



NESM News

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MARCH MEETING HOSTED BY PERKIN ELMER LIFE SCIENCES

It is with great pleasure that NESM welcomes PerkinElmer as the host of our **March 6, 2001 meeting**.

PerkinElmer, Inc. is a high technology company based in Boston, Massachusetts, with operations in over 125 countries. The company operates in four businesses – Life Sciences, Optoelectronics, Instruments, and Fluid Sciences. Life Sciences focuses on two areas: drug discovery and genetic disease screening. Optoelectronics produces telecom, sensors, imaging and specialty lighting products. Instruments comprises analytical instruments and detection systems. Fluid Sciences manufactures products for three industry groups: semiconductors, power generation and aerospace.

Registration for this meeting will begin at 5:00 pm. The registration fee for members is \$5.00 and \$20.00 for non-members. (Registration for non-members includes a one-year NESM membership.) From 5:00-5:30 pm, there will be an Open House and Tour of the R & D Laboratories. At 5:30 pm, there will be a Welcome and Overview of PerkinElmer Incorporated, by Patrik Dahlen in the PKI auditorium. At 5:45 pm, immediately following the welcome, there will be a Buffet Dinner sponsored by PKI. From 6:30-7:00 pm, there will be a demonstration and posters of the Ultraview Confocal Microscope. The Technical Presentations, chaired by NESM President-Elect Lynne Garone, will commence at 7:00 pm. NESM is pleased to welcome Dr. Terry McCann of PKI, Dr. Barb Beltz of Wellesley College and Dr. Anna Swann of Boston University.

Please **register by Friday, March 2nd**. Use the registration form found inside this newsletter or contact Mary McCann at (617) 484-7865 or by email: mccanns@tiac.net.

NESM looks forward to your support and participation at this most interesting meeting!

Newsletter Highlights

- March 6th Meeting Agenda
- President Rick Roger's Message to the Membership
Past-President Doug Taatjes—The Year in Review (2000)
- Membership Survey (please take the time to complete!)

NESM'S March Meeting

PerkinElmer Incorporated, Life Sciences Division
549 Albany Street - Boston, MA 02118 - 617-350-9677

Tuesday, March 6, 2001

- 4:00-5:00 pm **NESM Council Meeting**
- 5:00-6:00 pm **Registration**
- 5:00-5:30 pm **Open House/Tour of R&D labs**
- 5:30-5:45 pm **PKI Welcome and Overview by Patrik Dahlen
(Auditorium)**
- 5:45-6:30 pm **Buffet Dinner (Sponsored by PKI)**
- 6:30-7:00 pm **Ultraview Confocal Microscope -Demo Lab & Posters**
- 7:00-9:00 pm **Technical Presentations**
Chair Lynne Garone, President-Elect, NESM
- Technology "High Resolution Live Cell Imaging"
 Dr. Terry McCann, PKI
- Biological Science "Fluorescence Imaging and Neurobiology"
 Dr. Barbara Beltz, Wellesley College
- Materials Science "Self-interference Fluorescence Microscopy"
 Anna Swann, Ph.D., Boston University
- 9:00 pm **Adjournment and Social Time, Rick Rogers, President NESM**

Advance Registration Form

March Meeting, March 6, 2001

To register, please fill out this form below and send it with your check, payable to NESM, to:

Mary McCann
NESM c/o McCann Imaging
161 Clafin Street
Belmont, MA 02478

Registration Deadline
March 2, 2001

If you have questions, please call Mary at (617) 484-7865.

First Name _____ Last Name _____ Dr. Ms. Mr.

Company _____ Title _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

E-mail _____

Advance Registration

- NESM member \$ 5.00 Student/retired member
 Non-member \$20.00* Total enclosed _____

*Non-member registration includes current-year NESM membership

The President's Message:

I have been reflecting upon our Society's rich and productive history as we enter the new millennium. Recently I had an opportunity to review the list of NESM Presidents who have served our Society and realize we benefit from over three decades of guidance and foresight from many gifted individuals. Working with the Executive Council in recent years I have come to understand what it means to be a member of this Society and, especially to discover the powerful spirit we share as we remain committed to the professional development of our membership and the promotion of the field of microscopy.

