See the Unseen at Hitachi Booth #1125

A Brand-New FE-SEM Is Coming!

Hitachi is to debut its new model of FE-SEM at M&M 2018. Don’t miss this opportunity to explore the innovation!

To Be Unveiled at M&M 2018!

Schedule a demo in advance: microscopy@hitachi-hta.com

Innovation • Synergy • Solution

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Future Meeting Dates

August 2-6, 2020
MILWAUKEE, WI

August 1-5, 2021
PITTSBURGH, PA

July 31-August 4, 2022
PORTLAND, OR

July 23-27, 2023
MINNEAPOLIS, MN

QUESTIONS?
Questions regarding the technical content of the meeting or regarding specific sessions may be directed to:

2018 Program Chair
Yoosuf Picard, Carnegie Mellon University
MM2018ProgramChair@microscopy.org

Registration opened March 1, 2018. Please direct questions regarding registration to:
MMRegistration@conferencemanagers.com

Questions regarding exhibits and exhibitors may be directed to: doreen@corcexpo.com

Questions regarding sponsors or sponsorships may be directed to: mary@corcexpo.com

Please direct all other meeting-related questions to: MeetingManager@microscopy.org

ARE YOU A MEMBER?
Join Today and Save on M&M 2018 Registration Fees!

Visit http://microscopy.org to join the Microscopy Society of America online, or call 1-800-538-3672 for more information about the benefits of MSA membership.

Visit http://microanalysissociety.org to join the Microanalysis Society and find out information about MAS membership benefits.

Falcon 3EC and Glacios for cryo-EM single particle analysis

Proven technology for fast 3D structures

The Thermo Scientific™ Falcon™ 3EC direct electron detector features electron counting capabilities that enable the highest sensitivity (DQE). Fully integrated within the Thermo Scientific Glacios™ Cryo-TEM, this combination provides access to cryo-electron microscopy—all within a footprint that fits any lab.

Find out more at thermofisher.com/EM-Sales
On behalf of the Microscopy Society of America, the Microanalysis Society, and the Microscopical Society of Canada (Société de Microscopie du Canada) we invite you to join us August 5-9 in Baltimore, Maryland for Microscopy & Microanalysis 2018. Baltimore and its famous Inner Harbor promise to be an exciting venue that provides ample opportunity for all to visit with old friends and to meet new colleagues with a common interest in microscope development and applications. The Inner Harbor also features many stellar attractions for families, including the National Aquarium and Maryland Science Center, the historic tall ships and U.S. Navy and Coast Guard museum vessels, and the many great dining opportunities, both on land and sea (harbor dinner cruises). We hope that many of you will be able to bring your families along to enjoy all that Charm City and its region have to offer.

The Program Committee, led by Yoosuf Picard, Alice Dohnalkova, James LeBeau and Nabil Bassim, has developed a comprehensive and exciting group of Symposia led by leaders in their respective fields of microscopy and analysis. As a group, the Symposia capture our members’ diverse fields of research, including Advances in Instrumentation and Techniques Development, and Applications in the Biological and Physical Sciences. We encourage you to scan through this Call for Papers for a complete list of Symposia, and contribute to the program by submitting one or more scientific papers to the meeting. Presentations will include a range of platform and posters. New to our meeting this year will be provision of a small table for each poster presentation, which will allow presenters to use a laptop or other digital media format to present animations and movies of their data to enhance their presentations. The leadership of our Societies and the Program Committee feel that with the advancement of three-dimensional reconstruction and other techniques that are best illustrated by these modern dynamic styles, this will provide a unique opportunity for many poster presenters to fully illustrate their data.

The meeting itself will be preceded by our usual array of Sunday Short Courses, three Pre-Meeting Congresses, and our Sunday evening Opening Reception that provides an opportunity to network with colleagues and friends. Following the success of the Inaugural Pre-Meeting Congress in St. Louis led by our Early-career Professionals and Student Council, we will again have a Pre-Meeting Congress featuring the outstanding work done by students and post-doctoral Fellows attending the meeting. If you are an early-career scientist, please consider contributing to this Pre-Meeting Congress. The technical program will kick off with our annual Monday morning plenary session, featuring the major awards ceremonies for the sponsoring societies, the M&M meeting awards, and two exciting plenary talks. One plenary talk will be by Manu Prakash, inventor of the foldscope that has brought imaging to remote regions of the world for imaging of parasites and a range of diseases. The second plenary will be by Jon Larsen, author of "In Search of Stardust: Amazing Micrometeorites and Their Terrestrial Imposters" that provides amazing microscopy of micrometeorites found in common locations such as rooftops.

The M&M meeting also showcases the largest annual exhibition in microscopy and features the latest state-of-the-art instrumentation and accessories in microscopy and microanalysis. Educational opportunities throughout the week include tutorials covering select topics in physical and biological sciences, educational outreach sessions for students and teachers, our Technologists’ Forum, and our ever-popular vendor tutorials, held Monday through Wednesday after the Exhibit Hall closes.

M&M 2018 is an opportunity to stay abreast of the latest technologies, hear about new developments in the techniques and applications of all areas of microscopy and microanalysis, and most importantly network with colleagues. We hope to see you in Baltimore!

Robert Price
President, Microscopy Society of America

Masashi Watanabe
President, Microanalysis Society

Joaquin Ortega
President, Microscopical Society of Canada / Société de Microscopie du Canada
2018 SPONSORS

Monochromated EELS
Zero Loss Peak (ZLP), V₀=30 kV, acquisition time = 100 msec.

Ultra-high Energy Resolution
Ultra-High Energy Resolution
Monochromated EELS

Ultra-high optical performance
5 Å spatial resolution at 200 kV
5 meV energy resolution at 30 kV / 6 meV at 60 kV

New for 2018
See us at Booth 1338

2018 INDEX TO ADVERTISERS

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as of 5/31/18

www.microscopy.org/MandM/2018 for up-to-date meeting information
**Ultra-High Energy Resolution Monochromated EELS-STEM** with Side-entry stage

**Ultra-high optical performance**
- 0.6 Å spatial resolution at 200 kV
- 5 meV energy resolution at 30 kV / 6 meV at 60 kV

**Ultra-flexible**
- * cooling, heating, etc. sample holders
- * ultra-stable EELS optimized for low and high losses
- * UHV reachable at the sample with side-entry stage
- powerful Python-based open-source software

Medium-angle annular dark field (MAADF) monochromated STEM image of graphene. Arrows in FFT mark (1.07 Å⁻¹)
δE ~ 100 meV, \( V_0 = 30 \text{ kV} \).

HAADF image of Au nanoparticles, 200 kV, sample at liquid \( N_2 \) temperature.

Aloof vibrational EEL spectrum of ice adsorbed onto an h-BN flake, \( V_0 = 100 \text{ kV} \).

Monochromated EELS Zero Loss Peak (ZLP), \( V_0 = 30 \text{ kV} \), acquisition time = 100 msec.

See us at Booth 1338
Online registration will remain open throughout the meeting. We encourage you to register in advance!

- For the most up-to-date registration information, visit [http://www.microscopy.org/MandM/2018/](http://www.microscopy.org/MandM/2018/)
- Registration can be done either online at: [http://www.microscopy.org/MandM/2018/registration](http://www.microscopy.org/MandM/2018/registration) or on-site at the meeting registration desk. We encourage you to register in advance and as early as possible.
- **Register by June 25 (early deadline) and save $100!**
- Member rates apply to all members (MSA, MAS, MSC-SMC). Membership will be verified.

### Onsite Registration Desk

**Baltimore Convention Center**

Pick up your badge and materials at the Registration desk according to the schedule below. The Sunday Social starts at 6:30 pm in the Ballroom (4th Level of the Convention Center).

