

The MMS Scope

Minnesota Microscopy Society

Local affiliate of the Microscopy Society of America
and the Microanalysis Society

Fall 2024 Issue

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Fall Event

Oct. 23rd 5:15-7:45 pm

Urban Growler Brewing

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Please remember to submit
your membership dues for 2024
calendar year.

[Click HERE](#) to submit

MMS Fall Kickoff

SPEAKER

Dr. Michelle Thompson

Assistant Professor in the department of Earth,
Atmospheric, and Planetary Sciences at Purdue

TOPIC

"From Atomic Scales to Asteroidal
Surfaces: Using Microanalytical
Techniques to Understanding
Surfaces across the Solar System"

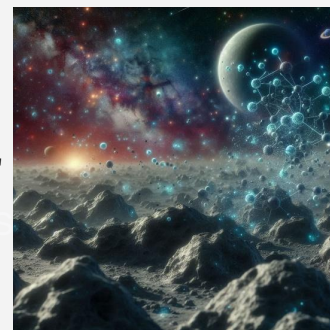


Image from ChatGPT

DATE

Wednesday, Oct. 23, 2024

LOCATION

In person at

[Urban Growler Brewing Company](#)

2325 Endicott St., St. Paul, MN 55114



REGISTRATION

[MMS Events](#)

Registration deadline is Wednesday, October 16th

COST

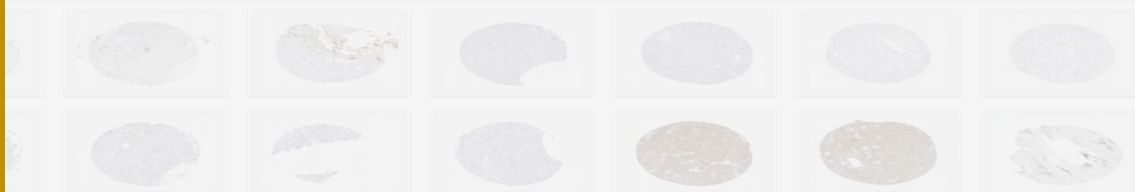
\$30 for members, \$40 non-members, \$15 for students
(fee includes dinner and talk, but does not include
beverages)

SCHEDULE

5:15-6:00 pm Check-in and Social

6:00-6:45 pm Dinner

6:45-7:45 pm Speaker: Dr. Michelle Thompson



Dr. Michelle Thompson, Ph.D.

TITLE

"From Atomic Scales to Asteroidal Surfaces: Using Microanalytical Techniques to Understanding Surfaces across the Solar System"

ABSTRACT

Soils on the surfaces of airless planetary bodies such as the Moon and asteroids are continuously being modified by their exposure to interplanetary space. These surface materials experience micrometeorite bombardment and irradiation by energetic particles from the solar wind, a phenomenon collectively known as *space weathering*. Such interactions change the chemical and microstructural characteristics of soil grains and, as a result, their optical properties which we can measure with remote sensing spacecraft. In order to understand the nature of space weathering processes on airless planetary surfaces, my group combines nanoscale analyses of returned samples with experimental simulations of space weathering in the laboratory. I will present my work using various microanalytical techniques to simulate micrometeorite impacts and solar wind irradiation of both returned samples and analog materials. I will discuss the analysis of these samples using various electron microscopy techniques. I will put these results into context for what we know about the Moon from the Apollo samples, and the ongoing NASA OSIRIS-REx and JAXA Hayabusa2 missions to near-Earth asteroids.

SPEAKER BIO

Michelle Thompson got her bachelors' degrees in Geological Engineering and Biology at Queen's University in Kingston, Ontario, Canada. She received her MSc and PhD in Planetary Science from the University of Arizona. She completed a NASA Postdoctoral Fellowship at Johnson Space Center before moving to Purdue in 2018. She is currently an Assistant Professor in the department of Earth, Atmospheric, and Planetary Sciences. She is a member of the science team for the OSIRIS-REx and Hayabusa2 sample return missions.



M&M 2024 Summary: Microscopy in "The Land"

by Gail Celio, MSA representative

The 2024 Microscopy & Microanalysis (M&M) meeting was held this year on July 28 – Aug. 1 in Cleveland, Ohio. Its proximity to the Rock and Roll Hall of Fame, not to mention Lake Erie and other attractions, made it a great spot to gather with fellow microscopists, and gave a fun theme for many vendors' free swag.

After Sunday night's welcome reception, the meeting officially started off on Monday morning with talks by the two plenary speakers. First, Ed Boyden from MIT presented his talk which touched on Iterative Expansion Microscopy as well as Spatially and Temporally Multiplexed Imaging for biological systems. (Fun fact I learned: Expansion microscopy was influenced by the polymers used in baby diapers!) Lawrence Livermore National Laboratory's Wren Carter then discussed how the analysis and development of damage-resistant surfaces has helped improve laser optics at the National Ignition Facility, and included an impressive animated fly-through of the laser path throughout the NIF building.

