

# Minnesota Microscopy Society Newsletter



Local affiliate of [Microscopy Society of America](#)

Local affiliate of [Microbeam Analysis Society](#)

**MMS December 2003 NEWSLETTER**

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## November Meeting

**Minnesota Microscopy Society - November Meeting**

**Thursday, November 20, 2003**

**"Nanoparticles in frogs"  
by David Norris, Ph.D.**

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### **Speaker**

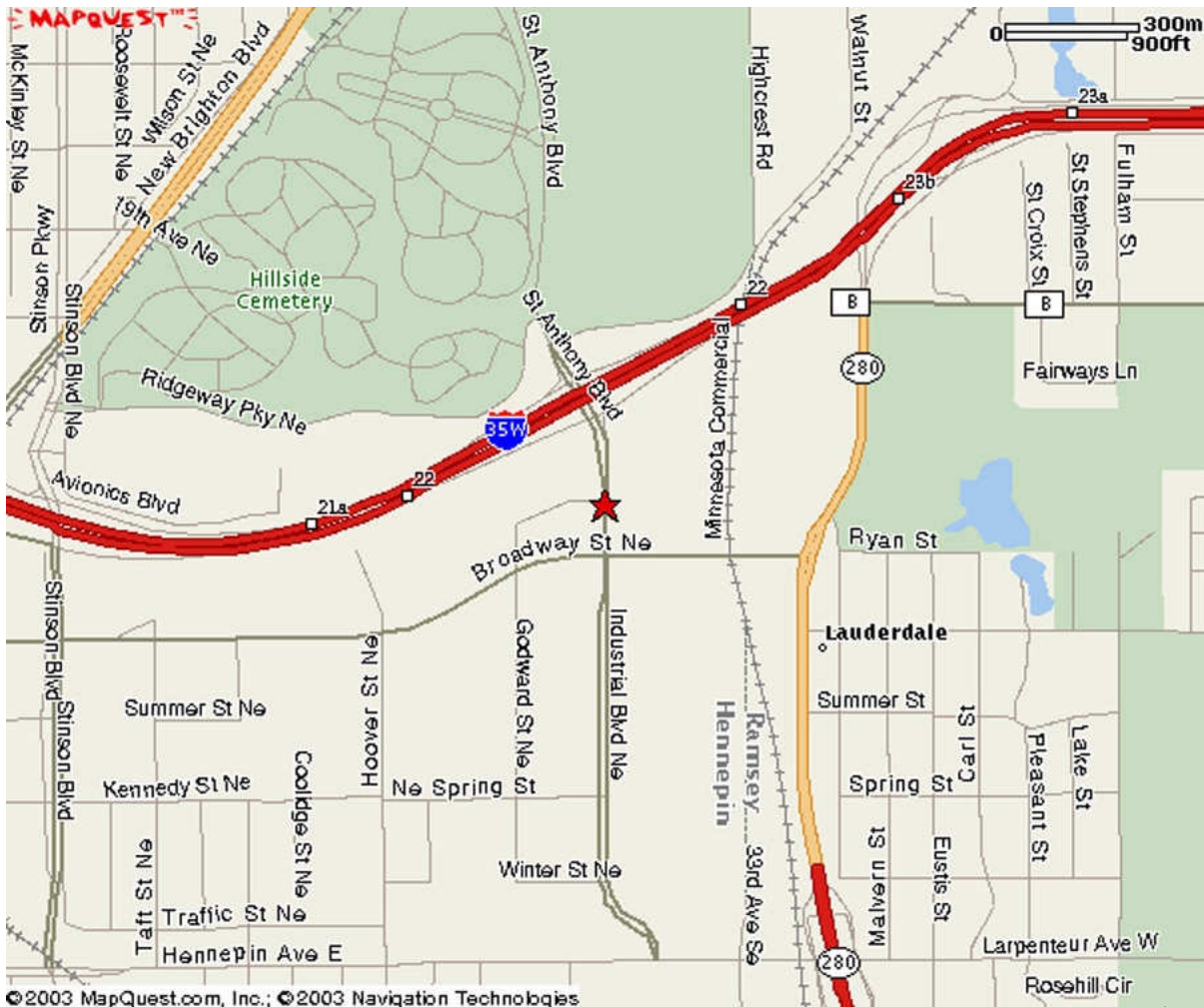
David Norris, Ph.D.  
University of Minnesota

### **Location**

Four Points by Sheraton Minneapolis Metrodome  
1330 Industrial Boulevard  
Minneapolis, MN 55413

### **Four Points Hotel Location Map**

The Four Points by Sheraton Minneapolis Metrodome Hotel is located five miles north of downtown Minneapolis. It is just south of Highway 35 W on Industrial Boulevard. Parking is free.