### Registration Hours:

<table>
<thead>
<tr>
<th>Day</th>
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<tr>
<td>Thursday, August 2*</td>
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<td>Friday, August 3*</td>
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<td>Friday, August 3</td>
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<td>Saturday, August 4</td>
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<td>Sunday, August 5</td>
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<td>Wednesday, August 8</td>
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<tr>
<td>Thursday, August 9</td>
<td>7:30 am – 3:00 pm</td>
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*Exhibitors Only*

### Commercial Exhibition Hours:

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<td>Tuesday, August 7</td>
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<td>Wednesday, August 8</td>
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<td>Thursday, August 9</td>
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<td>Sunday, August 5</td>
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*Targeted Island Booths Only*

### Exhibitor Move-Out:

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<tr>
<td>Friday, August 10</td>
<td>8:00 am – 5:00 pm</td>
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Providing microscopy supplies and specimen preparation equipment to our valued customers for half a century.

VISIT US AT M&M 2018 • AUGUST 5-9 • BALTIMORE, MD • BOOTH #1012

PELCO easiGlow™
Glow Discharge Cleaning System

PELCO BioWave® Pro+
Microwave Tissue Processor

Cressington Coating Systems
Carbon Evaporation, Metal Sputtering

PELCO® Modular SEM
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NEW SBEM Tools & Supplies
FEI VolumeScope Pin Stub, Storage, Tweezers & Colloidal Silver Paint

NEW Quantifoil®
TEM Substrates

Cryo-EM Tools & Accessories
Large Dewars, Foam Dewars, Grid Boxes & Grippers

NEW Products for Specimen Thinning in Preparation for Electron Microscopy

M&M 2018 Vendor Tutorial
Join us Tuesday, August 7 at 5:45pm, Booth #1012

PELCO BioWave® Pro+ Assisted Serial Block-Face SEM (SBEM)
SBEM requires extended sample processing protocol taking over 5 days to perform. However, using the PELCO BioWave® Pro+, the entire process can now be completed in under a day with identical results in the SBEM to sample by the standard long protocol.

Images: Rick Webb, University of Queensland

WIN $50 OFF YOUR NEXT ORDER!
Visit us at M&M 2018, and enter to win one of fifty gift certificates for $50 off your next order.
ESSENTIAL MEETING & VENUE INFORMATION

Accessibility
If you require special accommodation in order to participate fully in the meeting, please ask to speak with the meeting manager, or email MeetingManager@microscopy.org. Requests made after July 1 or onsite at the meeting will be accommodated as much as possible.

Awards
Major Society Awards for MSA, MAS, and MSC-SMC, along with M&M student awards, will be presented at the Plenary Session immediately following the first Keynote Talk (Monday morning). For detailed listings of all awards, criteria, and award winners, please visit http://microscopy.org/MandM/2018/

Cancellation and Refund Policy
Refund requests received prior to July 13, 2018 will be honored less a $65 administrative fee. No refunds will be issued for cancellations (for any reason) received on or after July 13, 2018, and no refunds will be issued on-site in Baltimore. E-mail: MMRegistration@conferencemanagers.com.

Food for Purchase
Inexpensive, portable breakfast and snack items are available for purchase in the convention center on the ground level (7:30 am – 10:30 am). Lunch concessions are available for purchase inside the exhibit hall during lunch hours (11:00 am – 2:00 pm).

Baltimore & Regional Visitor Information
Stop by the Visit Baltimore booth located inside the convention center, to pick up local information, including maps, dining guides and tour info, and visitor information on Baltimore and surrounding areas.

Internet & E-mail
Free wireless internet is available for M&M attendees in the Baltimore Convention Center. Check your email and surf the web at the Internet Café inside the M&M exhibit hall during exhibit hours (located next to the MSA MegaBooth). For more information on the MegaBooth, see page 22.

Job & Resume Postings/Placement Office
(See MSA MegaBooth info on Page 22)
Post your company’s or department’s job listing, peruse posted resumes for that perfect job candidate, or post your own resume. Take advantage of thousands of microscopists and microscopy companies all gathered in one place! Go to the MSA MegaBooth (Exhibit Hall) for details.

M&M 2019 – Meeting & City Information
Stop by for advance information on the 2019 M&M Meeting in Portland, Oregon! The 2019 table is located in the main registration area, and has visitors guides, maps, and other important information about the City of Roses.

MSA MegaBooth (Booth #1329)
(See complete details on Page 22)
Check out all that MSA has to offer its members and M&M attendees: Free Internet Café, book display from scientific publishers, updated information on the Certification Board, and a DVD Library. Register for the popular Vendor Tutorials, sign up for MSA Membership, check out recent editions of Microscopy Today, learn about Project MICRO, and join the Technologists’ Forum.

Phone Numbers & Information
• Baltimore Convention Center Main: (410) 649–7000
• Exhibitor Services: http://www.bcccenter.org/index.php?target=74
• Concentra Urgent Care: (410) 752-3010 (M-F 8a-5p); www.concentra.com
• Emergency Room (24 hours): University of Maryland Medical Center: (800) 492–5538

Proceedings
Conference Proceedings are distributed at Registration. All Full Meeting registrations include a free copy of the proceedings on digital medium. Hard-copy proceedings are available for purchase ($95) through Cambridge University Press (allow 12-16 weeks for delivery). Inquire at the Registration Desk or email: MMProceedings@cambridge.org.

MAS Booth
MAS has a membership and information booth located in the main registration foyer. Sign up for membership, get information on Society events at or after the M&M Meeting, and find out all it has to offer.

Smoking Policy
M&M 2018 is a smoke-free meeting. If you wish to smoke, you will need to go outside (street level).

Tote Bags
All non-Exhibitor Full Meeting Registrants are entitled to a meeting tote bag. Bags are distributed in the registration area.

Volunteer Room
The volunteer & student bursary office is in the 300 Show Office on the Registration level. Check in here for volunteer assignments and sign-outs.
Unless indicated otherwise, all official conference events are being held at the Baltimore Convention Center, located in downtown Baltimore, Maryland.
The Baltimore Convention Center Ballroom is the location for the **Sunday Evening Welcome Reception** on Sunday, August 5, and also the location for the **Opening Plenary Session**, on Monday, August 6.
M&M 2018 SOCIAL EVENTS

M&M 2018 Sunday Evening Social Event

Baltimore Convention Center – Ballroom Level (4th floor)
SUNDAY, AUGUST 5 | 6:30 PM - 9:00 PM

One ticket is included with most registrations (see Registration Page for details). Additional tickets: $50 each for adults; $25 each for children 12 and under.

*PLEASE NOTE: Onsite availability of tickets is not guaranteed. Register for the meeting and buy extra tickets early to be sure that you’re able to attend.

This year’s welcome event at the Baltimore Convention Center will be a fun and informal get-together. Enjoy a delicious supper buffet and local brews; and catch up with friends and colleagues. After the reception, grab some old and new friends and head down to the Inner Harbor/Harborplace areas to continue the fun!

MAS Social Event – for MAS Members Only!

WEDNESDAY, AUGUST 8 | 6:30 PM - 9:00 PM

Stop by the MAS booth in the lobby to check your membership status and pick up your ticket for the MAS social event on Wednesday evening, August 8 – immediately following the MAS Business Meeting.

Micrograph Competition

This micrograph competition promotes the innovative blending of art and science. Open to all forms of microscopic imaging, this year, winners of this competition will be selected by popular vote! A maximum of three (3) cash awards will be presented. Winners and runners-up will have the chance to see their work published in a conference brochure for M&M 2019! NEW FOR 2018: Submit a Micrograph Contest entry form (get at link below), and then bring your best work to Baltimore and post it on the contest board! Boards for posting your work will be in the M&M 2018 registration area. For competition rules and details, go to: https://www.microscopy.org/MandM/2018/meetings/apply_award.cfm.