A quick review of the scientific literature drives home the fact that spatial imaging remains an essential part of most academic and industrial endeavors today. This is especially important in the biomedical field in which over 95% of the peer reviewed literature contains some type of spatial imaging. As new advances present themselves we, as a Society should be obliged to evaluate emerging technologies that serve to support our professional development and membership.

NESM holds four meetings in which poster sessions and mini symposia enrich our awareness of the diverse nature of our field. The one thing needed for the Society's continued success is your presence and participation. Even though you might not be interested in a particular session or theme at one of the meetings, please take the time and make an effort to come and meet others. The networking opportunities are tremendous! We look forward to your participation as we continue to promote microscopy on behalf of our membership.

Best regards,
Rick Rogers, NESM President 2001

DIRECTIONS

To
PerkinElmer Life Sciences

From the West

Take the MA Pike to the COPLEY exit, stay in the right lane through the exit. At the end of the exit, bear right at the lights onto DARTMOUTH ST. (The Wainright Bank is across from the light and Neiman Marcus is on the corner). Follow DARTMOUTH ST. through 4 sets of lights. At the 5th set of lights, turn right onto HARRISON AVE. Take your 2nd left onto EAST DEDHAM ST. Three quarters of the way down East Dedham St., turn right at the guard shack into our parking lot. Check in at the guard shack and let them know your are with NESM. Then take a right out of the parking lot and 549 Albany St. is the last building on the left. Front entrance on Albany.

From the North

93S to Exit 20-AlbanySt./MA Pike. Bear left off exit to Albany St./South Boston. Building is on the right directly across from the Flower Exchange (#549). To park: take right onto E. Canton St. (after 549 Albany). Follow to the end and take a right onto Harrison Ave. Take the 1st right onto E. Dedham St. (see directions above to guard shack and front entrance of building).

From the South

93N to Exit 17-18, E. Berkley St./MA Ave. (exit on right). Stay in left lane and bear left at signs for MA Ave. Go through 1st set of lights; at next set of lights, take a right towards MA Ave. At next set of lights (MA Ave.), take a right towards MA Ave.-N. /Boston Medical Center. At next set of lights, turn right onto Albany St. at Boston Medical Center. Building is on the left directly across from Flower Exchange. Take left on E. Canton St. (before 549 Albany and follow to the end. Take a right onto Harrison Ave. and then 1st right onto E. Dedham St. (see above for directions to guard shack and entrance to building).



34th Annual Fall Symposium—Cutting Edge of Technology!

NESM's 34th Annual Fall Symposium, held on December 1, 2000 at the Boston Newton Marriott was a preview of exciting changes in the field of microscopy in the new millenium.

Thank you for your support. Your sustained commitment to NESM allows us to continue to promote excellence in microscopy here in New England.

Barbara Foster, President of Microscopy, Marketing, and Education began the session on *Raman and FT-IR Spectroscopy* with an overview of the current technologies, showing us how light microscopy and confocal microscopy are coming together with FT-IR and Raman analysis. The next two speakers, Dr. John Reffner of SensIR Technologies and Dr. Patrick Treado of ChemIcon, spoke on the "marriage" of microscopy and FT-IR and how it is revolutionizing chemical imaging and molecular microscopy, in the analysis of polymers, pharmaceuticals, semiconductors and biomaterials, as well as in the area of forensic science.

Another exciting arena where microscopy can play a role is in *Gene-Chip Technology*. In this session, Dr. Joe Paulauskis and Dr. Eiman Al-Mutari of the Harvard School of Public Health, both addressed the problems and promises of analysing differential gene expression with DNA microarrays. Dr. Steve Lott of Perkin Elmer Life Sciences gave a brief overview of the microarray technology and the role industry plays in developing new technologies to assist researchers in this field.

On a different note, the after-dinner speaker, Dr. Paul Hlava of Sandia National Laboratories, and the MAS Tour Speaker gave a fascinating talk on the Causes of Color in Minerals and Gemstones.

For the NESM membership, the year 2001 should be an exciting one! It's already off to a good start.