### Schedule

<b>5:30 - 6:15 PM</b>	<b>Registration and social hour</b>
<b>6:15 - 7:15 PM</b>	<b>Dinner</b>
<b>7:15 - 7:30 PM</b>	Business Meeting
<b>7:30 - 8:30 PM</b>	<b>Talk</b>

### Dinner Buffet

- Italian Buffet (both meat and vegetarian choices).

### Cost of the Meeting:

The cost of the meeting and dinner is \$25 for MMS members and \$15 for students.

### Reservations

Reservations for the meeting **MUST** be made no later than **Friday, November 14**. Contact Bede Willenbring at [Bede.Willenbring@HBFuller.com](mailto:Bede.Willenbring@HBFuller.com) or by phone at (651) 236-5470 to make your reservations.

## Abstract

While fluorescent semiconductor quantum dots (nanocrystals) promise to revolutionize biological imaging,<sup>1,2</sup> their use has been limited by difficulties in obtaining quantum dots that are bio-compatible. Recently there have been several new strategies that try to address this problem. Here, I will discuss our approach.<sup>3</sup> We found that, by encapsulating individual quantum dots in phospholipid block-copolymer micelles, bio-compatibility could be obtained. We then demonstrated both in vitro and in vivo fluorescent imaging with such quantum dots. When conjugated to DNA, the quantum dots act as in vitro fluorescent probes to hybridize to specific complementary sequences. More importantly, when injected into *Xenopus* (frog) embryos, the quantum dots are stable, non-toxic (below  $5 \times 10^9$  nanocrystals per cell), cell autonomous, and slow to photobleach. The quantum dot fluorescence can also be followed to the tadpole stage, allowing lineage tracing experiments in embryogenesis. Our experiments demonstrate that very simple approaches to producing bio-compatible dots are possible and that the resulting nanomaterials should have a high impact in biological imaging.

1. M. Bruchez, M. Moronne, P. Gin, S. Weiss, A. P. Alivisatos, *Science* 281, 2013 (1998).
2. W. C. W. Chan, S. Nie, *Science* 281, 2016 (1998).
3. B. Dubertret, P. Skourides, D. J. Norris, V. Noireaux, A. H. Brivanlou, A. Libchaber, *Science* 298, 1759 (2002).

## Biography

David J. Norris is currently an Associate Professor of Chemical Engineering and Materials Science at the University of Minnesota in Minneapolis, MN. His research interests include developing and investigating novel materials, including nanocrystals, photonic crystals, and other nano- or micro-structured solids.

Norris received his B.S. in chemistry from the University of Chicago in 1990. He then pursued his doctorate in physical chemistry at MIT under a NSF Fellowship. During his thesis, he investigated the optical properties of nanometer-scale semiconductor particles (nanocrystals) in the laboratory of M. G. Bawendi.

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# Upcoming MMS Meetings

**February, 2004** - Imation Tour

**March 18, 2004** - Joint meeting with ASM

**May 7, 2004** - Spring Symposium - Topic: *Our Digital World*

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## Notices

### Time to Renew Your MMS Membership

The Minnesota Microscopy Society's membership year runs from October 1st to September 30th. Membership renewals are due in September or October. So now is the time to renew your membership by sending your dues to our treasurer Bede Willenbring at 4763 Decatur Ave. North, New Hope MN 55428-4402. Basic membership is still ONLY \$10 per year; better yet, become a Patron member for only \$25.

Membership rates have not changed in decades. The MMS Board is discussing the rates for the upcoming year. If you would like some input on this matter, please feel free to contact our President or any other member of the MMS Board.

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## **Get Your News Published in the MMS Newsletter**

The Minnesota Microscopy Society is always looking for contributions to its newsletter. Contributions can be either news items or short articles on a technical topic that would be of general interest to the Society's members. Does your company have a new product or a new sales representative for this area? If you have news that would be of interest to MMS members, send it to the Newsletter Editor, Peter McSwiggen, McSwiggen & Associates, 2855 Anthony Lane South, Suite 1B, St. Anthony, MN 55418, or email it to: [PMcS@McSwiggenAssoc.com](mailto:PMcS@McSwiggenAssoc.com). Two more newsletters will be published this year.

The deadlines for submitting articles are: January 19, 2004, and April 1, 2004

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### **SEM/EDS Scientist Wanted Evans PHI, Evans Analytical Group Chanhassen, MN**

The Evans PHI Analytical Lab (see <http://www.eaglabs.com/evansphi/evansphi.htm>) currently has a full time position for an SEM/EDS surface analyst. Evans PHI is a member of the Evans Analytical Group a network of labs providing surface and micro-analytical support on a contract basis.