The meeting symposia covered a wide range of topics among the analytical, biological, and physical areas of study, along with interdisciplinary presentations that crossed fields. Some of the more popular tracks discussed 4D STEM, volume electron microscopy, and the use of AI in data and image analysis. There were also memorial symposia for MSA members Terence E. Mitchell and Lena Fitting Kourkoutis.

Within the Exhibit Hall, the MSA MegaBooth was often buzzing with activity. Along with its job postings, book display, and education outreach, the booth featured the society's publications 'Microscopy and Microanalysis' and 'Microscopy Today', MSA Student Council members handing out badge ribbons, folks from many of MSA's Local Area Societies, and representatives from Foldscope Instruments demonstrating their newest paper microscopes for classroom use.

A note of thanks to the MMS Board Members who approved \$400.00 to go towards MSA's Diversity, Equity, and Inclusion Mixer on Wednesday night. The event in the convention center's ballroom foyer attracted over 120 attendees. Folks enjoyed a range of appetizers and drinks while talking with friends and meeting new people.

Overall, there was delicious food (27 Club Coffee, ZanZibar Soul Fusion), great music (shout-out to the band 56DAZE), terrific company, and awesome science (fistbump to all the fellow technologists I talked to). I was grateful for the opportunity to attend, absorb new info, and return to work recharged. Looking forward to next year's meeting in Salt Lake City!



Attendees at Thermo Fisher's Women in Microscopy Breakfast



MSA President Elect Paul Voyles (right) receives the symbolic Grand Poobah hat from President Jay Potts.



Attendees at MSA's DEI Mixer.



The M&M 2024 welcome sign at the entrance of the conference.



Project Micro Review 2023-2024

Project MICRO activities continue to be slow after the pandemic disruption. We had three events in the fiscal year 2023-2024.

January 17, 2024: Patti Sanft and Jeff Payne trekked to Morris, MN for the Morris Area Schools Science Expo for grades 3-12. Project MICRO was one of approximately 50 displays highlighting STEM activities and STEM careers. About 125 students participated in the Project MICRO booth that day.

March 15, 2024: Stuart McKernan, Steve Axdal, and Jeff Payne made a return engagement to Eagle Creek Elementary School's Art and Science Fair. Project MICRO has been invited to this event for several years and still creates excitement. About 60 students and their parents stopped by throughout the evening. Our booth was still going strong after the rest of the gym was cleaned up & empty!

June 8, 2024: Steve Axdal and Jeff Payne repeated a trip out to Lake Maria State Park. Families enjoyed collecting specimens from outside that were brought into the Visitor Center to be looked at using our various microscopes. Interestingly, many of the specimens brought in had microscopic "passengers" along for the ride. About 40 attendees took part in the Project MICRO activities.



Microscope images from Lake Maria State Park.



Flower



Bark with live critters (right)



2024 MMS Spring Symposium Review

by Dan Westholm, immediate past President

The 2024 MMS Spring Symposium was held at the University of Minnesota Landscape Arboretum. This was the second year in a row at this location.

Attendees enjoyed speaker presentations about the past and future of the Zeiss Airyscan, electron ptychography for sub-angstrom resolution, fluorescent probes in single-molecule microscopy, and the intersection of computation and high resolution microscopy.

After lunch, attendees browsed various vendor displays and student poster presentations. The student poster presentation was expanded from its previous iteration in 2023. This year, around a dozen undergraduate and graduate students from The University of Minnesota, Hamline University and The College of St. Scholastica presented their work. Awards for best overall presentation and best microscopy image were presented.

During the business meeting, Dan Westholm ended his term as President and passed the ceremonial gavel and looking glass to 2024-25 President Erik Stephenson. In addition, the slate of candidates was presented for election, and Rachel Heussner (Zeiss) was voted President-elect, Dave Burleson (Ecolab) Treasurer, and Patty Sanft (Uponor) Secretary.

We look forward to seeing you April 2025 at the next MMS Spring Symposium!

2025 MMS Spring Symposium

Date: Friday, April 25, 2025

Location: Minnesota Landscape Arboretum, Chaska, MN

Save
the
Date



Welcome Erik Stephenson- 2024-25 MMS President!

by Dan Westholm, immediate past President

The MMS Board welcomes Erik Stephenson to his 2024-25 term as President of the Minnesota Microscopy Society. Erik is an advanced metrology engineer at 3M where he works with white light Interferometry, atomic force microscopy and scanning electron microscopy.

Erik is a passionate and curious scientist who thinks outside the box and boldly asks questions. Although Erik is a relatively new MMS member, he immediately caught the attention of the board with his high level of engagement at the symposium and other events.

Erik will lead with kindness, and work closely with MMS members with diverse careers, interests and specialties. We look forward Erik’s leadership this year!



