
Minnesota Microscopy Society

Local affiliate of the *Microscopy Society of America*
and the *Microbeam Analysis Society*



Newsletter

January 2002

MMS February Meeting

Thursday, February 7, 2002

Forensic Document Analysis (Frauds, Forgeries, and Fakes) & Tour of 3M's Corporate Analytical Technology Center

Speaker: Karen Runyon
ksrunyon@visi.com
612-338-5415

Location: 3M Center, Building 201
St. Paul, MN

Directions:

Ms. Runyon will discuss examination techniques used by forensic document examiners in determining the authenticity, origin and performing content analysis of documents.

Coming from the west on I-94, take the 'McKnight Rd North' exit, stay in the right lane, go past the stop light at the service road intersection with McKnight just after the exit, and enter the 3M Center on the next road on your right ("3M Innovation Blvd"). Go around Bldg 201 to the parking lot on the south (I-94) side of the building.

Schedule of Events:

5:30 - 6:30 PM Tour of 3M Labs
6:30 - 7:30 PM Dinner
7:30 - 8:30 PM Business Meeting and Technical Program

Coming from the east on I-94, take the 'McKnight Rd' exit (which is located a good distance before you reach McKnight Rd). Stay on the service road in the right lane until you reach the last building (201) in the 3M Center. Turn right off the service road just before the building and then left into the parking lot on the south (I-94) side of the building.

Dinner:

Dinner will be pizza from Green Mill. Cost is \$10.00 for members and \$5.00 for students. We will need a head count, so be sure to make your reservations by the deadline. Also, 3M needs to have the names of all the meeting attendees in order to prepare guest passes.

(See location map on page 2)

Biography

Karen S. Runyon has twenty-two years of experience as a Forensic Document Examiner, working on both criminal and civil cases. She received a BA degree in The Administration of Criminal Justice and Sociology from Anderson University in Indiana, and apprenticed at the Indiana State Police from 1978 through 1982. (continued on page 2)

To make reservations, contact Mike Coscio at 763-505-4561 or mike.coscio@medtronic.com by **5:00 PM on Monday, February 4, 2002.**

Biography (continued from page 1)

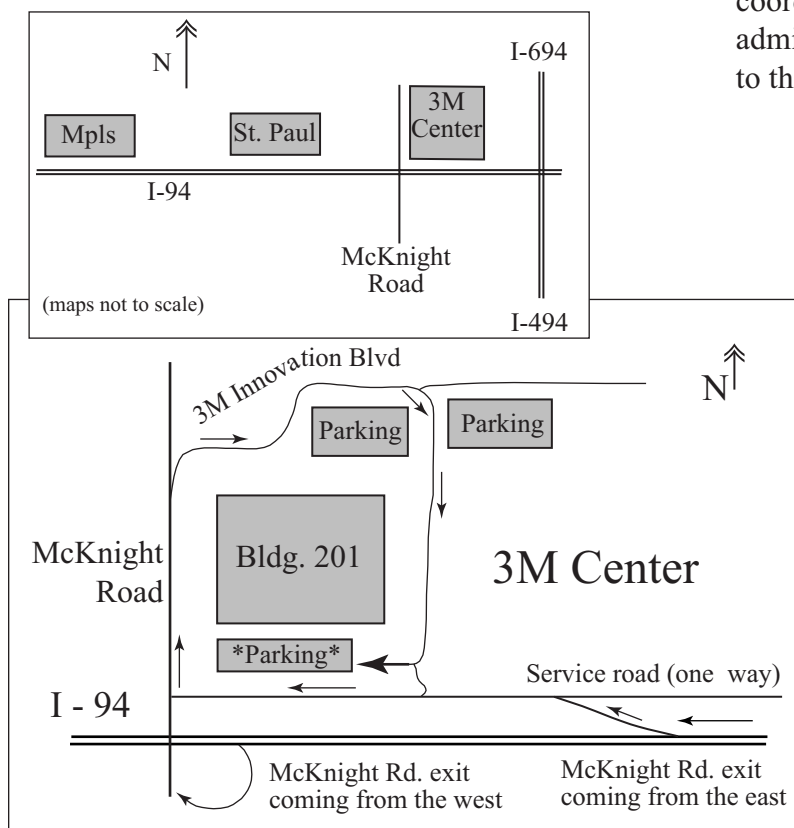
Ms. Runyon has received adjunct specialized training through the U.S. Secret Service, FBI, Rochester Institute of Technology, and The Institute of Paper Chemistry. Since 1982, Ms. Runyon has provided testimony in approximately 190 cases including criminal and civil trials, arbitration, and NASD hearings and depositions. Ms. Runyon consults with various groups, including law enforcement agencies, prosecuting and defense attorneys, law firms, and corporations. She has provided training and lectures to many organizations, including the University of Minnesota, Hamline University, the Minnesota Bar Association and the Minnesota chapter of the International Association for Identification. She serves as adjunct faculty for Hamline University, regularly teaching in their Forensic Science program. Active in professional groups, Ms. Runyon is a member of the American Academy of Forensic Sciences and the Midwestern Association of Forensic Scientists (MAFS). She chaired the Document Section and represented MAFS on the FBI's Scientific Working Group on Forensic Document Examination.

