

M&M 2020

MICROSCOPY & MICROANALYSIS

August 2-6 • Milwaukee, WI

Microscopy and Microanalysis 2020 in Milwaukee, WI

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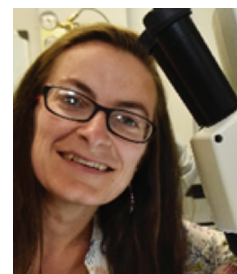
The Microscopy Society of America (MSA) and the Microanalysis Society (MAS) invite you to attend Microscopy & Microanalysis 2020 (M&M 2020) in Milwaukee, Wisconsin, August 2 through August 6, 2020. This is the second time that our conference has visited Milwaukee, and we are excited to have you join us for another great M&M meeting.

The M&M 2020 Program Committee asked the MSA membership to suggest symposia for the meeting, and as detailed below many of these suggestions have been incorporated into the M&M 2020 program. The meeting will feature two plenary speakers, 38 symposia covering a broad range of topics, and numerous educational opportunities in the form of courses, tutorials, pre-meeting events, and three pre-meeting congresses. The 38 symposia include timely and highly relevant topics, such as the role of artificial intelligence in microscopy. Once again, attendees can be assured that the latest in the development of microscopy instrumentation and techniques, and their applications in both the physical and biological sciences, will be presented during the technical sessions. As illustrated by the outstanding group of session organizers and invited speakers, the Program Committee has made a strong commitment to promote diversity and inclusivity in its programming efforts.

We are excited to have three pre-meeting congresses this year. “Current Status and Future Roadmaps of Electron Microscopy in Gases and Liquids” will provide attendees an opportunity to hear about and discuss some of the latest work in liquid-and-gas electron microscopy. The second pre-meeting congress will be a workshop on advances in electron microscopy for biomedical research and diagnostics. Students and early-career professionals are especially encouraged to participate in the MSA Student Council’s Annual Pre-Meeting Congress that highlights outstanding work by student and postdoctoral fellow attendees. As we have come to expect, M&M 2020 will have the largest instrument and vendor exhibition in the world. Attendees will have the opportunity to see the latest equipment and services from over 100 companies.

Our first plenary speaker will be Dr. Maria McNamara. Dr. McNamara is a paleobiologist and Senior Lecturer in Geology based at University College Cork, Ireland. Her research is

based on the application of analytical and experimental approaches to understanding the preservation of soft tissues in fossils in order to constrain interpretations of fossil anatomy, chemistry, and taxonomy. She has particular interests in the evolution of animal coloration and feathers. Dr. McNamara’s recent research includes the discovery of tissue-specific chemical signatures for fossil melanosomes in feathers of pterosaurs and of near-modern avian skin structure in feathered dinosaurs and early birds.



Dr. Maria McNamara,
University College Cork,
Ireland

Our second plenary speaker will be Dr. Yi Cui, a Professor in the Department of Materials Science and Engineering at Stanford University and a world-renowned scholar in the domains of battery technology, energy and catalytic materials, and nanotechnology. In 2014, Thomson Reuters Material Science ranked Dr. Cui first in “The World’s Most Influential Scientific Minds.” He is a Fellow of the Materials Research Society, the Electrochemical Society, and the Royal Society of Chemistry. Dr. Cui is also an Associate Editor of *Nano Letters*, Co-Director of the Bay Area Photovoltaics Consortium, and a Co-Director of the Battery 500 Consortium. A few selected awards received by Dr. Cui include the Dan Maydan Prize in Nanoscience (2019), the Nano Today Award (2019), the Blavatnik National Laureate Award (2017), the MRS Kavli Distinguished Lectureship in Nanoscience (2015), a Sloan Research Fellowship (2010), the KAUST Investigator Award (2008), the ONR Young Investigator Award (2008), and the *Technology Review* World’s Top Young Innovators Award (2004). He has founded three companies to commercialize technologies from his group: Amprius Inc., 4C Air Inc., and EEnovate Technology Inc.



Dr. Yi Cui, Stanford
University

The Program Committee, together with the symposium organizers, has developed an exciting group of symposia that spans topics including advances in instrumentation and techniques development, as well as applications in the analytical, biological, and physical sciences. We encourage you to browse the Call for Papers for the complete list of symposia and to submit one or more contributions for platform or poster presentations.

