



IMC21 Preview: 'Olympics of Microscopy' coming to Liverpool, UK

The 21st International Microscopy Congress (IMC21) 2026

***31 August - 4 September 2026, Liverpool, UK
Pre-Congress Events 30 August 2026***



“The Next Generation – Embracing the Responsible AI Revolution”

The abstracts are in, the speakers are confirmed, and the stage is set for the 21st International Microscopy Congress (IMC21)!

With less than three months to go before this year’s premier event for the global microscopy community kicks off in Liverpool, UK, we’re taking a closer look at what’s in store for attendees – from the blockbuster scientific programme to a world-class exhibition, workshops, networking and more!

The RMS is honoured to be delivering this year’s premier event for the global microscopy community alongside the International Federation of Societies for Microscopy (IFSM), Liverpool University and all our other partners.

We look forward to seeing you there!



“The IMC is known as the Olympics of Microscopy, and is quite simply the biggest and best event in the global microscopy calendar this year.”

Professor Nigel Browning, IMC21 Organising Committee Chair

Congress Themes

IMC21 features a blockbuster scientific programme, organised into **three separate themes** and comprising no fewer than 32 different symposia.

With almost 1,700 talk and poster abstracts submitted – plus a surge of **late-breaking posters** - a huge range of scientific content awaits; so now's the time to familiarise yourself with what's on the menu, and start to plan your IMC21 experience!

Life Sciences – ‘Imaging Innovation Meets Biology’

Overview by Co-Chairs Gail McConnell and David Bhella

As the world of microscopy focuses on Liverpool for the 21st International Microscopy Congress, we look forward to an exciting programme of life-science research. IMC21 will showcase innovation across imaging modalities and the application of

cutting-edge microscopy methods to address key questions in biology that span length scales from molecules to organisms.

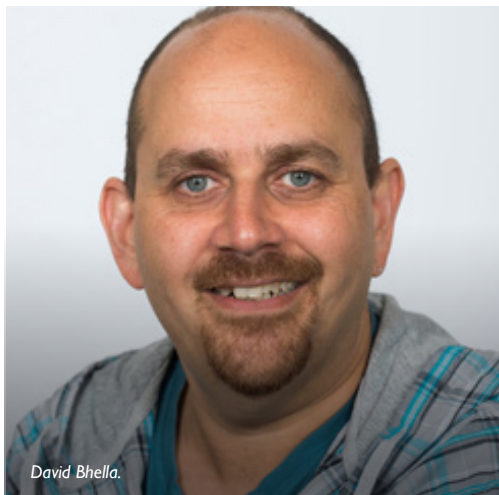
Cryo-EM - Innovations in macromolecular structure determination will showcase how this disruptive technology continues to transform structural biology, highlighting technological advances that improve data quality and throughput. Integration of new AI tools better enables interpretation of these data, yielding insights into protein dynamics and accelerating model building. Moving the focus of structural biology into the cellular and tissue context, innovations highlighted in *Cryo-ET – Macromolecular Imaging in Cells, Organoids and Tissues* include advances in specimen preparation, high-speed automated tomography, and computational tools to uncover mechanism through interrogation of noisy, challenging cryo-ET datasets. The promise of molecular imaging at tissue scale has led to an explosion of interest in *Volume Imaging in the electron microscope* and this session will be a real highlight of IMC21, showcasing how techniques such as serial block-face imaging and array tomography can map the complexity of biological systems.

IMC21's life sciences programme places light microscopy firmly at the centre of biological research, with a series of dedicated symposia reflecting both technological progress and expanding application areas. In *Live Imaging Cells, Tissues, Organs and*



“The congress creates a platform for groundbreaking scientific research for inspiring the next generation of scientists and for establishing collaborations across all scientific disciplines.”

Nigel Browning



Organisms, the focus will be on capturing dynamic biological processes in real time, from intracellular events to development at the organismal level. This is complemented by *Resolution Revolution in Light Microscopy*, where ongoing advances in super-resolution and optical engineering continue to push beyond traditional diffraction limits, opening new windows on molecular organisation.

The importance of imaging in three dimensions is further highlighted in *Volumetric Imaging*, with techniques enabling increasingly detailed reconstruction of complex biological structures across scales. At the same time, *Democratisation and Widening Access to Microscopy* signals a growing emphasis on accessibility, reproducibility, and global collaboration, ensuring that cutting-edge methods are widely available across the international research community.

