

News

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Community news

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Coming home – Focus on Microscopy 2025

A report from Taipeh, Taiwan, by Martin Friedrich, Editor

True to the saying, “All good things come in threes,” the Focus on Microscopy conference returned to Taipei from April 13 to 16 for the third time, following earlier editions in 1995 and 2016. This was made possible thanks to the dedicated efforts of Hans Gerritsen, Fred Brakenhoff, Fu-Jen Kao, Chi-Kuang Sun, and their team. The National Taiwan University Hospital International Convention Center, this year’s venue, once again provided an ideal setting for scientific exchange.

In my role as editor of *Methods in Microscopy* (MiM) and as a brand-new media partner, I had the opportunity to attend an FOM in Asia in person for the first time. I was impressed by the high quality of the presentations, the extensive exhibition featuring over 50 sponsors (Evident being the main one), the warm hospitality of the organizers, and the first-class catering. The bubble tea was particularly interesting and, for me, a European, it was a rather unusual culinary experience. Developed in the 1980s, the drink usually consists of black or green tea mixed with milk and sugar. What makes it special are the tapioca pearls, also known as “bubbles,” which give the drink its name. The pearls provide a unique chewing experience, making bubble tea both a drink and a snack.

The quality of the presentations was impressive, even if the room appeared a bit empty sometimes. This might be related to geopolitical tensions that cast a shadow over many international academic collaborations. The impact of China’s recent military exercises and U.S. government budget cuts to science and research was evident: Researchers

with Chinese passports were barred from entering Taiwan, and many U.S.-based scientists could not attend due to a lack of funding.



The group from the MiM Dinner Party. Seated from left to right are A. Rohrbach, U. Ortmann, M. v. Zandvoort, T. Wohland, and F.-J. Kao. Standing from left to right are M. Friedrich, N. Cheng, S.-W. Chu, L.-A. Chu, and S.-H. Chia. Courtesy of F.-J. Kao.

Scientific program

The FOM conference series was originally based on the three-dimensional imaging capabilities of confocal microscopy and associated 3D image processing. Over the years, it has significantly expanded its scope. Today, the series covers a wide array of modern optical microscopy methodologies and technologies, including fluorescence, label-free, multiphoton, super-resolution, light-sheet, and correlative microscopy; quantitative image analysis; and data management.

During Sunday’s tutorial sessions, Dan Oron of the Weizmann Institute of Science in Rehovot discussed the evolution of methods that use quantum optical principles to enhance optical microscopy performance. Jonas Ries from the University of Vienna focused his tutorial on single-molecule localization microscopy (SMLM) and MIN-FLUX, the latest variant of super-resolution microscopy. Thorsten Wohland, from the National University of Singapore, presented on the fundamentals of fluorescence correlation spectroscopy (FCS), the derivation of correlation functions, and future developments. Lastly, Li-An Chu, from National Tsing Hua University, spoke about recent advances in quantitative, multiplexed, organ-level imaging and super-resolution microscopy. She also discussed using deep

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learning-driven image analysis to gain a comprehensive understanding of complex biological systems spanning entire organs. She highlighted its applications in brain research and drug delivery.

The plenary lectures covered a wide variety of cutting-edge-topics. Topics included imaging the complexities of corticogenesis and its implications for neurodevelopmental disorders (Noriko Osumi, Tohoku University Graduate School of Medicine); immuno-optical coherence tomography (Johannes F. de Boer, VU Amsterdam; the Multiple Signal Classification Algorithm (MUSICAL) for fluorescence microscopy (Krishna Agarwal, UiT The Arctic University of Norway); and Light Sheet Dynamic Scattering Imaging for Quantitative Mapping of Microcirculation (Nanguang Chen, National University of Singapore).

A full list of the parallel and poster sessions can be found at https://www.focusonmicroscopy.org/2025-program-online/?event_id=8024.

Social program

A traditional networking gathering took place during the FOM Welcome Reception on Sunday. The following evening, the special “Taiwan Night” was held at the Mayor’s Residence Art Salon. This event provided an ideal setting for cultural, artistic, and scientific exchange. I had the pleasure of sharing a table with Keng-hui Lin from Academia Sinica in Taipei and enjoying a delightful evening of conversation.

The FOM conference dinner, which is traditionally held on the last day of the conference, took place at Shin Yeh, an exceptional buffet restaurant. This followed the sight-seeing program. During the conference, I had the pleasure of meeting long-standing FOM attendees and pioneers, as well as emerging talents in advanced optical microscopy. Some of them were Colin Sheppard (Sydney), Ammasi Periasamy (Charlottesville), Tony Wilson (Oxford), Katsumasa Fujita, Michael Börsch, Jixin Cheng (Boston), Jonas Ries (Vienna), Bo-Jui Chang (Dallas), Chia-Lung Hsieh (Taipei), Lukas Glansdorf (Zurich), and Antonio Virgilio Failla (Hamburg). Thank you all for the memorable moments and engaging conversations.

MiM-dinner reception

The Methods in Microscopy dinner party was, without a doubt, a very special highlight for me. It was held in a warm and intimate setting on the evening of Tuesday, April 15. In addition to our editorial board members, Li-An Chu – who provided invaluable support in organizing the dinner – and Marc van Zandvoort, we were joined by Uwe Ortmann

(PicoQuant), one of our guest editors for the topical issue, “FLIM in Material and Life Sciences,” published just in time for FOM. Along with our special guests, Fu-Jen Kao, Thorsten Wohland, Nanguang Cheng, Shi-Wei Chu, Shih-Hsuan Chia, and Alexander Rohrbach, we enjoyed a delicious dinner together at the Hu Sung Restaurant. With inspiring conversations about science and personal experiences, it was a wonderful evening of exchange and networking.