Student Poster Awards

(Immediately following daily Poster Presentations & Happy Hours!)

Poster presentations are an excellent format for all participants to engage in intensive discussion with other researchers in the field. MSA provides cash awards to the most outstanding student posters (first author) each day (up to two in each of three categories). Student poster awards will be presented immediately following each day’s poster session, in the Exhibit Hall.
Introducing the Velocity™ EBSD Camera

The EDAX Velocity™ EBSD camera offers high-speed EBSD mapping with the highest indexing performance for all materials. Powered by a CMOS sensor, the Velocity™ camera combines fast acquisition with high sensitivity and low noise performance for optimal data collection and quality results.

- CMOS low-noise sensor
- > 3000 indexed points per second
- High-speed simultaneous EDS-EBSD collection
- 120 x 120 pixel images at high speeds
- Accurate and precise data on real-world samples

For more information about the new Velocity™ EBSD camera and our portfolio of microanalysis systems, please join us at Booth #530 at M&M 2018.

edax.com
HOTELS & RESERVATIONS

The open reservations portal, as well as the most current listing of available hotels and rates, is available at: http://www.microscopy.org/MandM/2018/hoteltravel/hotel.cfm

Book your room through the M&M 2018 Housing Bureau, and get an immediate reservation confirmation. A valid credit card is required to reserve a room.

Maps showing the location of the hotels and convention center are available on the Visit Baltimore website and are downloadable from: https://baltimore.org/neighborhoods-maps.

Ground Transportation

CAR/VAN/SHUTTLE: www.bwiairport.com/to-from-bwi/transportation for detailed information on taxi service, limousine service, and scheduled shuttle service fees and schedules.

MORE BALTIMORE TRAVEL INFO:
For detailed attraction, tour, dining and travel information for visitors, please go to the Visit Baltimore website at www.baltimore.org.

HOTEL MAP

1. Baltimore Marriott Inner Harbor at Camden Yards
2. Days Inn Baltimore Inner Harbor
3. Holiday Inn Inner Harbor
4. Lord Baltimore Hotel
5. Renaissance Harborplace

Getting To & Around Baltimore

The Baltimore-Washington International (BWI) Thurgood Marshall Airport is located only 10 miles (roughly 20 minutes by car) from downtown Baltimore. The airport features free Wi-Fi, guest services information and assistance center, and several restaurants, stores, and personal-services outlets. Visit http://bwiairport.com for detailed information about the airport.
Turn your ideas into reality

Kammrath and Weiss Technology / Islip, USA
Phone: +1 516-313-9742
Email: george.lanzarotta@kammrathandweiss.com

www.kammrath-weiss.com
## 2018 MEETING SCHEDULE

As of July 1. Please check the onsite program or your committee chair/liaison to confirm.

All events held at Baltimore Center Convention Center unless otherwise noted.

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#### MSA Council

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#### MSA Council

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### Sunday, August 5, 2018

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#### MAS Council

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#### MSC-SMC Council Meeting

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#### Microscopy Today Editors & Editorial Board

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#### Sunday Welcome Reception

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### Monday, August 6, 2018

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#### Technologists’ Forum Board

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#### MSA Awards + Fellowship Committees

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#### FIG Pharma Lunch Workshop on Data Integrity

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#### MaM Editorial Board

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#### MAS Meal with a Mentor

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#### FIG: Diagnostic Microscopy

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#### FIG: Focused Ion Beam

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#### FIG: Atom Probe Field Ion Microscopy

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<thead>
<tr>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>12:15 PM</td>
<td>Room 334</td>
</tr>
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</table>

#### International Committee

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:15 PM</td>
<td>Room 333</td>
</tr>
</tbody>
</table>

#### Technologists’ Forum Business Meeting

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>3:30 PM</td>
<td>Room 334</td>
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</table>

#### MSA-CUP Elements Committee

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>4:15 PM</td>
<td>Room 333</td>
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</table>

#### Student Mixer

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:30 PM</td>
<td>Rooms 339-340</td>
</tr>
</tbody>
</table>

#### Vendor Tutorials in the Exhibit Hall (Sign Up at MSA MegaBooth)

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>5:45 - 6:45 PM</td>
<td>Exhibit Hall</td>
</tr>
</tbody>
</table>

www.microscopy.org/MandM/2018
Free customer service
Sectioning tests with biological and material research specimens of all kinds. We send you the sections along with the surfaced sample, a report on the results obtained and a recommendation of a suitable knife. Complete discretion when working with proprietary samples.

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www.emsdiasum.com
# 2018 MEETING SCHEDULE

As of July 1. Please check the onsite program or your committee chair/liaison to confirm.

All events held at Baltimore Center Convention Center unless otherwise noted.

## Tuesday, August 7, 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSA Local Affiliated Societies &amp; MAS Affiliated Regional Societies</td>
<td>7:15 AM</td>
<td>Room 330</td>
</tr>
<tr>
<td>M&amp;M 2019 – Program Planning for Symposium Organizers</td>
<td>10:00 AM</td>
<td>Room 329</td>
</tr>
<tr>
<td>MSC-SMC Business Meeting</td>
<td>12:15 PM</td>
<td>Room 347</td>
</tr>
<tr>
<td>FOM FIG Lunch Meeting</td>
<td>12:15 PM</td>
<td>Room 330</td>
</tr>
<tr>
<td>MSA Distintuished Scientist Awardees’ Lectures</td>
<td>12:15 PM</td>
<td>Room 337</td>
</tr>
<tr>
<td>Microscopy Today Editorial Board Meeting</td>
<td>12:15 PM</td>
<td>Room 323</td>
</tr>
<tr>
<td>FIG: Cryo-preparation</td>
<td>12:15 PM</td>
<td>Room 333</td>
</tr>
<tr>
<td>FIG: Electron Microscopy in Liquids and Gases</td>
<td>12:15 PM</td>
<td>Room 331</td>
</tr>
<tr>
<td>FIG: Electron Crystallography</td>
<td>12:15 PM</td>
<td>Room 334</td>
</tr>
<tr>
<td>FIG: MicroAnalytical Standards</td>
<td>12:15 PM</td>
<td>Room 332</td>
</tr>
<tr>
<td>FIG: 3D EM in the Biological Sciences</td>
<td>3:30 PM</td>
<td>Room 321</td>
</tr>
<tr>
<td>MSA Education Committee Meeting</td>
<td>3:30 PM</td>
<td>Room 334</td>
</tr>
<tr>
<td>FIG Business Meeting</td>
<td>3:30 PM</td>
<td>Room 333</td>
</tr>
<tr>
<td>Post-Doctoral Researchers’ Reception</td>
<td>5:30 PM</td>
<td>Room 330</td>
</tr>
<tr>
<td>MSA Student Council</td>
<td>5:30 PM</td>
<td>Rooms 331-332</td>
</tr>
<tr>
<td>Vendor Tutorials in the Exhibit Hall <em>(Sign Up at MSA MegaBooth)</em></td>
<td>5:45 – 6:45 PM</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Presidents’ Reception <em>(Invitation Only)</em></td>
<td>6:30 PM</td>
<td>Offsite</td>
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## Wednesday, August 8, 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>MSA Certification Board</td>
<td>7:15 AM</td>
<td>Room 333</td>
</tr>
<tr>
<td>MSA Membership Committee</td>
<td>7:15 AM</td>
<td>Room 334</td>
</tr>
<tr>
<td>MSA Members’ Meeting</td>
<td>12:15 PM</td>
<td>Rooms 343-344</td>
</tr>
<tr>
<td>MAS Business Meeting</td>
<td>5:15 PM</td>
<td>Room 337</td>
</tr>
<tr>
<td>Vendor Tutorials in Exhibit Hall <em>(Sign up at MSA MegaBooth)</em></td>
<td>5:45 – 6:45 PM</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>MAS Members Social <em>(See MAS Booth for Details)</em></td>
<td>6:30 PM</td>
<td>Offsite</td>
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## Thursday, August 9, 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>M&amp;M Sustaining Members</td>
<td>8:30 AM</td>
<td>Room 330</td>
</tr>
<tr>
<td>MSA Standards Committee Meeting</td>
<td>12:15 PM</td>
<td>Room 333</td>
</tr>
<tr>
<td>M&amp;M 2018 Wrap-Up &amp; Debrief <em>(by invitation only)</em></td>
<td>4:30 PM</td>
<td>Room 330</td>
</tr>
</tbody>
</table>
The moment “I think” becomes “I know”.