Light microscopy is also deeply embedded within

the broader life sciences themes. Strong links to enabling technologies via *Machine Learning in Biological Imaging* point to the increasing role of artificial intelligence in image acquisition and analysis, while multimodal sessions such as *Neurosciences*, *Pathogen Biology*, *Plant Sciences*, and *Correlated Imaging Across Length Scales* highlight how a broad range of cutting edge imaging technologies are being brought to bear to provide comprehensive biological insight.

Together, these symposia highlight a field that is not only rapidly evolving but increasingly unified, where technologies converge to reveal biology in unprecedented detail. IMC21 will capture this momentum, showcasing how imaging innovation is reshaping our understanding of life across spatial and temporal scales.

Physical Sciences – ‘An exciting, forward-looking programme’

Overview by Co-Chairs Peter Nellist and Sarah Haigh

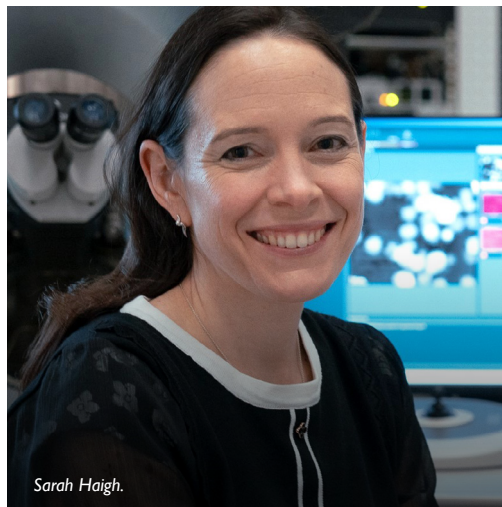
The International Microscopy Congress (IMC) conference is a highlight for any microscopist, and has often been described at the “Olympics” of microscopy as it only occurs once every four years. For IMC21 this summer we are looking forward to welcoming you to the vibrant city of Liverpool. Bringing together leading researchers, early career scientists, innovators, practitioners, trade suppliers and scientific societies from across disciplines, the congress offers a chance to meet and interact with colleagues from across the globe.



It has been our pleasure to co-chair the Physical Sciences theme of the congress. With this theme there are 11 individual symposia with a wide range of topics covering the applications of advanced microscopy methods within physical sciences. The breadth of materials science covered is impressive. Dedicated sessions explore soft materials, polymers, and beam-sensitive materials, alongside two-dimensional materials, nanomaterials and catalysts, functional ceramics and oxides, and structural materials such as metals and alloys.

Further sessions delve into highly topical areas including semiconductors, quantum materials, and ICT, magnetic materials, ferroelectrics, energy storage and conversion, and radiation damage and nuclear energy under extreme conditions. Along with earth and planetary materials, these themes underline the crucial role microscopy plays in addressing global challenges, from sustainable energy to next-generation computing technologies. The inclusion of phase transformations and high-speed dynamics sessions also emphasises the importance of understanding materials in motion—capturing





Sarah Haigh.

processes as they happen rather than after the fact.

This diversity ensures that the Physical Sciences theme is relevant to researchers working across both fundamental and applied domains. What makes this theme truly exceptional is how it integrates all these topics into a coherent and forward-looking programme which will allow us to hear from leaders in the field and early career scientists with new ideas. It reflects not only where microscopy is today, but where it is heading. We are delighted with the number of abstracts submitted to this theme at IMC21 – more than 700 in total! – and don't forget, 'late-breaking' poster abstracts will continue to be accepted until 26 June. We are genuinely excited about the science we are going to



Pete Nellist.

hear about and the discussions we will have, and we look forward to seeing you there.

Instrumentation - Instrumentation Matters: Come to see the latest driving force for advances in microscopy in action

Overview by Co-chairs Jun Yuan and Cate Ducati

Breakthroughs in microscopy are often celebrated for the biological or materials discoveries they enable. The Instrumentation theme of IMC21 focuses on the advances in hardware, software and methodology that make those breakthroughs



Jun Yuan.

possible. Progress in nanoscale imaging depends on sustained development in optics, detectors, contrast mechanisms, sample environments, automation and data handling. This is where many of our future discoveries will begin.

From aberration correction and ptychography to ultrafast imaging, environmental microscopy and AI-assisted analysis, the Instrumentation theme provides a forum for those who develop the methods that determine what can be seen, measured and interpreted. At a time when microscopy is becoming increasingly specialised, this kind of cross-disciplinary discussion is particularly important.