Anniversary and next venue

A special moment at the end of the conference was celebrating Mariska Timmers’ 25th anniversary as an FOM event manager. During the Closing Ceremony, her tireless dedication and long-standing commitment to the event were honored with heartfelt applause, marking a moment of deep appreciation from the entire community.

As we celebrated the past, we also looked to the future. The conference series will continue next year with its 38th edition in Stockholm, following the usual schedule the week before Easter: March 29 to April 1, 2026. Led by Ilaria Testa, the local team is preparing to welcome back returning participants and those who were unable to attend this year due to unforeseen circumstances.

Preview: Microscopy & Microanalysis 2025 (M&M 2025)

Salt Lake City, Utah, USA, July 27–31, 2025

Many conferences in the field of microscopy have a multi-year schedule. The exception is the Microscopy & Microanalysis (M&M) conference, which returns annually. With attendance numbers in the thousands, M&M is the largest event for our community. Highlights include hands-on workshops, vendor tutorials, and a robust scientific program that fosters collaboration and innovation across disciplines.

Anticipated highlights of M&M 2025

M&M 2025 will showcase cutting-edge research and technological advancements across various symposia. Notable sessions include:

- **A09: Cryogenic Transmission Electron Microscopy (Cryo-TEM):** Focusing on applications in energy and quantum materials, this symposium will delve into innovations in cryogenic sample preparation and multi-modal S/TEM techniques.
- **A03: 4D Scanning Transmission Electron Microscopy (4D-STEM):** Exploring both experimental and

computational developments, this session will highlight the expansion of scanning diffraction techniques in multiple dimensions.

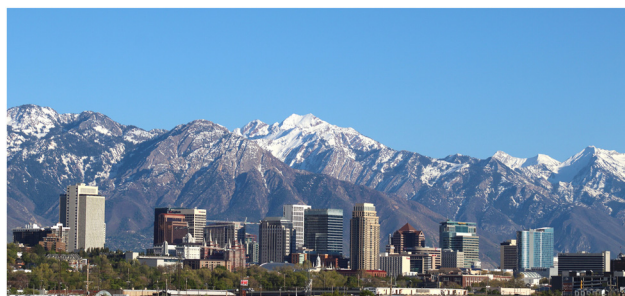
- **B01: 3D Structures in Biological Systems:** Emphasizing high-resolution techniques such as single-particle cryo-EM and cryo-electron tomography, this symposium will cover structural studies from macromolecular assemblies to whole cells.

In addition to the scientific program, M&M 2025 will feature the 18th Interamerican Congress on Microscopy, providing a platform for researchers across the Americas to collaborate and share insights.

Opportunities for early-career professionals

M&M 2025 continues its commitment to nurturing the next generation of scientists. Opportunities include student awards, postdoctoral scholarships, and dedicated sessions aimed at early-career professionals.

<https://mmconference.microscopy.org>.



The Salt Palace Convention Center, Salt Lake City, Utah, will host this year's M&M conference and exhibition (photo by Invictus323, CC BY 4.0).

Preview: microscopy conference MC 2025

Karlsruhe, Germany, August 31–September 4th

The MC 2025 is set to take place at Messe Karlsruhe in Karlsruhe, Germany. Jointly organized by the Austrian, German, and Swiss Societies for Electron Microscopy (ASEM, DGE, SSOM), this event continues the tradition of the 'Dreiländertagung' and is expected to attract over 1,000 participants from around the globe.

In addition, the Karlsruhe Institute of Technology (KIT) is celebrating its 200th anniversary in 2025. KIT has a rich

local history of science and culture. They even trace the design of famous Black Forest cuckoo clocks back to their early engineers. It is worth visiting their history page to learn more – not only about such souvenirs (<https://www.200jahre.kit.edu/english/204.php>).

More seriously, KIT will host pre-conference workshops on August 31. These workshops promise an intense exchange with experienced researchers and a warm invitation to young microscopists to dive right in.

The previous conference, MC 2023, held in Darmstadt, Germany, from February 26 to March 2, 2023, saw participation from more than 925 attendees and 43 exhibitors. The event featured a top-class and exciting congress program, highlighting the latest advancements in materials science, life sciences, and instrumentation and methods.

Anticipated highlights of MC 2025

MC 2025 will offer a comprehensive scientific program, including plenary talks, invited lectures, oral and poster presentations, and pre-conference workshops. Key topics will encompass materials science, life sciences, and instrumentation and methods. Notable sessions include:

- **Materials Science:** Energy-related materials and catalysts, metals and alloys, low-dimensional and quantum materials, and multi-scale and correlative *in situ/operando* electron microscopy.
- **Life Sciences:** Cryo-electron tomography, imaging of large volumes, correlative and multimodal microscopy, and advances in sample preparation.
- **Instrumentation and Methods:** Progress in instrumentation and ultrafast EM, advanced spectroscopy, emerging techniques in 4D-STEM, beam shaping and analysis, and big data and AI techniques.

Industry and networking opportunities

The conference will feature a substantial industrial exhibition, offering companies a platform to present their products and services to an audience of about 1,000 experts from all over the world. An interesting feature offered in Karlsruhe are lunchtime lectures.

Attendees can look forward to a welcome reception at the 'Alter Schlachthof', a trendy cultural and creative hub, and a conference dinner at the ZKM, the unique 'Center for Art and Media Karlsruhe'. These events aim to foster networking and collaboration in a relaxed and inspiring atmosphere.

www.microscopy-conference.de.