This is the moment we work for.

Connect with ZEISS!

Experience the latest innovations in microscopy helping researchers connect with one another and their data like never before. Speak with your ZEISS team to learn the latest advancements in microscopy spanning light, electron, helium/ion, and X-ray/CT microscopes as well as digital platforms. Book a demo to test drive a ZEISS system or be among the first to register for a tutorial.

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www.zeiss.com/microscopy/mm
The MSA MEGABOOTH showcases all that MSA membership has to offer. If you are currently a member, stop by to catch up on all the new society developments. Member information available at Regular, Sustaining (corporate), and Student levels.

Sign up for VENDOR TUTORIALS here! These popular sessions are presented on Monday, Tuesday, and Wednesday evenings after the exhibit hall has closed for the day. Don't miss out – advance registration is required!

The INTERNET CAFÉ and PHONE CHARGING STATION are open to all meeting attendees during all exhibit hall hours. Bring Your Own Device! Lots of places to sit and rest your feet for a few minutes while you charge your mobile phone, check your email, put the finishing touches on your talk, or collaborate with colleagues.

The TECHNOLOGISTS' FORUM (TF): Attention Technologists! Stop by to find out how you can grow and develop your skills, your professional career, and your network by joining the Forum!

The PLACEMENT OFFICE is MSA's job-listing service. Post a job, peruse job listings, post a resume, and/or find that perfect candidate for your job opening. All for FREE during the meeting!

Check out the BOOK DISPLAY – publisher-donated books, divided into biological/physical topics. Several new titles added every year! Come and browse the newest titles.

CERTIFICATION BOARD – Find out about MSA's certification program for Electron Microscopy Technologists and how being certified can help you in your next job search!

MICROSCOPY TODAY and MICROSCOPY and MICROANALYSIS are the society’s two publications – one a magazine format, the other a peer-reviewed scientific journal. Information for authors and advertisers is available here.

EDUCATIONAL OUTREACH – Includes MSA’s educational outreach program. Browse the materials and find out how to start an outreach program in your local area. Get details on the special programming at the M&M meeting for educators and kids of all ages.

Visit the updated Project MICRO display to learn about this organization's education and outreach goals.

For more information, visit http://microscopy.org
Plenary Session
MONDAY, AUGUST 6, 2018
Ballroom (4th Level) – Baltimore Convention Center
For speaker bios and presentation details, visit
www.microscopy.org/MandM/2018/program/plenary.cfm

Manu Prakash, PhD
Stanford University, Stanford, CA
Every Child in the World Should Carry a Microscope in Their Pocket

Jon Larsen
Project Stardust; Jazz Guitarist, Composer, Surrealist Painter, Author, Citizen Scientist
Using Microscopy to Find Stardust Anywhere

MSA Distinguished Scientist Awards & Talks
DISTINGUISHED SCIENTIST – PHYSICAL SCIENCES
Yimei Zhu, Brookhaven National Laboratory, Upton, NY

DISTINGUISHED SCIENTIST – BIOLOGICAL SCIENCES
Richard D. Leapman, National Institutes of Health, Bethesda, MD

MSA Major Society Award Winners
BURTON MEDAL
Lena Kourkoutis, Cornell University, Ithaca, NY

ALBERT CREWE AWARD
Timothy Pennycook, Max Planck Institute for Solid State Research, Germany

MASER DISTINGUISHED SERVICE AWARD
Donovan Leonard, Oak Ridge National Laboratory, Oak Ridge, TN

HILDEGARD H. CROWLEY AWARD FOR OUTSTANDING TECHNOLOGIST, BIOLOGICAL SCIENCES
Anchi Cheng, New York Structural Biology Center, New York, NY

CHUCK FIORI AWARD FOR OUTSTANDING TECHNOLOGIST, PHYSICAL SCIENCES
Chengyu Song, Lawrence Berkeley National Laboratory, Berkeley, CA

MAS Major Society Award Winners
PRESIDENTIAL SCIENCE AWARD
M. Grace Burke, University of Manchester, UK

PRESIDENTIAL SERVICE AWARD
Vernon Robertson, JEOL, Peabody, MA

PETER DUNCUMB AWARD FOR EXCELLENCE IN MICROANALYSIS
Richard Leapman, National Institutes of Health, Bethesda, MD

KURT F.J. HEINRICH AWARD
Yoosuf Picard, Carnegie Mellon University, Pittsburgh, PA

BIRKS AWARD
Weizong Xu, North Carolina State University, Durham, NC

MACRES AWARD
Daan Hein Alsem, Hummingbird Scientific, Lacey, WA

COSSSLETT AWARD
Ivan Pedro Lobato Hoyos, University of Antwerp, Belgium

CASTAING AWARD
Miriam Hiebert, University of Maryland, College Park, MD

FIRST PLACE 2017
MSA Micrograph Competition
Broken Flowers: Prashant Kumar, University of Minnesota

SECOND PLACE 2017
MSA Micrograph Competition
Twisted Centers: Timothy Pegg, Miami University (OH)

HIGHLIGHTS & AWARDS
MSA Distinguished Scientist Awards & Talks

DISTINGUISHED SCIENTIST – PHYSICAL SCIENCES
Yimei Zhu, Brookhaven National Laboratory, Upton, NY

DISTINGUISHED SCIENTIST – BIOLOGICAL SCIENCES
Richard D. Leapman, National Institutes of Health, Bethesda, MD

SECOND PLACE 2017
2017 MSA Micrograph Competition
Twisted Centers: Timothy Pegg, Miami University (OH)

FIRST PLACE 2017
2017 MSA Micrograph Competition
Broken Flowers: Prashant Kumar, University of Minnesota
STEP INTO
JEOL’S ELECTRON
MICROSCOPY WORLD

Smart, Flexible, Powerful
SEM-TEM-EPMA-FIB-EDS
from Macro to Atomic Scale

SEE US AT M&M 2018
BOOTH #812

Bell Lab – Harvard University
Osaka University
## Friday, August 3

**8:30 am**
- **MSA Council**
  - Room 338

---

## Saturday, August 4

**8:30 am**
- **MSA Council**
  - Room 338

**8:30 am – 5:00 pm**
- **Pre-Meeting Congress**
  - **X60**: Pre-Meeting Congress for Students, Post-Docs, and Early-Career Professionals in Microscopy and Microanalysis
  - Rooms 345-346

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## Sunday, August 5

**8:30 am – 5:00 pm**
- **Sunday Short Courses**
  - X10: Exploring Cryo-Preparation Techniques for Biological Samples
  - Room 321
  - X11: Advanced Focused Ion Beam Methods
  - Room 322
  - X12: Practical Considerations for Image Analysis and ImageJ and Clemex Vision
  - Room 323
  - X13: SerialEM for EM Data Acquisition
  - Room 324
  - X14: Sample Preparation for High-resolution EM of Materials
  - Room 325
  - X15: Introduction to SEM with EDS: Imaging and Compositional Analysis
  - Room 326
  - X16: Multivariate Methods and Image-processing for Quantitative Microscopy
  - Room 330