Wanted: Nominations for MSA - Local Affiliated Societies Director

For the last few years the Minnesota Microscopy Society has been lucky to have one of its own, Ev Osten, as the Local Affiliated Societies (LAS) Director of the Microscopy Society of America. Ev's term is coming to an end, though, and it's time to nominate a new candidate for this position. A new Director is elected every three years by the Affiliated Societies at their breakfast meeting during the annual Microscopy & Microanalysis Meeting. The next Director will be elected at the Quebec meeting in 2002, and will assume office the following January 1. Candidates must have been MSA members for the three consecutive years preceding their nomination.

The LAS Director is one of seven Directors serving on the MSA Executive Council and, therefore, is directly involved with the carrying out of the scientific, educational, and business activities of MSA. The primary responsibility of the LAS Director is to represent the Local Affiliates' interests before the Council, coordinate the MSA-sponsored Speakers Program, and administer the Grant-in-Aid program that is available to the LASs.

Each local society can nominate a candidate for this position. If you are interested in being considered as our candidate, let us know. Contact the MMS President, Peter McSwiggen, at mcswi001@umn.edu by January 29, 2002, include a short write-up on why you would make a good MSA Director and representative/advocate for the Affiliated Societies.



MMS March Meeting

MMS Joint Meeting with the American Society of Metals (ASM)

Wednesday, March 27, 2002

Color Metallography

Abstract

Speaker: George F. VanderVoort
Buehler Ltd.

Program: 6:00-6:30 PM Social Hour
6:30-7:00 PM Dinner
7:15-8:00 PM Technical Program

Location: Sheraton Four Points
1330 Industrial Blvd.
Minneapolis, MN 55413
612-331-1900
(see page 4 for map and directions)

Biography

George Vander Voort, Director of Research and Technology for Buehler Ltd., is a graduate of Drexel University and Lehigh University, with a background in metallurgy and materials science and 29 years of experience in the specialty steel industry. A past president of the International Metallographic Society and past chairman of ASTM Committee E-4 on Metallography, George has over 160 publications including *Metallography: Principles and Practice* (McGraw-Hill, 1984; ASMI, 1999) and the ASM video course, *Principles of Metallography*. He is currently serving as a trustee for ASM International, and is associate editor of *Materials Characterization*. He is also on the editorial board of *Praktische Metallographie*. George is a member of ASM International, IMS, ASTM, TMS, RMS, ISS, MSA, DGM, MSSA, PSM, I&AS, and the State Microscopy Society of Illinois. George is a fellow of ASMI and ASTM, and has many awards for his microscopy work including the Jacquet-Lucas Grand Prize and the Dubose-Crouse Award of the International Metallographic Contest.

Most metals and alloys must be treated in a specific manner after specimen preparation if we are to observe their microstructure. The obvious exception of this rule is the examination of certain metals and alloys with non-cubic crystallographic structures that respond well to crossed-polarized light. Historically, general-purpose etchants have been used to bring out the overall structure by superficial corrosion. This process makes use of the minor potential differences that exist between constituents of different composition, between grain boundaries and grain interiors and between phase boundaries and phase interiors. Minor height differences are created on the surface that yield light-dark contrast when bright field illumination is utilized. This is the traditional black and white world of the metallographer.