Caterina Ducati.

Across eight symposia, the theme brings together recent advances in instrument design and measurement approaches: hardware, automation and AI; diffraction and 4D-STEM; dynamic and environmental techniques; phase imaging; quantitative 3D tomography; surface-sensitive methods, including SEM, FIB, helium ion microscopy and LEEM/PEEM; scanning probe and advanced light microscopy; and spectroscopy, including emerging laser–electron approaches. The common thread is quantitative, multimodal and, where possible, operando characterisation. Examples include mapping magnetic fields using ptychography, following catalyst evolution in a gas cell, and combining FIB-SEM with atom probe tomography for 3D analysis. In each case, instrumentation and computation are closely linked: better experiments depend not only on better signals, but also on better ways of extracting reliable information from them.

We are also pleased that the theme brings together physical and life sciences. Instrumentation ideas often move productively between fields, sometimes in unexpected directions. We are grateful to the symposium organisers for assembling a strong programme of invited speakers and contributed presentations, and for helping to create a theme that reflects the breadth of current instrumentation development.

We are particularly looking forward to discussions on real-time automation and AI-assisted microscopy. The prospect of a microscope that can acquire data, recognise features or phases, adjust acquisition conditions and guide the next measurement is now within reach. We are also keen to hear about ultrafast and phase-sensitive approaches, including structured beams, PINEM and other laser-coupled or quantum-coherent methods that can probe dynamics on intrinsic length and time scales. Finally, the growing connections between scanning probe microscopy, super-resolution light microscopy and electron microscopy should make the correlative sessions especially interesting.

We hope the Instrumentation theme will provide a lively and technically focused forum for discussing not only what microscopy can currently do, but what the next generation of instruments should be able to do.

Plenary Speakers

Topping the IMC21 bill are our brilliant [plenary speakers](#).

Joanne Etheridge, Monash University, Australia

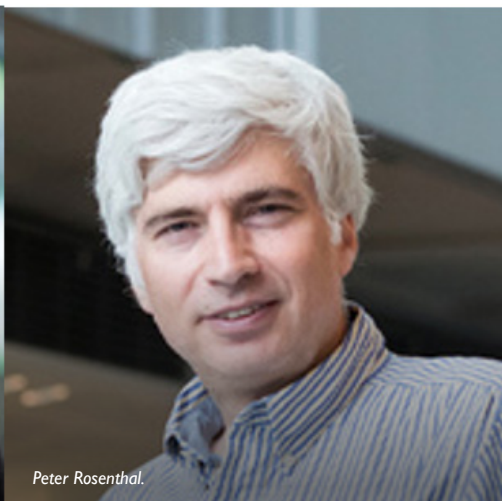
Joanne is an Australian Research Council Laureate Fellow in the School of Physics and Astronomy at Monash University. She conducts research in the theory and development of new electron scattering methods for determining the atomic and electronic structure of condensed matter. She is a Fellow of the Australian Academy of Science.

Peter Rosenthal, The Francis Crick Institute, UK

Peter obtained a PhD in biophysics from Harvard University, Cambridge, Massachusetts. He then moved to the Medical Research Council (MRC) Laboratory of Molecular Biology in Cambridge, UK, before joining the Division of Physical Biochemistry at the MRC National Institute for Medical Research in 2005 (now part of the Francis Crick Institute).



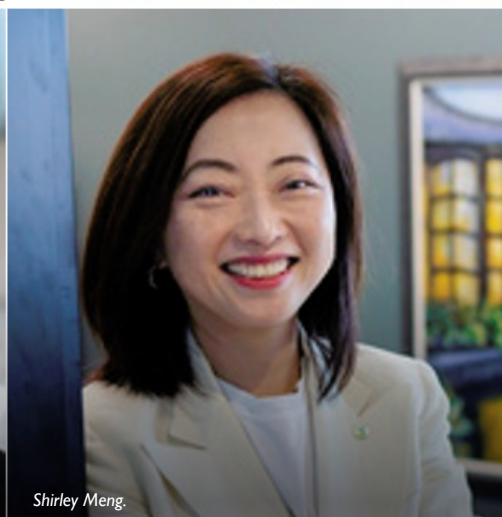
Joanne Etheridge.



Peter Rosenthal.



Sergei Kalinin.



Shirley Meng.