**8:30 am – 5:00 pm**
- **Pre-Meeting Congresses**
  - X61: Standards and Reference Materials for Microanalysis
  - Rooms 347-348
  - X62: Practical Challenges and Opportunities for in situ/operando Microscopy in Liquids and Gases
  - Rooms 345-346

**9:00 am**
- **MAS Council**
  - Room 338

**12:00 pm**
- **MSC-SMC Council Meeting**
  - Room 334

**3:00 pm**
- **Microscopy Today Editors**
  - Room 332

**6:30 pm**
- **Sunday Welcome Reception**
  - Ballroom I-II (4th Level)

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## Monday, August 6

**7:15 am**
- **MSA Awards + Fellowship Committees**
  - Room 330

**7:15 am**
- **Technologists’ Forum Board**
  - Room 334

**8:30 am – 12:00 pm**
- **M&M 2018 Plenary Sessions**
  - Ballroom III-IV (4th Level)
  - **Opening Welcome**
  - **Plenary Talk #1:**
    - Jon Larsen
    - Project Stardust; Jazz Guitarist, Composer, Surrealist Painter, Author, Citizen Scientist
    - *Using Microscopy to Find Stardust Anywhere*
  - **MAS Awards Presentation**
  - **MSC-SMC Awards Presentation**
  - **Coffee & Donuts Break**
  - **MSA Awards Presentation**
  - **M&M Meeting Awards Presentation**

**12:00 pm – 1:30 pm**
- **Lunch Break**
  - **Exhibit Hall Open**
  - Halls E-F-G (Lower Level)
### Monday, August 6 (Cont’d.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:15 pm</td>
<td><strong>MaM Editorial Board</strong></td>
<td>340</td>
</tr>
<tr>
<td>12:15 pm</td>
<td><strong>MAS Meal with a Mentor</strong></td>
<td>339</td>
</tr>
<tr>
<td>12:15 pm</td>
<td><strong>Pharma FIG Lunch Workshop on Data Integrity</strong></td>
<td>345-346</td>
</tr>
<tr>
<td>12:15 pm</td>
<td><strong>FIG: Diagnostic Microscopy</strong></td>
<td>330</td>
</tr>
<tr>
<td>12:15 pm</td>
<td><strong>FIG: Focused Ion Beam</strong></td>
<td>331</td>
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<tr>
<td>12:15 pm</td>
<td><strong>FIG: Atom Probe Field Ion Microscopy</strong></td>
<td>334</td>
</tr>
<tr>
<td>12:15 pm</td>
<td><strong>International Committee</strong></td>
<td>333</td>
</tr>
<tr>
<td>1:30 pm – 3:00 pm</td>
<td><strong>P.M. Symposia &amp; Sessions</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>A01.1</strong> - Professor Hatsujiro Hashimoto Memorial Symposium: Foundations in Imaging Crystals, Defects, and Atoms</td>
<td>341</td>
</tr>
<tr>
<td></td>
<td><strong>A03.1</strong> - Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond</td>
<td>343</td>
</tr>
<tr>
<td></td>
<td><strong>A10.1</strong> - The Joy of Scanning Electron Microscopy</td>
<td>328</td>
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<tr>
<td></td>
<td><strong>A11.1</strong> - Solid-state X-ray Spectrometry at 50 Years</td>
<td>327</td>
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<tr>
<td></td>
<td><strong>A16.1</strong> - Sterling Newberry Memorial Symposium on X-ray Imaging</td>
<td>323</td>
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<tr>
<td></td>
<td><strong>A17.1</strong> - Surface and Subsurface Microscopy and Microanalysis</td>
<td>326</td>
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<tr>
<td></td>
<td><strong>B04.1</strong> - Utilizing Microscopy for Research and Diagnosis of Diseases in Humans, Plants and Animals</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td><strong>B07.1</strong> - Pharmaceuticals: Imaging, Analysis, and Regulation of Medical Products and Devices</td>
<td>348</td>
</tr>
<tr>
<td></td>
<td><strong>P01.1</strong> - Advances in Electron, X-ray and Neutron Spectro-imaging/ Holography of Energy Materials and Devices</td>
<td>336</td>
</tr>
<tr>
<td></td>
<td><strong>P02.1</strong> - Atomically Thin 2D Materials: Recent Results and Challenges</td>
<td>338</td>
</tr>
<tr>
<td></td>
<td><strong>P05.1</strong> - Minimizing Beam-sample Interactions by Modulating Electron Beams in Space and Time</td>
<td>344</td>
</tr>
<tr>
<td></td>
<td><strong>X43</strong> - Biological Sciences Tutorial - Cryo-FIB: Overcoming the Hurdle of Sample Preparation for in situ Cryo-Electron Tomography</td>
<td>321</td>
</tr>
<tr>
<td>3:00 pm – 5:00 pm</td>
<td><strong>Monday Poster Presentations</strong></td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td></td>
<td><strong>A03.P1</strong> - Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond</td>
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<td><strong>B07.P1</strong> - Pharmaceuticals: Imaging, Analysis, and Regulation of Medical Products and Devices</td>
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<tr>
<td></td>
<td>All Post-Deadline Posters will be presented on this day.</td>
<td></td>
</tr>
<tr>
<td>3:30 pm</td>
<td><strong>Technologists’ Forum Business Meeting</strong></td>
<td>334</td>
</tr>
<tr>
<td>4:15 pm</td>
<td><strong>MSA-CUP Book Series Advisory Board Meeting</strong></td>
<td>333</td>
</tr>
<tr>
<td>5:00 pm</td>
<td><strong>Student Poster Awards</strong></td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>5:30 pm</td>
<td><strong>Student Mixer</strong></td>
<td>339-340</td>
</tr>
<tr>
<td>5:45 – 6:45 pm</td>
<td><strong>Vendor Tutorials (Sign Up at MSA MegaBooth)</strong></td>
<td>Exhibit Hall</td>
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### Tuesday, August 7

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<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>7:15 am</td>
<td><strong>MSA Local Affiliated Societies &amp; MAS Affiliated Regional Societies</strong></td>
<td>330</td>
</tr>
<tr>
<td>8:30 am – 10:00 am</td>
<td><strong>A.M. Symposia &amp; Sessions</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>A01.2</strong> - Professor Hatsujiro Hashimoto Memorial Symposium: Foundations in Imaging Crystals, Defects, and Atoms</td>
<td>341</td>
</tr>
<tr>
<td></td>
<td><strong>A03.2</strong> - Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond</td>
<td>343</td>
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<tr>
<td></td>
<td><strong>A09.1</strong> - Data Analytics and Model-based Imaging for Microstructure and Physical Property Interpretations</td>
<td>342</td>
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## Tuesday, August 7 (Cont’d.)