Color etching techniques alter this view, just like the shift from black and white movies or television to color. But, unlike these color entertainment forms, color etchants also reveal information about the specimen that is not visible in black and white after using general-purpose etchants. Anodic tint etchants that color the matrix grains usually reveal grain orientation information, that is, they color the grains as a function of crystal orientation. If there is a random texture, there will be a random coloring of the grains with a wide range of hues. If there is preferred orientation, the range of colors diminishes. Segregation is vividly revealed by color etchants as variations in color within the grains. Residual deformation is also clearly revealed by color, but is often difficult to detect in bright field unless copious slip or mechanical twinning accompanies it. Most color etchants are selective in nature. They will color only certain phases or constituents. This is useful for image analysis work.

Color can be introduced by other methods, such as anodizing and heat tinting. Anodizing is a very useful

(abstract continues on page 4)

Abstract (continued from page 3)

technique for certain metals and alloys. The treated surface must be examined by crossed-polarized light. Heat tinting, often claimed to be non-reproducible, is a nearly universal method for coloring microstructures. The correct temperature must be determined by trial-and-error, and that temperature cannot cause phase changes. But, once the practice is established, it is reproducible and useful. There are vapor-deposition (the Pepperhoff method) and reactive sputtering techniques that will color phases and constituents, but these will not be discussed in this talk.

Directions to Four Points Sheraton, Minneapolis.

From 35W:

Take the Industrial Boulevard exit (Exit #22). Go south on Industrial, and the Hotel will be on your right.

From Highway 280 heading north:

At the first stoplight (Broadway Street) take a left. Take a right on Industrial Boulevard, and the Hotel will be on the left.

**Project Micro Event!**

Saturday, February 2, 2002, 10:00 AM - 3:00 PM
Bell Museum of Natural History
U of M East Bank (University Ave and 17th St.)

Experience the fun of scientific discovery through hands-on activities and demonstrations at ScienceFest, the Bell Museum of Natural History's annual science fair for children and their families. Volunteers from across the community and campus will be on hand to peak your curiosity with live birds of prey, hi-tech hearts, slime, lego robots, paper making, skeletons, live amphibians and reptiles, microscopes (that's us), and more.

The Bell Museum has again invited us to set up and demonstrate the Project Micro kits at their ScienceFest. This event is being run in conjunction with the Jason Project. This year's theme is about the frozen world, so we will be highlighting snow and snowflakes, and showing examples of pond life that can survive winters in Minnesota. In previous years we (together with the Imaging Consortium from the St. Paul campus) have had many volunteers, and were able to show the microscopy kits to more than 200 kids. This year we need more volunteers - even if you can only come and help with setup or do clean up afterwards. The event this year is SOON - Saturday, February 2, from 10:00 AM to 3:00 PM. It is at the Bell Museum on the East Bank campus.

If you are interested in volunteering, or have any questions, please contact Stuart McKernan (612-624-6009, stuartm@umn.edu) as soon as possible.