Shirley Meng, University of Chicago, USA

Shirley is the Liew Family Professor at the Pritzker School of Molecular Engineering at the University of Chicago. She is the director of Energy Storage Research Alliance (ESRA), an innovation hub funded in 2024 by US Department of Energy, Office of Science.

Sergei Kalinin, University of Tennessee, Knoxville, USA

Sergei is a Weston Fulton chair professor at the University of Tennessee, Knoxville. From 2022 to 2023, he was a principal scientist at the Amazon Grand Challenge (moon shot factory). Before then, he spent 20 years at Oak Ridge National

Laboratory as a corporate fellow and group leader at the Center for Nanophase Materials Sciences.

Pre-congress Workshops

The congress kicks off with more than **20 different pre-congress workshops** taking place on 30 August at the University of Liverpool. All workshops will be running in parallel – which means it is only possible to attend one – so choose carefully!

Covering a host of exciting topics and techniques across the sciences, this is a great way to begin your IMC2I experience in Liverpool - **so be sure to book your place alongside your congress ticket**. If you

have already registered, you can add a pre-congress workshop to your existing booking by logging back into your online account.

Life Sciences workshops – Overview by Kerry Thompson

The Life Sciences pre-congress workshops at IMC21 are, for me, one of the most exciting parts of the entire programme. It is also a real privilege to see so many excellent colleagues from across the community leading these sessions, bringing both depth of expertise and a genuine commitment to sharing knowledge. They set the tone for the meeting in a very real way: They are bringing people





together early, creating space for discussion, and grounding the congress in the practical realities of how we design, acquire, and interpret imaging data. What stands out is the breadth of topics, but also the deliberate focus on connecting technology to biological insight. These are not passive sessions; they are designed to encourage people to engage critically with both methods and data from the outset.

A number of workshops really highlight where the field is heading. The session on artefacts in electron microscopy for the life sciences is particularly important, not just from a technical perspective, but in terms of scientific rigour and reproducibility. Understanding what we are looking at, and just as importantly what we are *not* looking at, is fundamental. Alongside this, the workshops focused on volume electron microscopy and X-ray imaging reflect the continued move towards multiscale, multimodal approaches that are reshaping how we interrogate biological systems. These are

complemented by sessions on digital pathology and multiplexed analysis, which speak to the growing importance of data-rich imaging and the need for robust, scalable analytical frameworks. Equally, the pedagogy workshop is a real highlight: recognising that how we train, teach, and support the next generation of microscopists is just as critical as the technologies themselves.

More broadly, these workshops are about building confidence and capability across the community. They provide an invaluable opportunity for early career researchers, in particular, to develop practical skills, ask questions in a supportive environment, and begin to establish networks that will carry through the rest of the congress and beyond. At the same time, they create space for more experienced researchers and facility scientists to reflect on best practice, share expertise, and engage in the kinds of conversations that ultimately drive the field forward.

For me, the Life Sciences pre-congress workshops really capture the spirit of IMC21, collaborative,



forward-looking, and grounded in both technical excellence and biological relevance. They are an opportunity not just to learn new approaches, but to challenge assumptions, refine how we work, and set the agenda for the days that follow.

Physical Sciences Workshops

With no fewer than 12 different Physical Science Workshops to choose from, there's sure to be something to interest all our attendees.

All the latest developments in the field are represented here, with a diverse range of microscopy techniques covered - from time-resolved electron microscopy, cryo-electron microscopy and EBSD, to Electron Holography, atom probe tomography and artificial intelligence analysis methods.

The full list of workshops is as follows:

- From nanobeam to ptychography: 4D-STEM data acquisition, processing, and interpretation
- Time-resolved Electron Microscopy

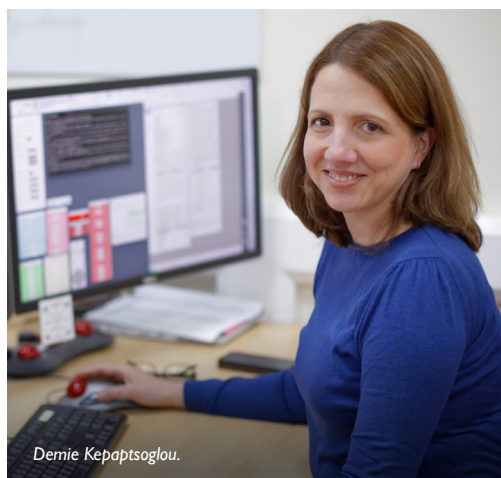
- Electron Energy Loss Spectroscopy: Learning Past, Present and Future Applications
- The Fundamentals of Quantitative In-Situ liquid and In-situ Gas EM
- Advances in Cryo-Electron Microscopy: Quantum Materials and Energy Storage
- How EBSD can help to solve real-world problems and accelerate developments by Oxford Instruments
- Electron Holography
- Artificial Intelligence Methods for Microscopy Analysis and Knowledge Extraction
- Atom Probe Tomography
- In-Situ Electrical Characterization in the TEM: Techniques and Applications
- EMAG Workshop - Introduction to Python for electron microscopists
- In-situ liquid electrochemical TEM

