

MeetingReport

Microscopy & Microanalysis 2014



MICROSCOPY & MICROANALYSIS
AUGUST 3–7 • HARTFORD, CT

David C. Bell, Program Chair

School of Engineering and Applied Sciences, Harvard University, Cambridge MA 02138

dcb@seas.harvard.edu

Last year's Microscopy & Microanalysis meeting (M&M 2014) was held in Hartford, Connecticut, August 3–7, in conjunction with IUMAS-6. We had an amazing total of 1,655 attendees and more than 1,100 exhibitors, representing 115 companies, for a total of 2,782 registrants. The attendance was 3% higher than last year, and the number of exhibitors increased by 5%. There were 42 symposia with 625 platform presentations and nearly 500 posters. This makes M&M 2014 the second most successful meeting ever! The opening reception at the Connecticut Science Museum was fun for all ages. Each floor encouraged attendees to take part in the exhibits. You explored space, journeyed down a river, played with light and sound, and studied solar energy and robotics—all the while enjoying food and visiting with friends.

Hartford is directly associated with Mark Twain. He had a home there and was intimately associated with the town. He was an amazing character, and telling stories was his favorite pastime. In similar form, when Monday's Plenary session opened the meeting, two distinguished speakers from the University of Cambridge captivated the audience with their presentations. Prof. Sir Colin Humphreys discussed "How Cutting-Edge Atomic Resolution Microscopy can help to solve some of the World's Energy Problems." His talk centered on the use of gallium nitride-based LEDs as economical, energy-efficient illumination devices, typically lasting 15–30 times longer than a standard incandescent bulb, saving both money and energy. Of course, it was only three months later that development of the LED was honored with the Nobel Prize. Prof. Brian Ford gave a wonderful plenary on "Living Images from the Birth of Microscopy." He showed how correct use of early microscopes could re-create the detail in drawings made of plants and microorganisms more than 300 years ago. He confirmed that many of the early discoveries were made with a simple single-lens microscope. The M&M meeting was honored to host these well-known speakers (Figure 1).

The 2014 M&M conference excelled again in showing attendees the latest innovative applications and instrumental developments of the life and physical science research areas that use microscopy and microanalysis. There were two well-attended memorial symposia honoring microscopy pioneers, Dr. Oliver Wells and Dr. Gerard Simon. Dr. Oliver C. Wells was one of Sir

Charles Oatley's first students to work on the scanning electron microscope (SEM) at Cambridge University. Wells is widely considered one of the pioneers of the SEM. For most of his 60-year career, largely with IBM, Dr. Wells studied various aspects of the SEM, but he had particular interests in "low-loss" backscattered electron imaging and SEM detector design. Dr. Gerard Simon was a renowned anatomical pathologist and ultrastructural researcher who studied under Dr. Kellenberger in pathology and Dr. Rouiller in histology. In 1967 he became Director of the EM Laboratory at the Banting Institute, and in 1979 he moved to McMaster University, where he helped found the Canadian Centre for EM. One of the co-founders of the Microscopical Society of Canada and the Canadian Foundation for the Development of Microscopy, he is considered a major pioneer in the development of microscopy for the biological sciences in Canada.

Microscopy Society of America (MSA) awards were presented to several outstanding individuals, including MSA Distinguished Scientists, Prof. David Smith and Prof. Wah Chiu; Burton Medal winner, Prof. Maria Varela; Outstanding Technologists awardees Dr. Hong Yi

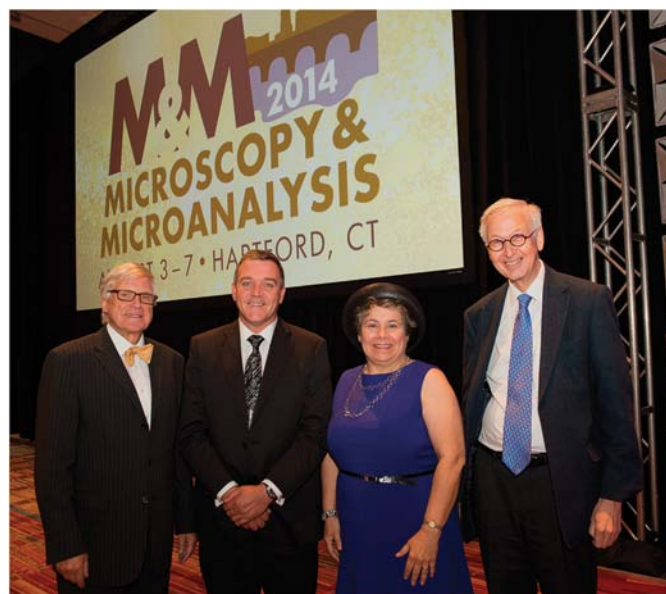
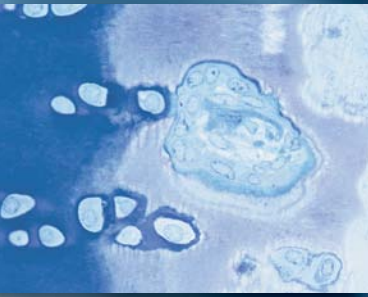
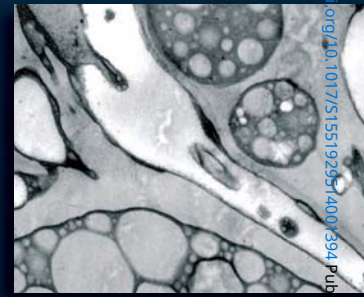
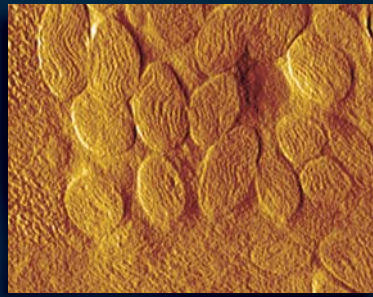


Figure 1: (From left to right) plenary speaker Prof. Brian Ford, M&M 2014 Program Chair Prof. David C. Bell, MSA President Jeanette Killius, and plenary speaker Prof. Sir Colin Humphreys.