Upcoming MMS Meetings

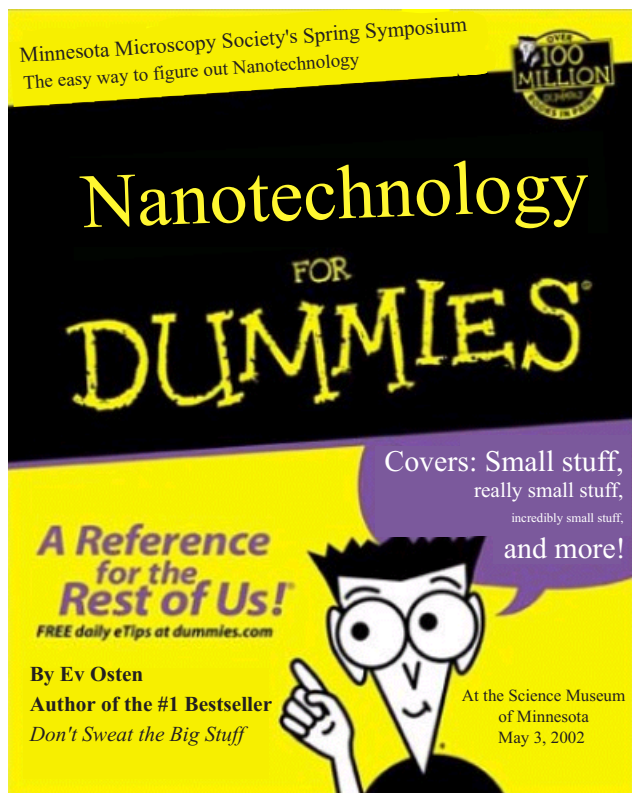
May 3 - Friday

MMS Spring Symposium

Topic: Nanotechnology

Location: Science Museum of Minnesota

Again this year the Minnesota Microscopy Society will be putting on a full day of talks for our Spring Symposium. The focus will be on the dynamic new world of nanotechnology. We plan to have a wide range of speakers. If you know someone you would like to hear, or who would be of interest to others, let us know.



(with apologies to Hungry Minds, Inc.)

June 21 - Friday
(formerly the April meeting)

Tour of the Mayo Clinic Joint meeting with the Iowa Microscopy Society

The Minnesota Microscopy Society is going to try something new this year. We are going to have a joint meeting with the Iowa Microscopy Society. The Board picked a location that will provide an interesting venue and will be within a reasonable driving distance for members of both societies. The meeting will be held at the Mayo Clinic, a world class medical and research facility in Rochester, Minnesota. This location will allow us to have both a technical meeting and some very interesting tours of the medical/research facilities and microscopy labs. The meeting will be held on Friday afternoon on June 21, 2002.

Program:

- 1:00 - 3:00 PM
Registration and poster setup
- 2:00 - 3:00 PM
Tours of the Mayo Clinic and its Microscopy Labs
- 3:00 - 4:00 PM
Poster viewing and social hour
- 4:00 - 5:00 PM
Speaker: Ken Moore, Iowa
Stem cell research and genetic therapy
- 5:00 - 5:30 PM
Break
- 5:30 - 7:00 PM
Dinner: Italian Buffet
- 6:30 - 7:30 PM
Speaker: Sarah Miller, Duke University,
Emerging Pathogens

Sarah Miller's talk was a big hit at the M&M meeting last summer in Long Beach. This should be a really good meeting, so put it on your calendar now. The Board is also looking into renting a bus to make the trip to and from the meeting much easier.

Sustaining Corporate Members

Sustaining members are the backbone of financial support for the Society. These members make it possible for the Society to support Project Micro and to cover many expenses of the regular meetings and the Spring Symposium. We greatly appreciate the continued support of these individuals and corporations. To become a Sustaining Member, complete and return the MMS membership form at the end of the newsletter.

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Steve Ziegler	Veeco Instruments	512-912-1615

If any Sustaining Members are missing from this list, *please* contact either: Jason Heffelfinger (763-514-1021, jason.r.heffelfinger@medtronic.com) or Peter McSwiggen (612- 624-7370, mcswi001@umn.edu).

MMS Patron Members

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

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Your MMS Annual Membership fee is due in September/October!

All microscopists are urged to support their Society at one of the membership levels offered below. The more dues-paying members we have, the more likely we are to attract sustaining corporate memberships which form the financial backbone of our Society. Often, supervisors will support MMS memberships out of their project budget because they recognize that it is a very inexpensive way to maintain and increase the skills of their microscopists. If you have been a member over the years and recognize the value of MMS to the community of microscopists it serves, consider upgrading your membership this year to the patron or sustaining level. Thank you.

Name _____ Dr _____ Mr _____ Ms _____ Phone (____) _____

Affiliation _____ Position _____

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Indicate the method by which you would like to receive the Newsletter: mail _____ e-mail/web _____ both _____

E-mail address _____

Check here _____ if you do NOT want your name and address to appear in the Society directory.

Area of interest: Bioscience _____ Materials Science _____ SEM _____ TEM _____ X-ray _____

Membership level: Basic \$10 _____ Patron \geq \$25 _____ Corporate Sustaining \$100 _____ Student \$5 _____**Make checks payable to MMS and mail to our treasurer:****Dwight Erickson, MMS Treasurer, 3M Center, Bldg. 251-1A-03, Saint Paul, MN 55144-1000.**

Minnesota Microscopy Society
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February 7, 2002:**Forensic Document Analysis
&
Tour of 3M Labs**Forwarding and Address
Correction Requested