Erik Stephenson



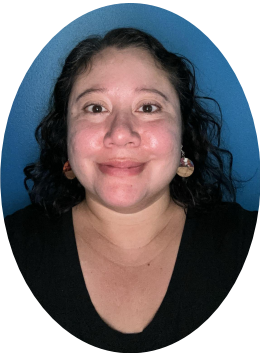
MMS Officer Results

MMS officer election results from the 2024 Spring Symposium

President Elect – Rachel Heussner



Secretary – Patti Sanft



Treasurer – Dave Burleson



Upcoming Events:

Watch for information for our annual Trivia Night, coming later this Fall!



MMS Cash Flow Summary

1/01/2024 through 09/04/2024

INCOME			
	Donations to MMS		0.00
	Dues		
	Corporate	1900.00	
	Patron	465.00	
	Regular	190.00	
	Student	0.00	
	Sustaining	300.00	
	Total Dues		2,855.00
	Interest Income		464.04
	Miscellaneous Income		0.00
	Meeting Income		0.00
	Spring Symposium Income		<u>4,414.00</u>
	TOTAL INCOME		7,734.04
EXPENSES			
	Credit Card Fees (MMS)		195.97
	MMS Sponsored Donations		0.00
	Insurance		181.84
	Meeting Expenses		
	MMS Reg. Meeting Expenses	496.00	
	Total Meeting Expenses		496.05
	Miscellaneous		0.00
	Newsletter		240.00
	Website		305.34
	Project Micro		45.51
	Spring Symposium Expenses		<u>7,367.06</u>
TOTAL EXPENSES			8,831.72
OVERALL TOTAL			-1,097.68

MMS Corporate Sponsors

Corporate Sponsors are the backbone of financial support for MMS. These Members make it possible for the Society to support Project Micro and cover many expenses of regular meetings and the Spring Symposium. MMS gratefully acknowledges the corporate sponsorships provided by the following companies. To become a Corporate Sponsor, complete and return the MMS membership form at the end of the newsletter or go to <https://mnmicroscopy.org/membership>.

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If any sponsors are missing from this list, please contact Jason Heffelfinger (jason.r.heffelfinger@medtronic.com).

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The Minnesota Microscopy Society sincerely thanks our Sustaining and Patron Members. These Members provide financial support to the organization above the standard membership. This additional support makes it possible for MMS to maintain financial well-being. To become a Patron or Sustaining Member, complete and return the MMS membership form at the end of the newsletter or go to <https://mnmicroscopy.org/membership>.

MMS Sustaining Members

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Michael Coscio	Medtronic (retired)	Bede Willenbring	retired

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Gail Celio	U of MN	Douglas Stauffer	Bruker Nano
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Michael Odlyzko	U of MN		

MMS Board & Officers 2024-2025

President: Erik Stephenson, Transportation & Electronics Business Group, 3M Center, 236-GA-50, St. Paul, MN 55114; ehstephenson@mmm.com

Past President: Daniel Westholm, Dept of Biology, The College of St. Scholastica, Duluth, MN 55811; dwesthol@css.edu

President Elect: Rachel Heussner, Carl Zeiss Microscopy, rachel.heussner@zeiss.com

Secretary: Patricia Sanft, Uponor, 5925 148 St. West, Apple Valley, MN 55124; patricia.sanft@uponor.com

Treasurer & Website: David Burleson, Ecolab, 846 Arlington Ave W, St. Paul, MN 55117; david.burleson@ecolab.com

MSA Representative: Gail Celio, University Imaging Centers, U of MN, 35 Snyder Hall, 1475 Gortner Ave., St. Paul, MN 55108; celio001@umn.edu

Project MICRO Director: Jeff Payne, retired, St. Paul, MN; jeffrose.payne@gmail.com

Corporate Liaison: Jason Heffelfinger, Medtronic, 6700 Shingle Creek Pkwy, Brooklyn Center, MN 55350; jason.r.heffelfinger@medtronic.com

Newsletter Editor: Danielle Westholm, Duluth, MN; dmwestholm@gmail.com

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Tony Anderson, Medtronic
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Mary Buckett, 3M
St. Paul, MN; mibuckett@mmm.com

Sue Okerstrom, Lichen Labs, LLC
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Jeff Salisbury, Mayo Clinic
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Doug Stauffer, Bruker
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Dehua Yang, Ebatco
Eden Prairie, MN; dyang@ebatco.com

Join Or Renew Your Membership

Annual membership follows the January 1 to December 31 calendar year. To join or renew your membership, please visit <https://mnmicroscopy.org/membership>. There is also a membership information form on the webpage that we ask everyone complete once per year to ensure we have your latest contact information. If you would rather renew your membership via check, please complete the form below and mail it to our Treasurer.

All microscopists are urged to support their society at one of the membership levels below. Often supervisors will support MMS memberships out of department budgets because they recognize it is an inexpensive way to maintain and increase the skills of their microscopists. If you have been a member for a while and recognize the value of MMS to the microscopist community, consider upgrading your membership to Patron or Sustaining.

MINNESOTA MICROSCOPY SOCIETY | MEMBER INFORMATION FORM

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Business Affiliation _____ Phone _____

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