in Action Monitored by pH-Responsive Liquid Crystal Biosensors* **Peng Bao** University of Liverpool, UK
- 2071** *Development of a Dual-View Selective Plane Illumination Microscope with Bessel Beam for Large-Scale 3D Imaging* **Dinesh Beniwal** King's College London, UK
- 2072** *Nonlinear Optical Microscopy in the Short-Wavelength Infrared Windows for Deep Tissue Imaging* **Konstantinos Bourdakos** University of Southampton, UK
- 2073** *Towards Refractive Index Manipulation of 3D Printed Lenses Using ZrO₂ Nanoparticle Doping* **Charlie Butterworth** University of Strathclyde, Glasgow, UK
- 2074** *Fluorescence imaging flow cytometry in cross-flow microfluidic channels* **Matthew Christie** University of Leeds, UK

- 2075** Multifocal Structured Illumination Microscopy using Low-Cost 3D Printed Microlens Arrays **Jay Christopher** University of Strathclyde, Glasgow, UK
- 2076** Temporal Analysis of Bone Development in Chick femur Bone Using Multimodal Label-Free Imaging **Siddhi Chugh** University of Southampton, UK
- 2077** Fourier Ptychographic Microscopy for Applications in Live Imaging of Plant and Algal Tissue **Laura Copeland** University of Strathclyde, Glasgow, UK. National Physical Laboratory, London, UK
- 2078** Line REScan AION – The new standard in confocal microscopy **Ahmad Fahrhan Bhatti** Confocal NL, Netherlands
- 2079** SPIN-SPIM: A novel fibre coupled optical trapping system for volumetric analysis of cellular samples **Sever Dragomir** The University of Nottingham, UK
- 2080** Lens and sensibility: Compact high-efficiency illumination system for in-orbit microscopy **Ewan Drever-Smith** University of Nottingham, UK
- 2081** Resolving the distribution of the glucose transporter GLUT4 in fat tissue using Ultrastructure-Expansion Mesoscopy **Shannan Foylan** University of Strathclyde, Glasgow, UK
- 2082** Shot-Noise-Limited Tunable Stimulated Raman Scattering Microscopy for near Live Virtual Histology **Naveen Gajendra Kumar** Lightcore Technologies, France
- 2083** High-resolution 3D label-free imaging and quantification of *Saccharomyces cerevisiae* under starvation conditions **Daniel Ghete** University of York, UK
- 2084** Innovations in Ultrafast Lasers for Nonlinear Microscopy **Leigh Graham** Coherent Corp., Glasgow, UK
- 2086** Multi-Photon Imaging Methodology for the Detection and Analysis of Organic Materials within Coral Skeletons **Jacob Kleboe** University of Southampton, UK
- 2088** Developing dual view Oblique Plan Microscopy for applications in the study of the developing Zebrafish Jaw **Ann Wheeler** University of Edinburgh, UK
- 2089** RatDISCO, an optical clearing and immunolabeling method for large rodent brains designed for light-sheet microscopy **Cristina Martinez Gonzalez** University of Edinburgh, UK
- 2090** The SIMple microscope: Development of a fibre-based platform for SIM imaging in unconventional environments **Rebecca M. McClelland** University of Cambridge, UK
- 2091** Iterative MINFLUX imaging using galvanometric scanners **Gero Schlötel** Abberior Instruments GmbH, Germany
- 2092** Quantitative Force Mapping in the Beating Embryonic Zebrafish Heart **Daniel Olesker** University of Glasgow, UK
- 2093** Sensing cell-level contractility deep inside cardiac organoids using microlasers **Nachiket Pathak** University of Cologne, Germany
- 2094** Expansion Microscopy in Cancer Research: new applications and challenges **Nikki Rosanna Paul** CRUK Scotland Institute, Glasgow, UK
- 2095** A simple method for multi-photon label free super resolution imaging using Airyscan **James Read** University of Southampton, UK
- 2096** Comparison of Tissue Clearing Techniques for Skin Imaging via Light Sheet Fluorescence Microscopy **Matthew Shott** University of Aberdeen, UK
- 2097** Generating Realistic Image Textures for Synthetic 3D Microscopy Data: A Sample-Based Method **Adam Smith** University of Warwick, UK
- 2098** The New Frontier of Super-Resolution: Label-Free Meets SIM for Live-Cell Imaging **Christiaan Stuut** CSR Biotech, Germany
- 2099** Drift-free Stochastic Optical Reconstruction Microscopy with a Reinforced Optical Cage System **Matthew Tang** University of Oxford, UK. Central Laser Facility, UK
- 2100** High-speed fluorescence microscopy to observe flow-induced activation of cells in microfluidic devices **Amy Truesdale** University of Leeds, UK
- 2101** Development and Testing of a LED Array Microscope for Multimodal Diffraction-Limited and Super-Resolution Biological Imaging **Lewis Walker** University of Strathclyde, Glasgow, UK
- 2102** A practical approach to aberration correction using deep transfer learning: enabling deep imaging **A J Wright** University of Nottingham, UK
- 2103** Direct Electron Detector for SEM applications: Kikuchi pattern acquisition and Imaging **Nohayla El-khairaoui** Université de Lorraine, Metz, France
- 2104** Using combined EBSD and a rapid nano-indentation mapping approach to measure the depth of the deformation layer from shot peening in superalloys for aerospace applications **Theo Teasdale** University of Warwick, UK
- 2105** Correlative microscopy in crystalline materials using EBSD and dislocation analysis to identify TEM study areas **John Wheeler** University of Liverpool, UK
- 2106** Surface-induced insulin agglomeration: Insights from confocal and fluorescence lifetime imaging microscopy **Megren Fagihi** University College Dublin, Ireland
- 2107** Using Cryo FIB-SEM tomography to assess the microstructure of consumer formulations **Fraser Laidlaw** University of Edinburgh, UK
- 2108** Measurement of electrostatic fields in Ge-doped AlGaIn structures by off-axis electron holography **Alexis Palais** CEA-LETI, Grenoble, France
- 2109** Chromium depletion in irradiated stainless steel fuel cladding **Michael Ward** UKNNL, Sellafield, UK
- 2110** Soft X-ray imaging analysis of A549 epithelial cells treated with a new pulmonary drug delivery system **Sergey Kapishnikov** SiriusXT Ltd, Ireland
- 2111** Cryo soft x-ray tomography of biological samples in the laboratory **Kenneth Fahy** SiriusXT, Ireland
- 2112** Visualising the in cellulo protein crystallisation pathway of *Bacillus thuringiensis* with integrated Cryogenic Soft X-Ray and Electron Microscopy **Marcus Gallagher-Jones** Rosalind Franklin Institute, UK
- 2114** Investigation of collagen mineralization using in situ SAXS/WAXS and Raman spectroscopy **Roland Kröger** University of York, UK
- 2115** Dark-field x-ray imaging of fibrous tissue in a compact laboratory system **Carlos Navarrete-León** University College London, UK. The Francis Crick Institute, London, UK