[Book your workshop now!](#)

Early Career in Focus: The Young Scientist Assembly at IMC21

Overview by Demie Kepaptsoglou & Jordi Arbiol, Young Scientist Assembly Chairs

Walking into a major international congress like the International Microscopy Congress can be an intimidating experience for an early career researcher. It's easy to feel lost among thousands of delegates and the legendary names from textbooks



or papers, and it is often daunting to approach a senior scientist you don't know. The IFSM Young Scientist Assembly (YSA) exists to break this barrier and help the next generation find their path in the global science community.

Established in 2018 for the IMC19 meeting in Sydney, Australia, the YSA is organised as a pre-meeting of IMC under the auspices of the International Federation of Societies for Microscopy (IFSM). The IFSM's mission is to contribute to the advancement of microscopy in all its aspects worldwide, and this assembly is the primary platform for supporting the next generation.

The response to the 2026 IMC21 YSA has been incredible, with more than 100 applications for just 50 available places. The selection was really

challenging, as the quality of the applications was excellent, but this overwhelming response highlights how much the early career researcher community values this dedicated space. The final 50 young scientists (PhD students and researchers within five years of their doctorate) were selected based on their scientific accomplishments and their IMC21 abstracts, while ensuring geographical and gender balance. We are proud to host a cohort representing 23 different countries, with delegates travelling from as far afield as Australia, Brazil, China, Saudi Arabia and the USA, alongside a strong European presence. This diversity ensures that the assembly is a melting pot of ideas from every corner of the globe and every branch of microscopy.

Breaking Barriers Through Discussion

To spark this new chapter in their careers, the programme features a series of inspiring lectures from leaders who have shaped the field. This year, we are particularly thrilled to include a session with Dr Jessica Wade, from Imperial College London, who will discuss her path towards becoming a science advocate and excelling in science outreach. In today's academic landscape, the ability to communicate our work and advocate for science is an essential skill. By listening to the personal experiences of established researchers from all around the world, our delegates can see that success in science is





rarely a straight line, helping to demystify the path forward.

Beyond the lectures, the YSA features a round-table format designed to facilitate open, honest discussions. By sitting down with senior scientists in a relaxed setting, the meeting aims to break the fear of the unknown and decrease the perceived distance between student and expert. Just as importantly, the YSA allows delegates to meet peers at the same career level from all around the world, representing

different walks of life and various career paths. These are the friends who will become future collaborators and, in turn, will eventually inspire the generations of scientists that follow them.

We also believe in celebrating the beauty of our work. Our Imaging Contest is a light-hearted science-meets-art snippet, showcasing the beauty of the microscopic world and reminding us of that curiosity that first led us to see far beyond the reach of the naked eye.

Discovering Liverpool Together

The YSA is as much about community as it is about science. Our social programme gives attendees an overview of this historic city, featuring a live tour bus through Liverpool's fascinating history and a celebratory dinner at the iconic Victoria Gallery & Museum. By the time the main Congress opens, we hope that these 50 delegates aren't just attendees; they are friends and future colleagues, establishing a connection for the future.

A Spark for the Future

Our hope is that the YSA does more than just help you navigate a week in Liverpool; we hope it will be a catalyst for your future career. Whether you

continue in academia, move into industry, or forge a path in outreach, the connections made here are the foundation of a lifelong network. We want you to leave with the realisation that you aren't just a member of the microscopy community; you are its future.

This meeting was made possible thanks to the support of the IFSM executive board, the Royal Microscopical Society (RMS) and especially the support of Kate Wooding. We are also deeply grateful to all our invited guests and senior scientists who have generously used their own time to come and share their experiences with the YSA attendees. Your mentorship is what makes this assembly possible.