### 8:30 am – 10:00 am

#### A.M. Symposia & Sessions (Cont’d.)

<table>
<thead>
<tr>
<th>Symposium Title</th>
<th>Room</th>
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<tbody>
<tr>
<td>A10.2 - The Joy of Scanning Electron Microscopy</td>
<td>328</td>
</tr>
<tr>
<td>A11.2 - Solid-state X-ray Spectrometry at 50 Years</td>
<td>327</td>
</tr>
<tr>
<td>A16.2 - Sterling Newberry Memorial Symposium on X-ray Imaging</td>
<td>323</td>
</tr>
<tr>
<td>A17.2 - Surface and Subsurface Microscopy and Microanalysis</td>
<td>326</td>
</tr>
<tr>
<td>A18.1 - Vendor Symposium</td>
<td>322</td>
</tr>
<tr>
<td>B01.1 - Microscopy and Analysis in Forensic Science</td>
<td>348</td>
</tr>
<tr>
<td>B03.1 - 3D Structures: from Macromolecular Assemblies to Whole Cells (3DEM FIG)</td>
<td>349</td>
</tr>
<tr>
<td>B04.2 - Utilizing Microscopy for Research and Diagnosis of Diseases in Humans, Plants and Animals</td>
<td>350</td>
</tr>
<tr>
<td>P01.2 - Advances in Electron, X-ray and Neutron Spectro-imaging/ Holography of Energy Materials and Devices</td>
<td>336</td>
</tr>
<tr>
<td>P02.2 - Atomically Thin 2D Materials: Recent Results and Challenges</td>
<td>338</td>
</tr>
<tr>
<td>P04.1 - In situ Methods for Probing Properties and Dynamics in Materials</td>
<td>340</td>
</tr>
<tr>
<td>P05.2 - Minimizing Beam-sample Interactions by Modulating Electron Beams in Space and Time</td>
<td>344</td>
</tr>
<tr>
<td>P07.1 - Nanoparticles and 1D Materials: Synthesis, Characteristics and Applications</td>
<td>337</td>
</tr>
<tr>
<td>X45.2 – Biological Sciences Tutorial - How to Get Funding for Instrumentation When Budgets Are Tight (Part II)</td>
<td>321</td>
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</tbody>
</table>

### 10:00 am – 5:30 pm

#### Exhibit Hall Open

### 10:00 am

#### M&M 2019 - Program Planning for Symposium Organizers

#### A.M. Symposia & Sessions (Cont’d.)

<table>
<thead>
<tr>
<th>Symposium Title</th>
<th>Room</th>
</tr>
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<tbody>
<tr>
<td>A01.3 - Professor Hatsujiro Hashimoto Memorial Symposium: Foundations in Imaging Crystals, Defects, and Atoms</td>
<td>341</td>
</tr>
<tr>
<td>A02.1 - Atomic-scale Functional Imaging in Aberration-corrected Electron Microscopy</td>
<td>339</td>
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<tr>
<td>A03.3 - Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond</td>
<td>343</td>
</tr>
<tr>
<td>A04.1 - In situ Transmission Electron Microscopy in Liquid and Gas Cells</td>
<td>345-346</td>
</tr>
<tr>
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<td>X45.1 - Biological Sciences Tutorial–How to Get Funding for Instrumentation When Budgets Are Tight (Part I)</td>
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### 10:30 am – 12:00 pm

#### Lunch Break

### 12:00 pm – 1:30 pm

#### Microscopy Today Editorial Board Meeting

**http://microscopy.org/MandM/2018**
### Tuesday, August 7 (Cont’d.)

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<td>12:15 pm</td>
<td>FIG: Cryo-Preparation</td>
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<td>FIG: Electron Microscopy in Liquids and Gases</td>
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<td>12:15 pm</td>
<td>FIG: Electron Crystallography</td>
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<td>FIG: MicroAnalytical Standards</td>
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<td>12:15 pm</td>
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**P.M. Symposia & Sessions**

- **A01.4** - Professor Hatsujiro Hashimoto Memorial Symposium: Foundations in Imaging Crystals, Defects, and Atoms
- **A02.2** - Atomic-scale Functional Imaging in Aberration-corrected Electron Microscopy
- **A03.4** - Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond
- **A04.2** - In situ Transmission Electron Microscopy in Liquid and Gas Cells
- **A05.1** - Low-energy Electron and Particle Microscopies in Liquid, Gaseous, and Frozen Conditions
- **A09.3** - Data Analytics and Model-based Imaging for Microstructure and Physical Property Interpretations
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- **B03.3** - 3D Structures: from Macromolecular Assemblies to Whole Cells (3DEM FIG)
- **B04.4** - Utilizing Microscopy for Research and Diagnosis of Diseases in Humans, Plants and Animals

**Tuesday Poster Presentations**

- **A01.P1** - Professor Hatsujiro Hashimoto Memorial Symposium: Foundations in Imaging Crystals, Defects, and Atoms
- **A03.P2** - Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond
- **A09.P1** - Data Analytics and Model-based Imaging for Microstructure and Physical Property Interpretations
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- **B01.P1** - Microscopy and Analysis in Forensic Science
- **B03.P1** - 3D Structures: from Macromolecular Assemblies to Whole Cells (3DEM FIG)
- **B04.P2** - Utilizing Microscopy for Research and Diagnosis of Diseases in Humans, Plants and Animals

**Exhibit Hall**
Tuesday, August 7 (Cont’d.)

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<tr>
<td>P03.P1</td>
<td>Nanoparticles and 1D Materials: Synthesis, Characteristics and Applications</td>
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<td>In situ Methods for Probing Properties and Dynamics in Materials</td>
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<td>Microstructure and Mechanics Deformation Symposium</td>
</tr>
<tr>
<td>X90.P1</td>
<td>Microscopy Outreach: Microscopy in the Classroom</td>
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<tr>
<td>3:30 PM</td>
<td>FIG: 3D EM in the Biological Sciences</td>
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<tr>
<td>3:30 pm</td>
<td>FIG Business Meeting</td>
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<td>3:30 pm</td>
<td>MSA Education Committee</td>
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<td>Student Poster Awards</td>
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<tr>
<td>5:30 pm</td>
<td>Post-Doctoral Researchers’ Reception</td>
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<td>5:45 pm</td>
<td>Vendor Tutorials (Sign Up at MSA MegaBooth)</td>
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<td>6:30 pm</td>
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Wednesday, August 8

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<td>7:15 am</td>
<td>MSA Membership Committee</td>
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<td>7:15 am</td>
<td>A.M. Symposia &amp; Sessions</td>
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<tr>
<td>A02.3</td>
<td>Atomic-scale Functional Imaging in Aberration-corrected Electron Microscopy</td>
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<td>Four-dimensional Scanning Transmission Electron Microscopy (4D-STEM): From Scanning Nanodiffraction to Ptychography and Beyond</td>
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<td>B02.1</td>
<td>Microscopy in Food Science: Bridging Biology and Materials Science</td>
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<tr>
<td>B05.1</td>
<td>Focused on Microbes!</td>
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<tr>
<td>B08.1</td>
<td>3D Structure of Complex Soft Materials Derived From Electron Tomography</td>
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<tr>
<td>X42</td>
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10:00 am – 5:30 pm | Exhibit Hall Open

10:00 am – 10:30 am | Coffee Break
Wednesday, August 8

10:30 am – 12:00 pm

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12:00 pm – 1:30 pm

**Lunch Break**

12:15 pm

**MSA Members’ Meeting**

343-344

1:30 pm – 3:00 pm

**P.M. Symposia & Sessions**

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10:00 am – 12:00 pm

**Wednesday Poster Presentations**

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### Wednesday, August 8

#### 3:00 pm – 5:00 pm

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#### 4:00 pm

**Microscopy Today Innovation Awards**

#### 5:00 pm

**Student Poster Awards**

#### 5:15 pm

**MAS Business Meeting**

#### 5:45 pm

**Vendor Tutorials** *(Sign Up at MSA MegaBooth)*

#### 6:30 pm

**MAS Members’ Social** *(See MAS Booth for Details)*

### Thursday, August 9

#### 8:30 am

**M&M Sustaining Members**

#### 8:30 am – 10:00 am

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#### 10:00 am – 2:00 pm

**Exhibit Hall Open**

#### 10:00 am – 12:00 pm

**Coffee Break + Poster Session**

#### 10:00 am – 12:00 pm

**Thursday Poster Sessions**

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**10:00 am – 12:00 pm**  
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**12:00 pm**  
**Student Poster Awards**  
Exhibit Hall