- 2117** *One for All or All for One: ultrastructural adaptations to multicellular and unicellular freshwater organisms* **Saskia Bakker** University of Warwick, UK
- 2118** *Employing Xe Plasma FIB for Fast and Precise Sample Preparation* **Jana Bartoňková** TESCAN GROUP, a.s., Czech Republic
- 2119** *Watching through a graphene window: A novel view of mitochondria* **Katie Beirns** Rosalind Franklin Institute, UK. University of Oxford, UK
- 2120** *Silicon-Based CryoEM Grids: Revolutionizing Sample Stability and Data Quality with Microfabrication and Graphene* **Eva Bladt** DENSSolutions B.V., Netherlands
- 2121** *Microscopy Beyond the Lab: Insights from the EnderScope Community Project* **Niamh Burke** University College Dublin, Ireland
- 2122** *From Macro to Nano: Investigating Beetle Cuticle and Symbiotic Organs Using Micro CT and EM* **Dongik Chang** Max-Planck Institute for Chemical Ecology, Jena, Germany
- 2123** *Automated Calibration on a Locally Manufactured Device: Low-cost and Accessible Characterisation of the OpenFlexure Microscope* **Ben Chisholm** University of Glasgow, UK
- 2124** *Quantitative Analysis of Image Quality for Mechanically Deskewed Sample Scans* **Ahmed Elnageh** University of Glasgow, UK
- 2125** *Building a Collaborative Computational Community for Volume Electron Microscopy* **Martin Jones** Francis Crick Institute, London, UK
- 2126** *Unveiling the structure of protein-based hydrogels by overcoming cryo-SEM sample preparation challenges* **Dimitra Katrantzi** University of Leeds, UK
- 2127** *Microfluidic cryo-EM grid preparation with the cryoWriter®* **Chinmaya Kv** École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland. University of Lausanne, Switzerland
- 2128** *Massive Destructive Effects Of Nd:YAG Capsulotomy Shots In Pinhole Intraocular Lenses Inspected By Micro-CT* **Tatiana Kormilina** Graz Centre for Electron Microscopy (ZFE), Austria. Graz University of Technology, Austria
- 2129** *Insights into Dhillonvirus BAS18: A Structural Study* **Rosheny Kumaran** University of Otago, Dunedin, New Zealand
- 2130** *A multimodal observation of mitochondrial-nucleus contact sites in Toxoplasma gondii* **Leandro Lemgruber** University of Glasgow, UK
- 2131** *Machine learning analysis of FIB-SEM volumes reveals mitochondrial disruption in sensory hair cells during aminoglycoside insult* **Richard Osgood** Mass Eye and Ear, Boston, USA. Harvard Medical School, Boston, USA
- 2132** *A Python GUI Package to Simplify Complex Image Analysis Pipelines for High-Content Microscopy Data* **Ross Scrimgeour** Institute of Cancer Research, London, UK
- 2133** *AI Boosts 3D Bio-Imaging* **Daniela Slamkova** Thermo Fisher Scientific, Czech Republic
- 2134** *Enhancing Plant Tissue Imaging with Serial Block-Face SEM: Insights from Optimised Sample Preparation* **Rhea Stringer** John Innes Centre, Norwich, UK
- 2135** *Advances in plasma FIB and multiscale cryo-ET imaging for structural cell biology* **Helena Watson** Rosalind Franklin Institute, UK. University of Glasgow, UK
- 2136** *Removing barriers to advanced imaging and machine learning-based analysis* **Laura Wiggins** University of Sheffield, UK
- 2137** *Annotation-free Bright-Field Cell Segmentation for Extended Live Imaging using Deep Learning* **Qimeng Wu** MRC Laboratory of Molecular Biology, Cambridge, UK
- 2138** *Generative AI for Inverse Problems in Biomedical Computational Microscopy* **Artur Yakimovich** Helmholtz-Zentrum Dresden-Rossendorf, Görlitz, Germany
- 2139** *Integrated Mathematical Modelling of Image Analysis, Deep Learning, and Data Analysis Using Category Theory Tools* **Volodymyr Nechyporuk-Zloy** Imperial College London, UK



