

Minnesota Microscopy Society Newsletter



Local affiliate of Microscopy Society of America
Local affiliate of Microbeam Analysis Society

MMS September 1997 NEWSLETTER

MMS President's Message

Welcome to a new year of the Minnesota Microscopy Society! Hope everyone had a refreshing summer and you were able to take a little time to stop and smell the roses---since our rose season tends to be rather short. First of all, I would like to thank Stuart McKernan and last year's board for an outstanding year. You've left some big shoes to fill, but I feel we (this year's board and myself) are ready for the challenge. I think we have an interesting program shaping up for this year. Our Fall Buffet is just weeks away and the topic is something that will be in constant supply in just a few months---snowflakes. In October, we are planning a trip to visit with our friends at the Mayo Clinic. If you have never been there, I highly recommend it. We are planning on having a tour of the Clinic, seeing the EM facility, and then getting a demonstration from the Biomedical Imaging Resource (BIR). One of the capabilities of the BIR is being able to take serial sections and build 3-dimensional images. Those that make the trip will have a very informative and fascinating experience. Special thanks to our Corporate Sponsors! Many of the events we are able to hold each year would not be possible without their generosity. If you see a rep from one of our sponsors at an event, be sure to make them feel welcome. If you have any questions, concerns, or recommendations, feel free to contact me or any of the board members.

Jeff Payne,
733-2352

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MMS FALL BUFFET DINNER & TALK

SEPTEMBER 18, 1997

5:30 - 8:00 PM

Campus Club, University of Minnesota
Minneapolis, East Bank Campus

SPEAKER: William P. Wergin

Agricultural Research Service,
U.S. Dept. of Agriculture, Beltsville, MD

TOPIC: "THE MICROSCOPY OF SNOW:"

"The 3-D Structure and Metamorphoses of Snow and Ice Crystals as Revealed by Low Temperature SEM".

MMS will hold its ninth annual Fall Buffet Dinner on September 18, 1997, at the University of Minnesota's Campus Club, 401 Coffman Memorial Union, 300 Washington Avenue S.E., Minneapolis Campus(see [map](#)). We hope to provide a pleasant evening during which microscopists will be moved to **renew or begin memberships in MMS, MSA and/or MAS.**

Program

5:30-6:00 Wine, Cider & Cheese Social

6:00-7:00 Buffet Dinner.

7:00-8:00 Talk

The Buffet Dinner is \$12 per MMS member, payable at the door. (non-member fee is \$22, includes new membership, to attend without becoming member, \$15.)

STUDENTS: NEW FEATURE THIS YEAR: Current student members or new student members - \$5.00 membership fee payable at the door- will receive a complimentary buffet dinner courtesy of MMS and sponsoring vendors.

In order for us to provide an accurate head count to the Campus Club, please make an advance reservation by contacting Mike or Stuart. *Deadline:* Tuesday, September 16.

Mike Coscio (612)569-1331, 569-1284 FAX, mike.coscio@medtronic.com

Stuart McKernan, (612)626-7942, 626-7530 FAX, stuartm@tc.umn.edu

Parking is available behind the Union in the East River Road Ramp (connected by walkway to Union) for \$2.50 (per day rate), at the Radisson Ramp on Washington Ave. S.E., a block east of the Union, and at other Minneapolis Campus locations.