**12:00 pm - 1:30 pm**  
**Lunch Break**  
Exhibit Hall

**12:15 pm**  
**MSA Standards Committee**  
Room 333

**1:30 pm – 3:00 pm**  
**P.M. Symposia & Sessions**  
Room 339
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<th>Room</th>
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<td>A02.7 - Atomic-scale Functional Imaging in Aberration-corrected Electron Microscopy</td>
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<td>A04.7 - <em>In situ</em> Transmission Electron Microscopy in Liquid and Gas Cells</td>
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<td>A06.2 - Mesoscale Correlative Microscopy and Imaging of Physical, Environmental, and Biological Sciences</td>
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<td>A08.3 - Machine Learning &amp; Compressive Sensing for Image Acquisition, Processing, and Reconstruction</td>
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<td>A12.3 - The FIB-SEM Laboratory: Sample Preparation and Beyond</td>
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<td>A15.3 - Strain Analysis from Nano- to Micro-length Scales</td>
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<td>B06.3 - Imaging Life at New Frontiers of Spatiotemporal Resolution and Adaptive Microscopy</td>
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<td>P03.7 - Nanoparticles and 1D Materials: Synthesis, Characteristics and Applications</td>
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<td>P04.8 - <em>In situ</em> Methods for Probing Properties and Dynamics in Materials</td>
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<td>P06.3 - Applications of Integrated Electron Probe Microscopy and Microanalysis Techniques in Characterizing National and Synthetic Materials</td>
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<td>P08.3 - Spectroscopic and Imaging Studies in Heritage Science</td>
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<td>P09.6 - Microstructure and Mechanics Deformation Symposium</td>
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**3:00 pm - 3:30 pm**  
**Coffee Break**

**3:30 pm - 5:00 pm**  
**Late P.M. Symposia (Cont’d.)**  
Room 338
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**4:30 pm**  
**M&M 2018 Wrap-Up & Debrief (by invitation only)**  
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Email: clkelly@wiley.com  
www.wiley.com

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XEI Scientific, Inc.  
#1006
1755 E Bayshore Rd - Ste 17  
Redwood City, CA  94061  
Phone: 650-369-0133  
Fax: 650-363-1659  
Email: meggie@evactron.com  
www.evactron.com

Evactron® De-Contaminators by XEI Scientific are world leaders in remote RF plasma cleaning of carbon contamination in vacuum chambers. Evactrons use a unique, energy-efficient hollow cathode plasma source to generate oxygen radicals plus UV for dual-action removal of adventitious carbon at turbo pump pressures. The new Evactron E50 De-Contaminator outperforms other remote plasma cleaners and is easy to use, powerful, compact, and low cost.
The Evactron® E50 De-Contaminator has:

- An External Hollow Cathode plasma source
- High RF power for fast chemical etch
- No sputter etch damage or debris generated
- “POP™” Ignition at high vacuum—no venting needed
- Simple push button or bluetooth GUI operation
- Less downtime for cleaning and pumpdown

Lowest cost + best performance = best value
Have it all with the Evactron E50 De-Contaminator.

*Visit us at M&M booth #1006 for details.

WWW.EVACTRON.COM
1-650-369-0133
# EXHIBITOR CATEGORIES as of May 31, 2018

## Accessories (miscellaneous)

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## Camera / Digital Camera Systems - CDC, CMOS, Megapixel

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### Consulting
- **Analitex** 1412
- **BlueQuartz Software** 506
- **DigiM Solution LLC** T-1432
- **EXpressLO LLC** 538
- **FOM Networks, Inc.** 542
- **HREM Research Inc.** 906
- **MEO Engineering Co., DBA PBS&T Particle Beam Systems & Technology** 330
- **Vitatech Electromagnetics LLC** 1418

### Courses/Workshops
- **Anton Paar USA** 1405
- **BlueQuartz Software** 506
- **Electron Microscopy Sciences** 616

### Critical Point Dryers
- **Angstrom Scientific Inc.** 1138
- **SPI Supplies** 1106, 1105
- **Tousimis** 1007

### Cryoequipment
- **Kammrath and Weiss** 610
- **Mel-Build Corporation** 1410
- **RMC Boeckeler** 1031
- **SmarAct Inc** 712

### Crystallographic Mapping
- **Edax** 530
- **BlueQuartz Software** 506
- **Hinds Instruments, Inc.** 540
- **NanoMEGAS USA** 507
- **TVIPS GmbH** 809

### Databases
- **DigiM Solution LLC** T-1432
- **BlueQuartz Software** 506
- **International Centre for Diffraction Data (ICDD)** 609

### Detectors
- **Applied Beams LLC** 1306
- **Cryo** 1414
- **DECTRIS Ltd** 1438
- **Direct Electron, LP** 738
- **Edax** 530
- **El-Mul Technologies** 714
- **Gatan, Inc.** 824
- **IXRF Systems, Inc.** 1117
- **J. Kraft Microscopy Services, Inc.** 606
- **PNDetector GmbH** 905
- **Quantum Detectors** 1416
- **TVIPS GmbH** 809

### Diamond Knives
- **Electron Microscopy Sciences** 616
- **RMC Boeckeler** 1031
- **Syntek Co., Ltd.** T-1434

### Digital Archiving / Data Storage
- **BlueQuartz Software** 506
- **DigiM Solution LLC** T-1432

### Dual Beam FIB/SEM
- **Applied Beams LLC** 1306
- **BlueQuartz Software** 506
- **Clark-MXR. Inc.** 539
- **DigiM Solution LLC** T-1432
- **EXpressLO LLC** 538
- **Hitachi High Technologies America, Inc.** 1125
- **Raith America, Inc.** 637
- **Tescan USA** 413
- **ZEISS** 624
- **zeroK NanoTech Corporation** 1241

### E Beam Lithography
- **Clark-MXR. Inc.** 539
- **JEOL USA, Inc.** 812
- **Point Electronic GmbH** 908
- **Quantum Design International** 608
- **Raith America, Inc.** 637

### EDS Detector Repairs and Upgrades
- **IXRF Systems, Inc.** 1117

### EDS Detectors & Systems
- **Bruker Corporation** 514
- **Coxem Co., Ltd** 614
- **Edax** 530
- **IXRF Systems, Inc.** 1117
- **Oxford Instruments** 838
- **PNDetector GmbH** 905
- **Tescan USA** 413
- **Voxa** 541
## EXHIBITOR CATEGORIES

### Electrical Characterization
- Angstrom Scientific Inc. 1138
- Ephemeron Labs 508
- Kleindiek Nanotechnik 1140
- Point Electronic GmbH 908
- Quantum Design International 608

### Electron Backscattered Diffraction (EBSD)
- BlueQuartz Software 506
- Bruker Corporation 514
- Edax 530
- Gatan, Inc. 824
- JEOL USA, Inc. 812
- Kammrath and Weiss 610
- Oxford Instruments 838
- Physical Electronics 716
- Tescan USA 413

### Electron Microprobes/EPMA
- CAMECA 524
- JEOL USA, Inc. 812
- Voxa 541

### EMI Cancellation
- Herzan LLC 1206
- Integrated Dynamics Engineering 803
- Vitatech Electromagnetics LLC 1418

### Failure Analysis
- Anton Paar USA 1405
- Applied Beams LLC 1306
- Attolight/Barnett Technical Services 510
- DigiM Solution LLC 1432
- Ephemeron Labs 508
- Gatan, Inc. 824
- Hinds Instruments, Inc. 540
- JEOL USA, Inc. 812
- Kammrath and Weiss 610
- Kleindiek Nanotechnik 1140
- Linkam Scientific Instruments 423
- MEO Engineering Co., DBA PBS&T Particle Beam Systems & Technology 330
- MTI Instruments, Inc. 805
- Pace Technologies 1404
- Raith America, Inc. 637
- zeroK NanoTech Corporation 1241