Society Meetings

The following Society Meetings are taking place during mmc2025 incorporating EMAG 2025:

RMS Life Sciences Section Annual General Meeting

1645 – 1715 Tuesday 1 July 2025, Charter 4

RMS Engineering, Physical & Material Sciences Section

Tuesday 1 July 2025, Charter 4, following the RMS Life Sciences Section Annual General Meeting.

RMS Outreach & Education Committee Annual General Meeting

1800 - 1900 Tuesday 1 July 2025, Charter 1.

Royal Microscopical Society Annual General Meeting

Tuesday 1 July 2025, Charter 1, following the RMS Outreach & Education Committee Annual General Meeting.

Electron Microscopy & Analysis Group Annual General Meeting

1210-1230 Wednesday 2 July 2025, Charter 1.

RMS AFM & SPM Section Annual General Meeting

1215 - 1230 Wednesday 2 July 2025, Exchange 9.

RMS Data Analysis in Imaging Section Annual General Meeting

1645 - 1715 Wednesday 2 July 2025, Charter 4.

RMS Electron Microscopy Section Annual General Meeting

Wednesday 2 July 2025, Charter 4, following the RMS Data Analysis in Imaging Section Annual General Meeting.

RMS Light Microscopy Section Annual General Meeting

Wednesday 2 July 2025, Charter 4, following the RMS Electron Microscopy Section Annual General Meeting.

RMS Early Career Committee Annual General Meeting

Monday 30 June 2025, Exchange 9, as part of the Early Career Symposium.

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The Microscience Microscopy Congress series is renowned for its diverse networking programme, there are plenty of opportunities to catch up with old colleagues or learn something new from our poster presenters.

The programme for mmc2025 incorporating EMAG 2025 is as follows:

BiolmagingUK / Early Career Networking Event - Monday 30 June, 1815 onwards

Join us in celebrating the opening of mmc2025 for an informal BiolmagingUK / Early Career Networking Reception in the foyer of Manchester Central.

Poster Sessions - Tuesday 1 July, 1630 - 1830 & Wednesday 2 July 1615 - 1815

Once the conference sessions have finished for the afternoon, the daily poster sessions allow you to browse the mmc2025 poster area and discuss the research with the authors. The mmc2025 poster area will house over 100 posters incorporating a wide range of microscopy techniques in both life and physical science.

Poster sessions are free to attend and open to conference and exhibition visitors alike. There is no need to book in advance, just turn up.

EMAG Networking Event - Wednesday 2 July, 1930 onwards.

Fazenda Rodizio Bar & Grill www.fazenda.co.uk, The Avenue, Manchester M3 3AP

The finest meats freshly grilled and carved at your table, accompanied by a selection of Argentinian and Brazilian side dishes. Vegan, vegetarian and pescetarian options are available. Please indicate any dietary requirements or allergens during the registration process.