Abstract. A technique known as low temperature scanning electron microscopy (LTSEM) was used to record three-dimensional images of precipitated snow crystals, commonly known as "snowflakes", as well as other types of water-ice including metamorphosed snow crystals, rime, graupel, frost, ice cores, icicles and ice fabric. Samples of these forms of water-ice were collected during 1994-95 from sites in Alaska, Colorado, Maryland, West Virginia and Washington. They were mounted on copper plates, frozen in LN₂ and then transferred either to a cryosystem mounted on an SEM or to a storage dewar that was then shipped to our laboratory in Beltsville, MD. Neither sputter coating with platinum nor irradiation by the electron beam affected the delicate structure of the specimens. LTSEM observations revealed that newly precipitated snowflakes, consisted of complex aggregations of hexagonal plates, prismatic columns, needles and dendrites. Samples from older snowpacks, which had been exposed to low and high temperature gradients as well as those exposed to successive melt-freeze conditions, contained crystals with unique structural features and bonding patterns that resulted from variations in temperature and pressure. Melt-freeze cycles, which occurred in spring, were also associated with the appearance of cells believed to be algae. The presence of these cells in the surface layer of the snowpack resulted in "red snow" which is frequently encountered in alpine regions. The study indicates that LTSEM is a feasible technique for revealing the aesthetic nature of snow and ice sampled at remote locations. LTSEM can be used to determine the shapes of newly precipitated snow crystals and the changes that occur during metamorphoses. The results have application to research activities that attempt to forecast the quantity of water in the winter snowpack and the amount that will ultimately reach reservoirs and be available for agricultural purposes the following growing season. In addition knowledge on the structure and bonding of the metamorphosed snow crystals increases our understanding of factors that lead to avalanche conditions.

Selected Vitae William P. Wergin has been employed by the Agricultural Research Service, U. S. Department of Agriculture, for 25 years. During this time, he has used various techniques in electron microscopy to examine many structure-function relationships in research problems that relate to biology. Training in cell biology and extensive experience with a wide range of biological organisms have enabled him to recognize, identify, and contribute to multidisciplinary research problems of national and international significance in the plant and animal sciences. Studies with host-parasite interactions have gained worldwide recognition and funding by the Competitive Research Grants and the BARD programs. His current research interests involve low temperature field emission scanning electron microscopy.

Educational Background.1960-1964. University of Wisconsin; major, Genetics; minor, Horticulture; BS 1964. 1964-1970. University of Wisconsin; major, Botany; minor, Genetics; Ph.D. 1971.

Research Experience-USDA-ARS 1970-1980: Research Scientist. 1980-1989: Laboratory Chief, Plant Stress Laboratory. 1989-1995: Research Leader, Electron Microscopy Laboratory. 1995-Present: Supervisory Cytologist at USDA Nematology Laboratory.

October 1997 Meeting

MAYO CLINIC TOUR

OCTOBER 16,1997

Rochester, MN

MMS, in conjunction with the Mayo Clinic, will be hosting a tour of the clinic, its EM facility, and a demonstration from the Biomedical Imaging Resource on Thursday, October 16, in Rochester. MMS is making arrangements for chartered bus transportation to and from the clinic. The bus will be leaving from a Twin Cities location (to be announced) at 12:00 noon. Cost will be \$5.00 to ride the bus and we will take in some dinner somewhere after the program.

To reserve your seat on the bus and for further information and point of departure, contact trip co-ordinator Jeff Payne at: 733-2352 jjpayne@mmm.com

MMS Projected Program 97/98

September 18,1997 - Fall Buffet Dinner -	Bill Wergin, SEM of snow & ice. See article above for details.
October 16,1997 Mayo Clinic tour	Chartered bus will leave from Twin Cities area, \$5.00 fare. Tour includes clinic tour, EM area, and demo by the biomedical imaging resource.
November ?, 1997 Kovex	a new company marketing confocal microscopes for materials science applications.
February, 1998	Possible talk by member of MSA Planning Committee, which will be meeting in Mpls.
March, 1998	Annual joint meeting with ASM.
May 5, 1998	Spring Symposium. Topic: Microscopy of Biomaterials. At the Midway Sheraton.

Announcements

Experienced Microscopy Technician.

Available for part-time or short-term projects. Some equipment provided. For details, contact Rae Vigeant (612)774-3593

Your Address Label Reflects Dues Date

The box on your MMS newsletter address label now contains the last recorded date - month/year - for which you paid membership dues to MMS. If the box is blank, either we have no record of any dues payment or dues have expired long ago. If the date indicated is more than 1 year before the current month or the box is blank, your membership is expired and, hopefully, you will be moved to renew using the form at the end of this newsletter. Thank you!

Adult Education and MMS

MMS would like to assist its members in furthering their continuing education goals. We are exploring the possibility of conducting 1-day workshops and would like to solicit ideas for topics from our membership. We would work together with a university or college to certify credits that could be applied by attendees toward continuing education goals. Contact MMS program directors Mark Cavaleri or Mike Coscio (see Board listings below) with your ideas and suggestions

MMS web site: <http://www.charfac.umn.edu/>

[MnMicSoc.html](#). Check it out for local and national society stuff, hot links to other sites, information, etc.