- AMT
- Barry Scientific
- BOC Edwards Vacuum
- CF Associates
- CRI
- Denton Vacuum
- EDAX
- Electro-Image
- EMS/Diatome
- Energy Beam Sciences
- FEI Company
- Fischione Instruments
- Ernest F. Fullam
- Gatan, Inc.
- Geller MicroAnalytical
- Hitachi
- ICT
- JEOL-USA, Inc.
- Kimball Physics
- KLA-Tencor/AMRAY
- Ladd Research
- LEICA
- Leo Electron Microscopy
- MEDTEC
- Micro Star Technologies
- NanoTech Consulting
- Noran Instruments
- Optechs, Inc.
- Oxford Instruments
- Polaroid
- Princeton Instruments
- Rontec
- Scanning
- South Bay Technology
- Spectra Physics
- SPI/Structure Probe, Inc.
- SSSC
- Ted Pella, Inc.
- Zeiss

MSA Application for Membership

Mail directly to MSA!

Microscopy Society of America

435 North Michigan Avenue, Suite 1717 ▪ Chicago, IL 60611-4067 ▪ 800-538-3672
 FAX: 312-644-8577 ▪ E-mail: BusinessOffice@MSA.Microscopy.Com

Name (print) _____ Dr. Ms. Mr.
 Mailing address _____

Phone (days) _____ Fax _____ E-mail _____

Institutional Affiliation: _____ Major Interest: Physical Sciences
Biological Sciences

Signature of nominating MSA member: _____

Signature of Advisor (for student applicants): _____

Signature of Applicant: _____ Date: _____

Enclose a check (US funds drawn on a US bank) for one year's dues, payable to MSA, or complete the credit card information below. Also enclose a brief statement of your qualifications, experience, and/or student status.

Regular Member: \$40 Student Member: \$10 Sustaining Member: \$350

Expires: _____
 Visa/Master Card Number (include all numbers) _____ Month/Year _____

For applicants outside of North America, please add \$18 to each membership to cover the cost of mailing.

Past-President's Message

The year 2000 was an exciting and busy one for NESM, and it certainly was an honor and privilege for me to serve as President. We held four stimulating meetings last year. Our February/March meeting was held at Polaroid Corporation in Wayland on March 8th. The meeting began with a tour of the Polaroid facility, followed by a "Professional Imaging" demonstration presented by Polaroid staff. Three scientific presentations followed a buffet dinner: "A Failure Mechanism Identified in a Lead-Free Solder", by Gabriel Rojano from Tyco Electronics Company; "Biomedical Imaging Library", by Paul Bain from the Harvard Medical Library; and "Spying on the Social Life of Proteins", by Hjalmar Brismar from the Karolinska Institute in Stockholm, Sweden.

Our 17th annual Woods Hole Spring Symposium was held on May 12th and 13th at the Marine Biological Laboratory. As usual, the meeting was well attended, with 104 registrants and 20 corporate vendors. On Friday afternoon, two scientific sessions were held. The first session consisted of three presentations: "Natural History of Amyloid Deposits Observed In Vivo in a Transgenic Mouse Model of Alzheimer's Disease Using Multiphoton Microscopy", by Brian Bacsakai from Massachusetts General Hospital; "Spectrum Imaging: Microanalysis for a New Millennium", by Ian Anderson from Oak Ridge National Laboratory, Oak Ridge, TN (Dr. Anderson was an MAS Tour Speaker); and "Photonic Force Microscopy: A New Tool for Cell Biological Research", by Heinrich Horber from EMBL, Heidelberg, Germany. Session two also consisted of three presentations: "Laser Tweezers—Probing Dynamic Intracellular Mechanics of Neutrophils", by Jim Butler from Harvard School of Public Health; "CT Microscopy", by Martin Sala from Corning Inc., Corning, NY; and "Using Near-Field Microscopy to Image Internal Spatial Modes of Semiconductor Waveguides", by Bennet Goldberg from Photonics Lab, Boston University. Sam Bowser of the New York Department of Health, Albany, NY delivered an excellent after dinner talk on "Foraminifera - Ancient Assemblers." Sam's talk was entertaining for all, and he even later sent us some sand he had collected in Antarctica for use in our Project MICRO festivals! On Saturday morning, with one of our scheduled speakers unable to attend, Bhanu Jena from Yale University bravely stepped in and presented some of his recent work on the mechanisms of exocytosis. We certainly appreciated his efforts at the last minute! The second talk of the session was by one of our own NESM council members, Tony Garratt-Reed from MIT, who presented a talk entitled "Electron Probe Formation in a Stem". We all then adjourned to Swope for the Commercial Exhibits and Poster Presentations. The Poster Presentation feature is an ideal venue for students especially to present their research results in a friendly supportive environment, and we encourage them to continue to present at future meetings. As usual, we all appreciated the efforts of our corporate sponsors for setting up their booths and allowing us to see their latest products. Their participation and sponsorship of coffee breaks and door prizes certainly contributes to the ongoing success of the Woods Hole Spring Symposium!