### FIB Accessories
- Applied Beams LLC 1306
- Bruker Corporation 514
- Clark-MXR. Inc. 539
- EXpressLO LLC 538
- Herzan LLC 1206
- Kammrath and Weiss 610
- Kleindiek Nanotechnik 1140
- Mel-Build Corporation 1410
- MEO Engineering Co., DBA PBS&T Particle Beam Systems & Technology 330
- Physical Electronics 716
- Ted Pella Inc. 1012
- Tescan USA 413
- zeroK NanoTech Corporation 1241

### Fixatives
- Electron Microscopy Sciences 616
- Toumis 1007

### Fluorescence Microscopy
- Edax 530
- Electron Microscopy Sciences 616
- Linkam Scientific Instruments 423
- ZEISS 624

### Focused Ion Beam Systems/Workstations
- Applied Beams LLC 1306
- CAMECA 524
- Clark-MXR. Inc. 539
- EXpressLO LLC 538
- Hitachi High Technologies America, Inc. 1125
- MEO Engineering Co., DBA PBS&T Particle Beam Systems & Technology 330
- Quantum Design International 608
- Raith America, Inc. 637
- Tescan USA 413
- zeroK NanoTech Corporation 1241

### FT-IR Microscopy
- Clark-MXR. Inc. 539
- Linkam Scientific Instruments 423

### Glow Discharge Cleaning
- SPI Supplies 1106, 1105
- Ted Pella Inc. 1012
### Image Analysis and Processing

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### Micromanipulators

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### Nanopositioners & Stages

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### EXHIBITOR CATEGORIES

#### New and Used Equipment

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### EXHIBITOR CATEGORIES

#### SEM/STEM Digital Imaging Systems
- Direct Electron, LP  |  738
- HREM Research Inc.  |  906
- PNDetector GmbH     |  905
- Point Electronic GmbH |  908
- Raith America, Inc. |  637
- TVIPS GmbH          |  809
- Voxa                |  541

#### SEM Accessories
- Advanced Microscopy Techniques Corp.  |  1111
- Applied Beams LLC                  |  1306
- Bruker Corporation                 |  514
- Edax                              |  530
- EL-Mul Technologies                |  714
- Gatan, Inc.                       |  824
- Herzan LLC                        |  1206
- Integrated Dynamics Engineering   |  803
- IXRF Systems, Inc.                 |  1117
- Kammrath and Weiss                |  610
- Kleindiek Nanotechnik              |  1140
- MEO Engineering Co., DBA PBS&T    |  330
- MTI Instruments, Inc.              |  805
- PIE Scientific LLC                |  641
- PNDetector GmbH                   |  905
- Point Electronic GmbH             |  908
- Quantum Design International      |  608
- SmarAct Inc                       |  712
- SPI Supplies                      |  1106, 1105
- Ted Pella Inc.                    |  1012
- Tescan USA                        |  413
- Tousimis                          |  1007
- XEI Scientific, Inc.              |  1006

#### SEM Stages, Mounts and Holders
- Ephemeron Labs                   |  508
- EXpressLO LLC                    |  538
- Hitachi High Technologies America, Inc. |  1125
- Hummingbird Scientific           |  605
- Kammrath and Weiss               |  610
- Mel-Build Corporation            |  1410
- MTI Instruments, Inc.            |  805
- SmarAct Inc                      |  712
- Tousimis                         |  1007

#### Service & Repair
- Applied Beams LLC                |  1306
- Gamma Vacuum                      |  807
- J. Kraft Microscopy Services, Inc.|  606
- LSM Tech LLC                      |  T-1430
- MEO Engineering Co., DBA PBS&T   |  330
- Particle Beam Systems & Technology |  330
- Physical Electronics              |  716
- ZEISS                             |  624

#### Service Laboratories
- Applied Beams LLC                |  1306
- Attolight/Barnett Technical Services |  510
- MEO Engineering Co., DBA PBS&T   |  330
- Particle Beam Systems & Technology |  330
- Nanoscience Instruments          |  1406

#### Software
- Analitex                         |  1412
- BlueQuartz Software               |  506
- CAMECA                           |  524
- DigiM Solution LLC               |  T-1432
- Direct Electron, LP              |  738
- FOM Networks, Inc.               |  542
- Gatan, Inc.                      |  824
- HREM Research Inc.               |  906
- International Centre for Diffraction Data (ICDD) |  609
- Linkam Scientific Instruments   |  423
- NanoMEGAS USA                    |  507
- Objects Research Systems         |  707
- Olympus Research Systems         |  612
- TVIPS GmbH                       |  809

#### Specimen Preparation & Handling
- Coxem Co., Ltd                   |  614
- E. A. Fischione Instruments, Inc. |  424
- Ephemeron Labs                   |  508
- EXpressLO LLC                    |  538
- Gatan, Inc.                      |  824
- Microscopy Innovations, LLC      |  718
- Nanoscience Instruments          |  1406
- RMC Boeckeler                    |  1031
- Ted Pella Inc.                   |  1012
- Voxa                             |  541
- XEI Scientific, Inc.             |  1006
### Specimen Storage
- Microscopy Innovations, LLC 718
- PIE Scientific LLC 641

### Spectrometers
- CAMECA 524
- Clark-MXR, Inc. 539
- Hinds Instruments, Inc. 540
- IXRF Systems, Inc. 1117
- Linkam Scientific Instruments 423
- PNDetector GmbH 905
- TVIPS GmbH 809

### SQUID / Superconducting Quantum Interference Devices
- Quantum Design International 608

### Stage Automation
- Point Electronic GmbH 908
- SmarAct Inc 712
- Voxa 541

### Supplies
- Duniway Stockroom Corp. 720
- Microscopy Innovations, LLC 718
- Norcada, Inc. 1142
- SPI Supplies 1106, 1105

### Surface Analysis
- Anton Paar USA 1405
- CAMECA 524
- Nanoscience Instruments 1406
- Physical Electronics 716
- Zygo Corporation 524

### Surface Profiling
- Anton Paar USA 1405
- CAMECA 524
- Nanoscience Instruments 1406
- Zygo Corporation 524

### Tabletop SEM/TEM
- Angstrom Scientific Inc. 1138
- Coexm Co., Ltd 614
- Hitachi High Technologies America, Inc. 1125
- Nanoscience Instruments 1406
- Voxa 541

### TEM Accessories
- Advanced Microscopy Techniques Corp. 1111
- Attolight/Barnett Technical Services 510
- Bruker Corporation 514
- DECTRIS Ltd 1438
- Direct Electron, LP 738
- Edax 530
- Electron Microscopy Sciences 616
- EXpressLO LLC 538
- Gatan, Inc. 824
- Herzan LLC 1206
- Hummingbird Scientific 605
- IDES, Inc 437
- Integrated Dynamics Engineering 803
- IXRF Systems, Inc. 1117
- Mel-Build Corporation 1410
- NanoMEGAS USA 507
- Norcada, Inc. 1142
- PNDetector GmbH 905
- Scientific Instruments & Applications, Inc. 1005
- SPI Supplies 1106, 1105
- Ted Pella Inc. 1012
- Tousimis 1007
- TVIPS GmbH 809
- XEI Scientific, Inc. 1006

### TEM Specimen Holders
- Angstrom Scientific Inc. 1138
- Clark-MXR, Inc. 539
- E. A. Fischione Instruments, Inc. 424
- EXpressLO LLC 538
- Gatan, Inc. 824
- Hummingbird Scientific 605
- Mel-Build Corporation 1410
- Norcada, Inc. 1142
- Tousimis 1007
- Voxa 541

### Testing Equipment
- Anton Paar USA 1405
- Hinds Instruments, Inc. 540
- Kammrath and Weiss 610
- MTI Instruments, Inc. 805
- Olympus America 612
- Pace Technologies 1404
- Seiwa Optical America, Inc 1407
- SmarAct Inc 712
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# 2018 EXHIBITOR LIST

**by company name (as of May 31, 2018)**

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