FOR SALE:

Three Bausch and Lomb partial brass microscopes. Two with wooden boxes. Prices range from \$150.00 to \$450.00. One all brass miniature microscope with three lenses that screw together to obtain three magnifications, Wooden box included, with special glass slides. \$100.00. Must see to appreciate. Ron Youngquist, 1436 E. Idaho Ave., St. Paul, MN 55106, 776-5790, young075@tc.umn.edu.

Attention Vendors: MMS Sponsorships

In addition to corporate membership in MMS, vendors have other opportunities to help sponsor MMS events. At meetings we often have wine & cheese socials, coffee breaks and meals. Contributions made toward supporting these events will be acknowledged by placards and announcements at the meeting, and in print in our newsletter. To discuss this option for any MMS meeting, contact MMS Vendor Liaison Diana Kittleson at: (612)917-5859, 917-5850 FAX, dkittleson@pillsbury.com

ATTENTION UNDERGRADUATES:

1998 MSA UNDERGRADUATE SCHOLARSHIP PROGRAM

This scholarship program is open to Junior and Senior college and university students interested in doing research using ANY microscopy technique as the principal investigative tool. Awards of up to \$2,500 per student/proposal are available. Students should be sponsored by a member of MSA. Submit an application and brief research proposal by December 30, 1997. Do you know of any undergrads in science to interest in electron microscopy? Act now.

Applications can be obtained from the MSA Business Office at (800)538-3672 or FAX:(508)548-9053 or e-mail: BusinessOffice@MSA.Microscopy.com.

Additional information and application forms are available from Dr. Ralph Albrecht, Dept. of

Veterinary Science, University of Wisconsin, Madison, WI 53706. (608)263-3952 or -4162,
FAX:(608)262-7420.

Microscopy & Microanalysis '98

Atlanta, GA

July 12-16, 1998

Note Important Change!! In 1998, Microscopy & Microanalysis will be held a month earlier than has been the custom, due to the meeting of ICEM in Cancun, Mexico, in August, 1998. Abstracts for M&M '98 will also be due a month earlier, by **February 1**, 1998. For more information, contact: MSA Business Office, 4 Barlows Landing Rd., Pocasset, MA 02559. (508)563-1155, FAX (508)563-1211, 1-800-538-3672, e-mail: BusinessOffice@MSA.Microscopy.com

Project MICRO

Project MICRO: October 2, 1997 The Microscopy Society of America, in collaboration with Project MICRO (Microscopy In Curriculum - Research Outreach) and local societies like MMS, is putting MSA members into middle schools nationwide to teach microscopy. The program manual is part of the outstanding Great Explorations in Math and Science (GEMS) series of the Lawrence Hall of Science(<http://www.lhs.berkeley.edu/GEMS/html>).

Project MICRO Training. Are you interested in doing microscopy outreach in local schools? The MMS will be having a training session on use of our Project MICRO kits on Thursday, October 2, 1997. Project MICRO consists of approximately 12 *hands-on* microscopy activities geared for elementary students, although the activities can be modified for use with older students. We also have microscopes available for use with these kits. The training session will be held at the Conway Recreation Center on the east side of St. Paul and will start at 6:30 p.m. In order to check out our kits, you **MUST** go through one of our training sessions.

Directions to Conway Recreation Center:

The Conway Rec Center is located at 2090 Conway in St. Paul. Take I-94 to McKnight Road. Go north on McKnight to Conway (about 4 blocks, there is a traffic light at the intersection). Go left on Conway about 5 blocks and the Rec Center is on your left.

Project Micro Contacts are:

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Stuart McKernan, (612)626-7942, 626-7530 FAX, stuartm@tc.umn.edu.
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Caroline Schooley, MSA Educational Outreach Coordinator, Box 117, Caspar, CA 95420. e-mail: schooley@mcn.org. Phone/FAX(707)964-9460.

For more information, check Project MICRO web site at: <http://www.msa.microscopy.com/ProjectMicro/>
