



# The MMS Scope

## Minnesota Microscopy Society

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

**august 2015**

### In this Issue:

#### Fall program:

Guest speaker and MMS board member Sue Okerstrom will kick off the society's 2015-2016 year of events with a look at biomimicry at Hamline Univ. on 9/23. Mark your calendar today and register by 9/15.

#### Up ahead:

Joint meeting with Sigma Zeta and Microscope Day events in early November; BCA lab tour on February 11; MinnTS in March; and Spring Symposium on April 29.

#### Looking back:

Photo memories from the tour of Tin Whiskers brewpub last May.

#### Job opening @ MDT:

Medtronic plc has an open req for a scientist in their Core Technologies group at Operational World Headqtrs.



### MACRO TO MICRO: INNOVATION INSPIRED BY NATURE

**Sue Okerstrom**

Principal Scientist/Owner  
Lichen Labs LLC



#### SCHEDULE on SEPT 23

6:00 – 6:30 p.m. Check-in

6:30 – 7:30 p.m. Dinner

7:30 – 8:30 p.m. Speaker



#### LOCATION

Hamline University  
Klas Center  
Kay Fredricks Room



#### RESERVATIONS

Cost:

- Member: \$15
- Non-member: \$25
- Student: \$5

Registration deadline:

**Tuesday, Sept. 15.**

Reserve a spot today via Paypal  
at the MMS Calendar page:

[www.mnmicroscopy.org/calendar.html](http://www.mnmicroscopy.org/calendar.html)



Click image for full-size pdf of Hamline campus map



#### MENU OPTIONS

##### HERB ROASTED CHICKEN BREAST

Seasoned and roasted chicken breast topped with a light *au jus*, served with duchess potatoes and green beans. Accompanied by a house or Caesar salad. Also includes rolls and butter and a slice of chocolate layer cake.

##### ASPARAGUS SHIITAKE PASTA ROLL

Pasta filled with sautéed shiitake mushrooms, asparagus and ricotta cheese, served with arugula and topped with a tomato basil cream sauce. Accompanied by a house or Caesar salad. Also includes rolls and butter and New York cheesecake.

## MMS Fall Kickoff Event | Macro to Micro: Innovation Inspired by Nature continued



### SPEAKER BIO

Sue Okerstrom is Principal Scientist/Owner at Lichen Labs LLC. Lichen Labs is a microscopy lab and biomimicry research and consulting business specializing in supporting R&D, problem solving and characterization. She will complete an M.S. in Biomimicry degree from Arizona State University in conjunction with a Professional Certificate in Biomimicry from Biomimicry 3.8 Institute in November 2015.



Previous to Lichen Labs, Sue was a Technical Fellow at Medtronic, Inc., performing and directing failure analysis, microscopy, mechanical and metallurgical testing for more than 25 years. She holds a master's in materials science and engineering from the University of Minnesota and a B.S. in environmental studies with a minor in chemistry from Bemidji State University. Sue is a past President of the Minnesota Microscopy Society. She has authored numerous technical papers in microscopy and materials science.



### ABSTRACT

Nature is serving as a model for new innovation. From large, macroscale, self-cooling termite mounds in Zimbabwe, to nano-structures on butterfly wings, nature has developed strategies and mechanisms over 3.8 billion years to enable species to survive in their environment.

Learn how:

- Sharkskin texture foils bacteria
- Butterfly wing technology stops counterfeiting
- Lichen (fungus and algae) conduct mining
- Termite mound ventilation saves millions in energy in buildings

This presentation will demonstrate the scale of analysis and show how microscopy can be used to reveal microstructures of interest. Emulating forms, processes and systems in nature at all scales can result in more elegant, efficient, cost-effective and sustainable materials and designs.



## CALENDAR of EVENTS

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**NOV 2015**

(date tbd)

**MMS-Sigma Zeta Joint Meeting**

Bethel University  
St. Paul, Minn.



**7 NOV 2015**

**Microscope Day**

Minnesota Science Museum  
St. Paul, Minn.

12:00 – 4:00 p.m.

Anyone interested in volunteering, please contact  
Ann Palmer @ [palme003@umn.edu](mailto:palme003@umn.edu).



**11 FEB 2016**

**Minnesota Bureau of Criminal Apprehension (BCA) Lab Tour**

St. Paul, Minn.

Starts at 3:30 p.m.

(more details in next newsletter)



**MAR 2016**

(date tbd)

**14th Annual MinnTS (Minnesota Technical Symposium)**

(more details in next newsletter)



**29 APR 2016**

**MMS Spring Symposium**

Minnesota Science Museum  
St. Paul, Minn.