The duties of this position include:

Responsible for the daily operation and maintenance of a field-emission scanning electron microscope and energy dispersive x-ray analyzer (SEM/EDS), as well as associated sample prep equipment. Provide SEM/EDS contract analysis for clients. This includes customer contact to define scope of work and clarify information, data acquisition and interpretation, a full written report, and customer follow-up. Sustain customer accounts and develop new business by providing valuable analytical results. Participate in application projects and seminars for the purpose of developing new market segments with significant growth potential.

The position requires a B.S. or advanced degree in science (physics, chemistry or materials science) and demonstrated proficiency in SEM/EDS. Minimum of two years of direct experience with, or four years without, an advanced degree. XPS experience a plus. Excellent English communications skills, both written and verbal, required. Works well with others or independently. EOE.

Please submit resumes to:

email: [resumes@eaglabs.com](mailto:resumes@eaglabs.com)

Fax: 408-530-3503

EVANS ANALYTICAL GROUP  
810 Kifer Road  
Sunnyvale, CA 94086

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# MMS Project MICRO Events

Project Micro will be out in force again this year. There are a number of events on the calendar. These include Science-Fest (February, 2004), and Mathematics Family Fun Fair (March, 2004). If you have any questions or would like more information, contact Ann Palmer at [palme003@umn.edu](mailto:palme003@umn.edu).

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## Society Information

### Sustaining Corporate Members

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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, fill out the MMS membership form at the end of the newsletter.

- Lester Engel **Engel Metallurgical Ltd.** 320-253-7968
- Charles Garber **SPI Supplies** 610-436-5400
- Larry Hanke **Materials Evaluation & Engineering Inc.** 763-449-8870
- Gary Hawkinson **Thermo Electron Corporation** 608-835-0816
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- Augusta Tartarelli **Evans PHI, Evans Analytical Group** 952-828-6411
- Joe Ullmer **EDAX / TSL** 937-294-3811

If any Sustaining Members are missing from this list, *please* contact Jason Heffelfinger, (763) 514-1021; [jason.r.heffelfinger@medtronic.com](mailto:jason.r.heffelfinger@medtronic.com) or Peter McSwiggen (612-624-7370, [PMcS@McSwiggenAssoc.com](mailto:PMcS@McSwiggenAssoc.com))

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# 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, fill out the MMS membership form at the end of the newsletter.

- **Gib Ahlstrand**, Imaging Center, U of M
- **Tony Anderson**, Surmodics, Eden Prairie
- **Paul Baker**, Medtronic Inc., Mpls
- **C. Barry Carter**, CEMS, University of Minnesota
- **Michael Coscio**, Promeon Div., Medtronic Inc.
- **Kevin Cowden**, Medtronic Inc., Brooklyn Center
- **Stan Erlandsen**, Cell Biol. & Neuroanatomy, U of M
- **Ellery Frahm**, University of Minnesota, Mpls
- **Kathryn Hanna**, College of Biol. Science, U of M
- **Greg Haugstad**, University of Minnesota, Mpls
- **Elizabeth Henrikson**, 3M Company, St. Paul
- **Lori LaVanier**, Evans PHI, Chanhassen
- **Stuart McKernan**, University of Minnesota, Mpls
- **Susan Okerstrom**, Medtronic Inc., Brooklyn Center
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- **Jeff Payne**, 3M Company, St. Paul, MN
- **Christina Pierce**, Surmodics, Eden Prairie
- **Mary Swierczek**, 3M Company, St. Paul
- **Jerry Tangen**, JEOL USA, Inc., Monticello
- **Bede Willenbring**, H.B. Fuller Co., St. Paul
- **Klaus Wormuth**, Surmodics, Eden Prairie
- **Bede Willenbring**, H.B. Fuller Co., St. Paul

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## MMS BOARD and OFFICERS 2003-2004

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(651) 733-2352, [jjpayne@mmm.com](mailto:jjpayne@mmm.com)

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# Your MMS Annual Membership dues are payable 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 \_\_\_\_\_  
\_\_\_\_\_

Address \_\_\_\_\_  
ZIP \_\_\_\_\_

E-mail address \_\_\_\_\_

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

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

Are you an MSA Member? \_\_\_\_\_ MAS Member? \_\_\_\_\_ Other professional  
groups? \_\_\_\_\_

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

Check membership level: Basic \$10 \_\_\_\_\_ Patron \$25 \_\_\_\_\_ Sustaining \$100 \_\_\_\_\_ Student \$5 \_\_\_\_\_

**Make checks payable to MMS and mail to our treasurer:**

**Bede Willenbring, MMS Treasurer, 4763 Decatur Ave. N., New Hope, MN 55428-4402**