“The Next Generation – Embracing the Responsible AI Revolution” – speak to infocus at IMC21!

In terms of hot topics in microscopy, it's fair to say Artificial Intelligence (AI) is right up there, and it will be a recurring theme at IMC21.

Questions surrounding AI, its influence over the future of microscopy, and how it can best be incorporated into research, are many and various

across the sciences – and **infocus** would like to hear your answers!

Members of our Editorial Board will be asking for your contributions throughout IMC21, with the aim of including a special feature in our September issue.

Be sure to have your say on AI during the Congress!

Photo by Igor Omilaeon on Unsplash



Exhibition

“The exhibition is very much going to be at the heart of this year’s Congress, and our visitors are sure to have plenty to explore.”

RMS Chief Executive Sali Davis

The IMC21 exhibition will provide a fantastic opportunity to network with local and international companies, catch up with old contacts, view demonstrations of the very latest equipment and technology, and much more!

In what promises to be this year’s biggest gathering of global microscopy manufacturers, [a host of leading international companies](#) will be showcasing their latest products and technologies.

More than 100 exhibitors have already signed up to be part of the showpiece exhibition at IMC21,



and at the time of publication, a limited number of exhibition stands were still available – but going fast! ([book online](#)).

RMS Chief Executive Sali Davis said: “We would like to thank all our exhibitors and sponsors for supporting IMC21. The exhibition is very much going to be at the heart of this year’s Congress, and thanks to the response from so many companies, our visitors are sure to have plenty to explore.”

A full list of companies and other exhibitors taking part in the IMC21 Exhibition [can be found here](#).

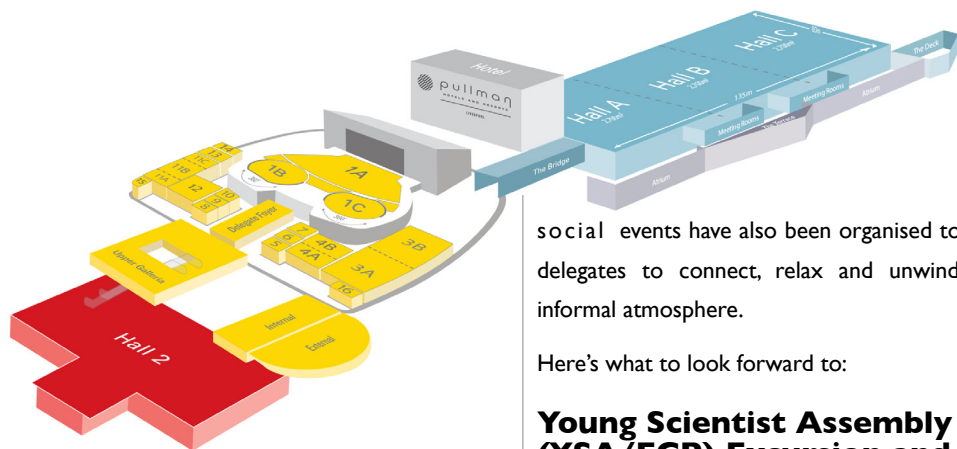
Liverpool Experience (LEX) Campus – An award-winning venue

IMC21 is being held at Liverpool Experience Campus (the new name for ACC Liverpool), a purpose-built arena and convention centre in the heart of Liverpool on the King’s Dock.



Liverpool Experience Campus (LEX) has great transport links as well as being a short distance from a large number of hotels, restaurants, shops and bars. The full address is King’s Dock, Port of Liverpool, Kings Dock Street, Liverpool L3 4FP, UK.

Voted best UK Convention Centre seven times, the venue boasts a modern, integrated design which ensures that the conference and exhibition space, plus all associated facilities, are within very close proximity for delegates to have a great experience at IMC21.



The congress will be taking place in Hall 2 and the meeting rooms ((coloured yellow in the building plan on the opposite page); the exhibition will fill Halls A, B and C (shown in blue).

The LEX's central location in Liverpool means everything is within walking distance, however, the venue is also well served by great public transport links and motorway networks. The city's main railway station (Lime Street) is just a 20-minute walk or a five- minute taxi ride away.

The venue boasts three on-site hotels and an array of amenities close by.

Social Events and networking

There will certainly be no shortage of networking opportunities at IMC21, and a number of official



social events have also been organised to enable delegates to connect, relax and unwind in an informal atmosphere.