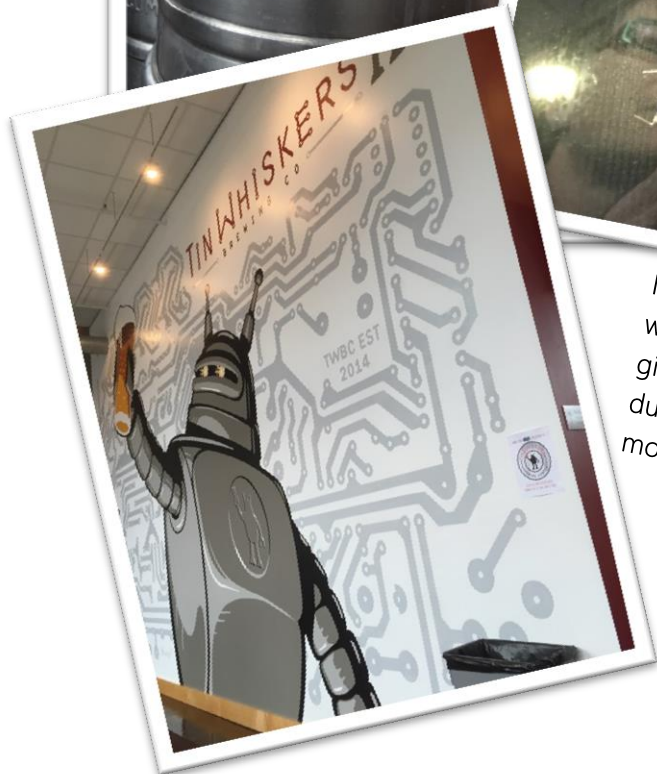


## PHOTO ALBUM

Enjoy these photo memories from the May 2015 visit of the St. Paul microbrewery startup, Tin Whiskers Brewing Co.



MMS members check out the PCB guide which was once aboard the Space Shuttle Endeavour, given to Tin Whiskers cofounder Jeff Moriarity during the brewery's first year of business. Read more about the real life tin whiskers [here](#).



# Tin Whiskers Tour pictures

continued





## JOB OPENING



**Medtronic**

Job Opportunity:  
Scientist, Microscopy & Surface Analysis  
Minneapolis MN

### Position Description

The successful candidate will apply microscopy and surface analysis methods for problem solving of materials issues. The person will work in a creative, dynamic R&D environment solving problems across all Medtronic business units. The position is a contractor role with flexible daytime hours, open to 24-40 hours per week. The start date is anticipated to be September 1, 2015.

### Position Responsibilities

- Perform preparation of samples for analysis by microscopy or surface analysis
- Operate analytical instrumentation : SEM, EDS, IR, Raman microscopy, XPS, TOF-SIMS, interferometry
- Interpret and evaluate data from microscopy and surface analysis instrumentation
- Write reports summarizing analysis

### Required Qualifications

B.S. degree in chemistry, physics, materials science or related field.

### Desired/Preferred Qualifications

- Experience in operation and interpretation of data from one or more of the following techniques: XPS, TOF-SIMS, IR, Raman microscopy, interferometry, SEM-EDS
- Proficient at operation of instrumentation and data interpretation
- Experience in materials related problem solving
- Detail oriented with good organizational skills
- Self-motivated and takes initiative
- Excellent communication and writing skills
- Team-oriented

### Interested?

Please send your résumé to Bill Theilacker, [bill.theilacker@medtronic.com](mailto:bill.theilacker@medtronic.com).

*Medtronic is an equal opportunity employer committed to cultural diversity in the workforce.*



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The Minnesota Microscopy Society would like to express sincere thanks to our Sustaining and Patron Members. These members provide financial support to the organization above the standard membership fee. This additional support makes it possible for MMS to maintain its financial well being. To become a Patron or Sustaining Member, complete and return the MMS membership form at the end of the newsletter.

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**Project MICRO Director:** Jeff Payne, 3M Center, Bldg. 201-BE-16, St. Paul, MN 55144-1000; (651) 733-2352; [jjpayne@mmm.com](mailto:jjpayne@mmm.com)

**Corporate Liaison:** Jason Heffelfinger, Medtronic, 6700 Shingle Creek Parkway, Brooklyn Center, MN 55350; (763) 514-1021; [jason.r.heffelfinger@medtronic.com](mailto:jason.r.heffelfinger@medtronic.com)

**Webmaster:** Stuart McKernan, 3M Center, Bldg. 201-BE-16, St. Paul, MN 55144-1000; (651) 736-5993; [smckernan@mmm.com](mailto:smckernan@mmm.com)

**Newsletter Editor:** Maria Graff, Minneapolis, MN; [mariagraff@me.com](mailto:mariagraff@me.com)



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