

MeetingReport

Microscopy & Microanalysis 2017



**MICROSCOPY &
MICROANALYSIS**
August 6-10, 2017 • St. Louis, MO

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The Microscopy Society of America held its 75th anniversary meeting (M&M 2017) in St. Louis, August 6–10, 2017. The meeting was co-sponsored by the Microanalysis Society (MAS) celebrating its 50th anniversary and the International Field Emission Society (IFES) commemorating the 50th anniversary of the atom probe. The meeting attracted more than 1,100 scientific papers (604 platform presentations and 538 posters) and a total of 2,815 attendees (1,671 scientific and 1,144 exhibitor) representing more than 40 countries. The microscopy and microanalysis exhibition showcased state-of-the-art instruments and support equipment, as well as service companies, from around the world. There were 119 companies occupying 368 booths.

The plenary session opened the conference with two captivating presentations. Nobel Laureate Dr. Eric Betzig of the Janelia Farms Research Campus of Howard Hughes Medical Institute (HHMI) opened the session with “Imaging Life at High Spatiotemporal Resolution.” Betzig showed remarkable live cell imaging videos of biological processes visualized using microscopy methods he developed. Many of his images and movies can be found at <https://www.janelia.org/lab/betzig-lab>. During his talk he described some of the techniques employed in his Nobel



Dr. Eric Betzig of Janelia Farms Campus of Howard Hughes Medical Institute.

award-winning research and other advanced microscopy methods that are now obtaining images previously thought to be impossible. Our second plenary lecture was delivered by Dr. Keith Riles titled “Detecting Massive Black Holes via Attometry-Gravitation Wave Astronomy Begins.” Riles is a Physicist with the Laser Interferometer Gravitational-wave Observatory (LIGO) and Professor of Physics at the University of Michigan where he is one of the leaders of the group searching for gravitational waves (<https://www.ligo.caltech.edu/>). Riles’s prop-laden lecture introduced his audience to how gravitational waves were generated more than a billion years ago and how they can be detected here on earth. This

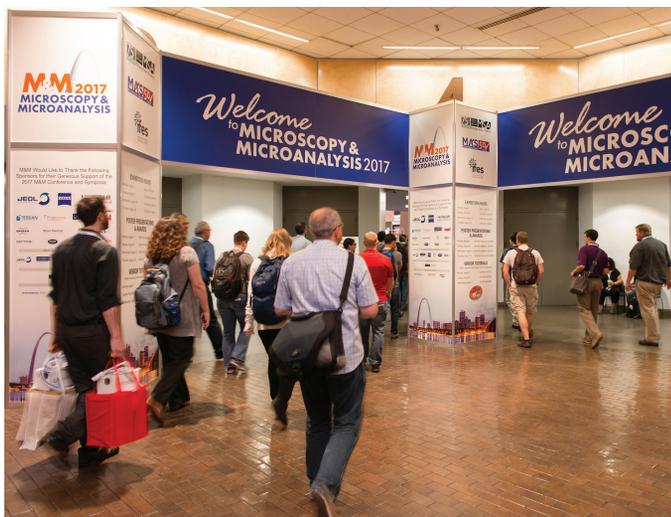
topic has been in the news recently, as the Nobel Prize committee awarded the founding members of LIGO with the 2017 Nobel Prize in Physics. Judging by the number of people waiting to ask questions of each, these plenary speakers were clearly successful in kicking off the meeting.

The awards portion of the plenary session honored numerous scientists and students. David Piston (Washington University in St. Louis) and Nestor Zaluzec (Argonne National Labs) were honored with the MSA Distinguished Scientist Award in Biological and Physical Sciences, respectively. Eight of our colleagues were installed as MSA Fellows: David Bell, Paul Fischione, Chris Kiely, Jeanette Killius, Laurie Marks, Peter Rez, Phil Russell, and Heide Schatten. The Burton Medal was awarded to Christopher Russo of the MRC Laboratory in Cambridge, UK. Pishane Huang of the University of Illinois received the Albert Crewe Award. David Tomlin received the Morton D. Maser Distinguished Service Award for his tireless work and consistent support of MSA and the volunteer programs at many M&M meetings. Rengasayee Veeraraghavan of Virginia Tech received the George Palade Award, Patricia Connelly received the Hildegard H. Crowley Outstanding Technologist Award for Biological Sciences, and Richard Martens received the Chuck Fiori award for Outstanding Technologist in Physical Sciences. In addition, 55 Student and Post-doctoral Fellow Travel Awards were jointly sponsored by MSA and MAS. Best poster awards were given out each day of the meeting.

Four special anniversary lectures were given by pioneering figures in microscopy and microanalysis. The MSA 75th



Dr. Keith Riles of the University of Michigan.



Microscopy & Microanalysis exhibition entrance.

anniversary lecture in the biological sciences was to be given by Robert Glaeser, but unfortunately he suffered a medical incident that kept him from attending. Fortunately, Ken Taylor, who coauthored seminal papers with Dr. Glaeser on high-resolution imaging of structures in frozen samples, was able to present a talk focused on that work and the development and future of cryo-EM. The MSA 75th anniversary lecture in the physical sciences titled “Smarter than an iPhone: the Emergence of the Modern Microscope” was given by Ondrej Krivanek. Dale Newbury gave the MAS 50th anniversary lecture in analytical science titled “Microanalysis: What is it, Where did it come from, and Where is it going?” Finally, the IFES lecture marking the 50th anniversary of the invention of the atom probe was given by John Panitz titled “The Point Projection Microscope.” These special lectures opened the Tuesday through Thursday morning scientific sessions and attracted large crowds.

There were four well-attended pre-meeting congresses. On Saturday, the inaugural Pre-meeting Congress for Early Career Professionals in Microscopy and Microanalysis was presented by the MSA Student Council. The other three pre-meeting events took place on Sunday: “Focused Ion Beam



A portion of the exhibition with posters in the foreground.

Applications and Equipment Developments,” “Smaller, Faster, Better: New Instrumentation for Electron Microscopy,” and “Understanding Radiation Beam-Damage During Cryo-, ETEM, Gas- and Liquid-Cell Electron Microscopy.”

The technical program of the meeting proper consisted of 36 symposia on analytical science, biological science, and physical science. There were many interesting posters presented each day during the meeting. One of the highlights of the meeting was the Prof. Gina Sosinsky Memorial Symposium “Imaging of Cellular Communications.” This symposium was an opportunity to understand the impact Prof. Sosinsky had on her students and on the microscopy enterprise in general. Also a new tutorial focused on entrepreneurship and what it takes to go from a good idea to creating a company. This well-attended tutorial spanned the gamut of topics related to building a microscopy-focused business from the ground up. Another highlight was the symposium on “Diamonds: From the Origins of the Universe to Quantum Sensing in Materials and Biological Science Applications” in honor of MSA’s 75th Diamond Anniversary. In addition, a series of analytical sciences symposia highlighted the field of atom probe microscopy ranging from instrumentation to data analysis.

St. Louis graced us with wonderful weather and proved to be an excellent host city for M&M 2017. There were many great restaurants, attractions, and evening gathering places for continued discussion of the day’s presentations. After this success in 2017, it is time to look forward to 2018 when we hope to see you August 5–9 at M&M 2018 in Baltimore, Maryland.

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