The October meeting was held at FEI Company in Peabody on October 8th. Following a tour of the FEI facility and a buffet dinner, the scientific session consisted of three presentations: "The Utility of Scanning Electron Microscopy within the Pharmaceutical Industry", by Ronald Mueller of Bristol Myers Squibb in New Brunswick, NJ; "Magnetic Twisting Cytometry with Sub-Micron Optical Detection", by Ben Fabry of the Harvard School of Public Health; and "Thin Section: Freeze Fracture Correlates - A Visit to the Good Old Days", by Dan Friend from Brigham and Women's Hospital.

Our last meeting of the year, the 34th Annual Fall Symposium, was held at the Newton Marriott on December 1st. The scientific sessions at this meeting consisted of two themes. The first theme was "Raman and FTIR Spectroscopy", with the following presentations: "Bridging the Microscopy-Spectroscopy Chasm", by Barbara Foster of Microscopy, Marketing and Education, Springfield, MA; "Resolving Molecular Chemistry with FT-IR Microspectroscopy", by John Reffner from SensIR Technologies, Danbury, CT; and "Chemical Imaging: A Powerful Tool for Molecular Microscopy", by Patrick Treado from ChemIcon, Inc., Pittsburgh, PA. The second session was on "GeneChip Technology", with the following presentations: "DNA Microarrays: Problems and Promises", by Joe Paulauskis from the Harvard School of Public Health; "Differential Gene Expression Analysis using Microarray Technology", by Eiman Al-Mutairi of the Harvard School of Public Health; and "Microarray Technologies: Changing the Face of Functional Genomics", by Steve Lott from Perkin Elmer Life Sciences, Boston, MA. Following the annual business meeting and dinner, Paul Hlava from Sandia National Laboratories, Albuquerque, NM (An MAS Tour Speaker) presented an entertaining after dinner talk entitled "Causes of Color in Minerals and Gemstones."

As can be seen, it was quite a busy year, filled with excellent speakers and scientific presentations encompassing many and various imaging modalities. I truly enjoyed my year as President of NESM, and owe a debt of gratitude to the council members for all of their behind the scenes labors which make the society and the meetings function so smoothly. A special debt of recognition goes to Peggy Sherwood, our Corresponding Secretary. Peggy puts together (and writes a great deal of) the Newsletter sent to members four times a year. This is an enormous task which Peggy performs with little recognition, so THANKS PEGGY!! I'd like to thank Louie Kerr for his invaluable support in helping to arrange the Woods Hole meeting each year. I'd also like to thank our corporate members for their continued support, and thank once again Polaroid Corp. and FEI Corp. for providing the venue and dinner for two of our meetings. Finally, I would like to thank the society members for their continued support, and urge each and everyone to contact a council member with suggestions for presentation topics, speakers and meeting venues. With your input, I look forward to an exciting and enriching true millennium year!

Doug Taatjes, Past President NESM 2000

Dear Members:

The following survey was previously sent to members. Since the response was minimal, we are asking you to PLEASE take the time to fill it out. Your input is greatly appreciated to better plan for upcoming meetings.

The NESM Board is responsible for arranging and scheduling our technical programs, and for notifying you about them. In order to best serve you, the NESM members, we need to know your preferences.