Here's what to look forward to:

Young Scientist Assembly (YSA/ECR) Excursion and Dinner

Date: 29 August 2026

The IFSM Young Scientist Assembly (YSA/ECR) brings together 50 early-career scientists recognised for their achievements and the quality of their IMC21 abstract submissions. The YSA/ECR programme includes an excursion and dinner on Saturday 29 August 2026, followed by a full-day meeting on Sunday 30 August 2026.

Welcome Reception

Date: 30 August 2026

Network with colleagues from around the world and introduce yourself to the wider world of microscopy at the welcome reception.

Gala Dinner

Date: 2 September 2026

The gala dinner will be taking place inside the conference centre and will include a drinks reception and entertainment. This is always a memorable highlight of IMC, providing the perfect opportunity to catch up with friends and colleagues in an informal setting.

You can add a gala dinner ticket to your booking when registering online - or you can update an existing booking by logging back into your online account. Spaces at the gala dinner are limited, so early booking is advised to avoid disappointment.



Explore Liverpool!
“The city of Liverpool is rich in culture and history. It’s a very affordable and safe location for international travellers and everything is within walking distance of the conference centre.” - Nigel Browning

Since being named the European Capital of Culture in 2008, Liverpool has regenerated into a world-class destination with a dynamic reputation.

The city is an iconic and exciting events destination rich in heritage, culture, music and sport. A walkable, compact city, Liverpool offers delegates a unique opportunity to immerse themselves in a welcoming, vibrant and diverse atmosphere.

The city is centrally located in the UK, and with a population of 1.38 million, it is the fifth-largest city in the country. Liverpool was voted the UK’s friendliest city by readers of Condé Nast and placed in Rough Guide’s top three cities in the world to visit. Liverpudlians are known for their warm welcome and their great sense of humour!

Liverpool City Region has more than enough to appeal to delegates looking for culture, sports, culinary experiences, the outdoors, music and the arts. Congress delegates will be able to book tours through an award-winning travel and tour operator. From day trips within the city to exploring further afield, a tour is a brilliant way to discover more about Liverpool’s unique culture and heritage.

Many notable attractions are also within a 15-minute walk of the convention centre. These include: the Grade I-listed [Royal Albert Dock](#), home to [Tate](#)



Liverpool, [The Beatles Story](#), [Liverpool ONE shopping centre](#) and the famous Mersey ferry terminal. A diverse range of cafes and restaurants are also close by.

Getting to Liverpool – and other Information for International Delegates

With two international airports within a 45-minute drive and high-speed rail service from London in just over two hours, it has also never been easier to get to Liverpool.

Liverpool John Lennon Airport features low-cost and charter flights to and from domestic, European and other international destinations. Alternatively, Manchester Airport, just 45 minutes away, brings even more international destinations within reach.

The city is very well served by the rail and bus networks, and a taxi from Liverpool John Lennon Airport to the conference centre takes around 20 minutes. A taxi from Liverpool Lime Street, the city's main rail station, takes just five minutes.

Visit our [International Delegates](#) page for



further information on transport and travel, visa requirements and registration.

Bursaries

A limited number of bursaries are still available for those attending IMC21, including:

Congress Bursaries – Available to those who have submitted an IMC21 Congress abstract. As a limited bursary fund, awards will be made on a first-come-first-served basis. IMC21 bursaries are open to both RMS members and non-members.

Care and Support Grants - We are pleased to announce that we are piloting a Care and Support Grant scheme for IMC21. These grants are designed to help with the additional caring or childcare costs that are incurred when trying to attend a conference.

Exhibition Day Visitor Bursaries - Although it is free to attend the IMC21 exhibition, the Royal Microscopical Society understand that funding your travel to events can be difficult. For this reason, the RMS are offering a number of day visitor travel

bursaries of up to £50 to help those planning to attend the IMC21 exhibition.

Find out more and apply on the [bursaries webpage](#).

Accommodation

You've booked your ticket, so now it's time to get your accommodation sorted!

A range of great hotels are located within a short walk of the convention centre, and you can take advantage of the exclusive rates offered to congress delegates and exhibitors by booking online through [Liverpool Convention Bureau](#).

[Liverpool Convention Bureau](#) is our official IMC21 accommodation booking provider and we strongly advise you to book your accommodation through this service.

IMC21's official headquarters hotel is [Pullman Liverpool](#).

Keep updated in the lead-up to IMC21 by visiting our official website:
www.imc.org.uk