To honor his memory and many seminal contributions in the use of optical microscopy in the biological sciences, we will have the Jim Pawley Memorial Symposium. This symposium dovetails nicely with many other M&M 2020 symposia that investigate the limits and applications of optical microscopy. Other life science symposia will cover a range of interesting topics, from proteins to cells and from microbes to plants. Specific symposia will address topics such as super-resolution visualization of cellular processes, morphogenesis, pathology, pharmaceuticals, 3D structures in cells, and diagnosis of diseases in humans, plants, and animals.

Physical science symposia at M&M 2020 will focus on analysis of various materials. Topics include, but are not limited to the following: batteries and fuel cells, 2D and quantum materials, single atoms, biomimetic and biogenic materials, nuclear and “hot” materials, thin films, failure analysis, ceramics, metals, and out-of-this-world planet-forming materials.

A number of instrumentation and techniques symposia related to both the physical and life sciences are also included in the program. Examples include the always-popular Vendor Symposium, where instrument developers and builders showcase new developments and improved products, software, and algorithms, as well as topics like artificially intelligent TEMs, machine learning, 4D-STEM, cryoEM, electron tomography, super-resolution microscopy, ultra-high-resolution electron energy loss spectroscopy, ultrafast electron microscopy, focused ion beam applications, synchrotron- and lab-based X-ray imaging, advanced analytical electron microscopy, surface and subsurface microscopies, qualitative analysis of samples, scanning probe microscopy developments, high-resolution microscopies, *in situ* electron microscopy, correlated and multi-modal microscopy, and atom probe tomography.

Education and training opportunities are also important components of the M&M technical program each year, and M&M 2020 is no exception. Six Sunday short courses addressing topics in material science, biology, and data analysis will be presented. Tutorials addressing techniques in biology and physical sciences will also be presented during the meeting week. This year, the tutorials will cover the cutting-edge subjects of machine learning, 4D-STEM, *in situ* and operando EM, and cryoEM. The Technologists' Forum will host invited experts in two exciting roundtable discussions: “Commercial Technical Careers in Microscopy – No PhD? No Worries” and “DIY: Microscopy-Inspired MkrSpace 3D Printing.”

Last but not least, there will be a full complement of Microscopy Outreach sessions in Milwaukee: ProjectMICRO, our popular microscopy outreach workshop, will be in the MegaBooth all week. See different microscope systems and learning stations for use in the classroom, peruse books suitable for elementary-school-age children, and share your experiences of how you have fun with microscopy. Microscopy in the Classroom returns after a year's hiatus and will be presented consecutively with a new “STEM Roundtable” session. Come join the conversation with educators, industry leaders, and other key stakeholders who are invested in

STEM education! The successful Outreach STEM workshop held in Portland in 2019 will again be held at M&M 2020 and will be partnered with a local university for a unique educational experience for high school and undergraduate students.

A large number of social activities including the opening reception, refreshments during the daily poster sessions, student and postdoctoral scholar mixers, and many vendor-sponsored events will be available for socializing with new and longtime friends. During the poster sessions we will announce the prize-winning posters each day, the Diatome award for the best poster utilizing ultramicrotomy, the *Microscopy Today* Innovation and Micrograph Awards contests, and the very popular Passport to Prizes with some outstanding gifts sponsored by our exhibitors. In addition, we are excited to announce that M&M will once again offer Childcare Service for children between ages of 6 months and 12 years to support parents with young children so they can attend the many meeting events.

For a complete description of the M&M 2020 technical program and educational opportunities, please go to <http://www.microscopy.org/MandM/2020>. Details for the Call for Papers and other aspects of the program and meeting are provided under the “Scientific Program” button.

The Executive Program Committee welcomes you to Milwaukee for an excellent and compelling M&M 2020. Catch up with old friends and make new ones! Look for opportunities to attend society business meetings and socials during the week. On behalf of MSA and MAS, in cooperation with over 100 symposia organizers and countless volunteers, we look forward to seeing you in Milwaukee this August!

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