DiATOME *diamond knives*

**the highest quality...
the most precise sectioning...
incomparable durability**



building on 40 years of innovation

*ultra 45° • cryo • histo • ultra 35°
histo jumbo • STATIC LINE II • cryo immuno
ultra sonic • ultra AFM & cryo AFM*

NEW!... trimtool 20 and trimtool 45
*Finally, one trimming tool for all of your trimming
needs, be it at room or cryo temperatures.*

DiATOME U.S.

P.O. Box 550 • 1560 Industry Rd. • Hatfield, Pa 19440
Tel: (215) 412-8390 • Fax: (215) 412-8450
email: sgkcock@aol.com • stacie@ems-secure.com
www.emsdiasum.com

and Dr. Eddy Garcia-Meitin; Distinguished Service Award winner Mike Marko; Albert Crewe Award winner Dr. Jinwoo Hwang; and George Palade Award winner Dr. Ricardo Guerrero-Ferreira. This year the MSA Class of 2014 Fellows includes Gianluigi Botton, Abhaya Datye,



Figure 2: Fun and adventure at the MSA Megabooth!



Figure 3: Standing room only at the amazing daily poster sessions.

Marija Gajdardziska-Josifovska, Lucille Giannuzzi, Thomas Kelly, John Mansfield, Martha McCartney, Xiaoqing Pan, and David Piston. Winners of M&M Student Awards and Post-Doctoral Awards were also acknowledged, as well as winners of scholarships and the Professional Technical Staff Awards.

Symposia began Monday afternoon and continued until Thursday afternoon. With 42 topics to choose from, there was something for every microscopist. Topics ranged from “Advances in Imaging to Failure Analysis,” to “*In-situ* Microscopy to Structural Biology, from Anatomic Pathology to Carbon Nanomaterials,” and from correlative microscopy to FIB to X-ray imaging to disease diagnosis. This was the place to learn about the latest techniques and applications. The MSA Mega Booth was again a focal point on the exhibition floor (Figure 2). The poster sessions were heavily attended (Figure 3), so much so that extra beer had to be delivered! As always daily poster awards were given for the most outstanding scientific posters; poster sessions have truly become one of the highlights of M&M.

The meeting drew to an end on Thursday, concluding a week of engaging science and learning. The weather in Hartford was beautiful, and the hospitality was first rate. We hope everyone who attended M&M 2014 enjoyed the food, sights, and sounds of the city of Hartford.

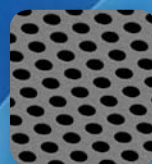
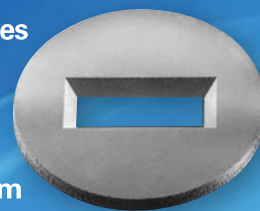
Join us next year August 2–6 in Portland, Oregon, for M&M 2015!

MT

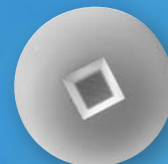
PELCO[®] Silicon Nitride & Silicon Dioxide Membranes

Next Generation SiN TEM Support Films

- Robust and clean 8, 15, 50 and 200nm SiN substrates
- ø3.0mm frame
- EasyGrip™ edges
- Free from debris
- Super flat 8, 15, and 40nm silicon dioxide substrates



Holey SiN Substrates



Silicon Dioxide Substrates

TED PELLA, INC.

Microscopy Products for Science and Industry

www.tedpella.com sales@tedpella.com 800.237.3526

Isn't it about time you had your own Digital Microscope?

Now you can with the portable, affordable uScopeMXII!

The uScopeMXII is a small digital desktop microscope you can use in your workplace or home office. It captures images from standard glass slides and sends them to your PC.

You can interactively browse slides with full control of focus, image processing, and location. You can also scan regions of

interest creating fully focused image sets.

The industry-standard USB interface makes it simple to plug in and start capturing images. It easily interfaces with your desktop or laptop PC and allows you to view and capture slide images in a wide variety of environments.

The uScopeMXII is manufactured in the United States.

Features and Benefits

- **Overview and Objective Cameras**
The uScopeMXII has an objective camera for scanning and an overview camera for navigating.
- **Automatic Focus**
Images are automatically focused using configurable focus algorithms.
- **Portability**
At a weight of about 5 lbs., the uScopeMXII is highly portable.
- **Easy to Use**
The uScope Navigator software simplifies scanning and browsing.
- **Self-Contained**
The uScopeMXII is self-contained and includes the electronics, cameras, stage, and optics in a device about the size of a large external disk drive.
- **Full Imaging Control**
User filters provide complete control over image processing and correction.



Microscopes International, LLC

555 Republic Drive, Suite 119
Plano, TX 75074-5498

Phone +1-214-785-2058

FAX +1-214-785-2138

Email sales@usscopes.com
support@usscopes.com

**Call us today for a quote
or to schedule a demonstration**