This event, which includes dinner, is a great opportunity for EMAG 2025 delegates to continue the discussions from the day with those working in the same field.

Frontiers in Bioimaging Networking Event - Wednesday 2 July, 1930 onwards.

Bem Brasil www.bembrasilrestaurants.com, Deansgate, King Street West M3 2GQ

Located in the heart of Manchester, our Deansgate restaurant on King Street West, is proud to bring the true taste of Brazilian food and culture to this vibrant city.

This event, which includes dinner, will allow Frontiers in Bioimaging delegates to network with others working in imaging in life sciences and discuss the day's conference sessions.

The Frontiers in Bioimaging Networking Event is kindly sponsored by DENSolutions



AFM & SPM Networking Event - Wednesday 2 July, 1930 onwards.

Gusto Italian gustorestaurants.com, 4 Lloyd Street M2 5AB

Elegant food and drink. Fresh, from scratch. Every time. Enjoy the Gusto Italian difference...

This event, which includes dinner, will allow AFM & SPM meeting delegates to catch up with the AFM & other Scanning Probe Microscopies community.

The AFM & SPM Networking Event is kindly sponsored by Park Systems UK



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Award Presentations

The following recipients of RMS Award-winners are due to give talks and/or collect their award during the Conference.

2025 Alan Agar Award for Electron Microscopy

The aim of this section award is to celebrate and mark outstanding contributions to electron microscopy in the field of physical or life sciences. The winner is usually expected to be early-mid career stage.

The 2025 Award is presented to Kedar Narayan, Frederick National Laboratory, National Cancer Institute, NIH, USA. The presentation will take place on the afternoon of Tuesday 1 July, during the FIB Applications and EM Sample Prep Techniques in Biological Sciences session in Exchange 11.

This award is sponsored by Agar Scientific



2025 Award for Atomic Force Microscopy and Scanning Probe Microscopy

For outstanding progress made in the field of Atomic Force Microscopy (AFM) and Scanning Probe Microscopy (SPM).

The 2025 Award is presented to Sohini Kar-Narayan, University of Cambridge, UK. The presentation will take place on the afternoon of

Wednesday 2 July, during the AFM & SPM in Material Sciences session in Exchange 9.

RMS Early Career Award

The annual Early Career Award recognises the achievements of an outstanding early career imaging scientist in their contribution to microscopy, image analysis, or cytometry.

A shortlist of entrants will present their work during the Early Career Symposium on Monday 30 June. The award will then be presented at 1740.

The 2025 award is kindly sponsored by the Journal of Microscopy.



RMS Diploma

The Diploma from the Royal Microscopical Society is attained via a flexible portfolio-based course of study that is designed by the candidate with the assistance of their line-manager, and with input from existing Fellows of the Society. This approach ensures that the study is both challenging and rewarding whilst fitting with, and complementing, the candidate's existing employment. The Diploma is only open to members of the RMS.

Samuel Davis and Ramona Szalczinger will be presented with their RMS Diplomas on Tuesday 1 July at 1800 during the Outreach AGM in Exchange 9.

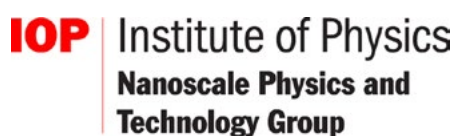
Poster & Talk Prizes

There are a number of poster and talk prizes up for grabs at mmc2025 incorporating EMAG. The prizes will be in the following categories:

- AFM & SPM
- EMAG
- Frontiers in Bioimaging
- mmc2025 Cross Disciplinary
- Virology and Host-Pathogen Sessions

Poster and talk prizes will be awarded on Thursday 3 July at 1645 in Charter 1.

The organisers would like to thank the following poster and talk sponsors:



RMS Scientific Imaging Competition

This year the competition has six categories:

- Electron Microscopy - Physical Science
- Electron Microscopy - Life Science
- Light Microscopy - Physical Science
- Light Microscopy - Life Science
- AFM and Scanning Probe Microscopies
- Short video

The competition judges have had a very hard time whittling down the record number of exciting entries to a short-list that is on display in the Central Foyer throughout mmc2025 incorporating EMAG 2025.

The prizes will be presented by competition judges John Hutchison, Alice Pyne, Pippa Hawes and Joelle Goulding in the Central Foyer on Wednesday 2 July from 1330.

The 2025 RMS Scientific Imaging Competition is kindly sponsored by Hamamatsu Photonics UK Limited and Oxford Instruments



Media Partners

Thank you to our media partners for their support of mmc2025 incorporating EMAG 2025.