We've written a **SHORT SURVEY** and would appreciate your response. We hope to use your responses to arrange programs that are pertinent, convenient to the largest number of members, and to notify you in a timely fashion.

HOW would you like to hear about NESM meetings?

by email _____ (please print your email here) _____
by Newsletter _____ both email and print _____

WHERE would you find it most convenient to meet? Please rank your 1st 2nd & 3rd choices.

Boston _____

Cambridge _____

On or outside 128: North _____ South _____ West _____ (of Boston)

On or outside 495: North _____ South _____ West _____

Worcester Area _____ What venue would you suggest? _____

Would your laboratory or facility be interested in hosting a Feb/March or October evening meeting?
(Evening meetings usually consist of laboratory tour, informal dinner, and 2 or three short talks.
Up to 50 people usually attend.)

Would you prefer the Fall symposium in a hotel or an academic setting?
(Fall Symposium consists of half-day of talks, business meeting, dinner and full after-dinner talk.)

Would your laboratory or plant have facilities to host the Fall Symposium? (About 50 -75 people usually attend.)

Below are some of the topics that we have scheduled talks on in the last year.

Environmental SEM

Microscope Spectroscopy

Lab on a chip

What are YOU most interested in hearing about?

Equipment (for example: EELS, Confocal Microscopy, MicroXPS, Digital Imaging)

Techniques (for example: Colloidal Gold??)

NESM SURVEY

-2-

Research on topics where microscopy plays an important role (for example: Alzheimer's Disease)

Tutorials on specific topics

What topics? (for example Image analysis)

WHEN could you attend a tutorial?

Weekday 1/2 day _____ Weekday full day _____

Weekend 1/2 day _____ Weekend full day _____

WHO you would most like to hear from,

If you have any knowledge of particular experts, let us know!

(Please include contact information if possible.)

HOW MUCH TIME do you have for the different meetings? - rank choices

Evening meetings _____

Fall Symposium half day & evening _____ full day _____

full day and evening _____

ARE YOU INTERESTED IN SERVING on NESM's Board?

Material Science Director _____ Biological Science Director _____

DO YOU KNOW A SCHOOL interested in having a Project MICRO "Microscopic Explorations" Festival?

School _____ Grade _____

Contact Person _____ Telephone and email _____

Please include your Name and email so that we can follow up

Name: _____ email _____

We want to hear from all of you, please return to the address below.

If you do not have email BE SURE to return this form with your full address

**TO: MARY MCCANN
161 CLAFLIN STREET
BELMONT MA 02478**

NESM Coming Events....

Symposium on Remote Access Microscopy

As part of the Annual NESM Spring Symposium to be held at Woods Hole, May 11-12 2001, we will be presenting a symposium on Remote Access Microscopy on the morning of Saturday, May 12th. Keynote lecturers will include Larry Allard (Oak Ridge National Lab) and Mike Kersker (JEOL), among others. Topics to be covered will include the technology of Remote Access, potential uses, and how to set up your lab for remote access. Several computers will be set up during the exhibition time, and remote instruments will be available for demonstrations.

This is an exciting area of development for all microscopists, and you will not want to miss this event. **Mark your calendars now!**

Advanced Information

The regular NESM meeting planned for Tuesday October 16, 2001 will take a format new to the Society. Although tentative at the moment, we expect the meeting to explore a single new development in scanning electron microscopy, that is, Backscatter Electron Diffraction Analysis for determination of phases or crystallographic orientation. While we are not making an announcement at the present time, we also expect that the meeting format will be different in other ways, too. We will say that we are negotiating for the meeting to be held at a site where at least one SEM fitted with EBSP will be available for demonstrations. Detailed information will be available at the Woods Hole meeting, so stay tuned for further details!

**Your Society is working for you—support it by attending meetings
and consider serving on the Board!**

NESM MEMBER DESK

AFM / SE Engineer
Materials Characterization and Metrology Lab



We are the developer of new ion beam ultra-smoothing technology for semiconductors, photonics and sensors. We currently have full-time openings for process engineers. responsibilities will include daily operation of the Atomic Force Microscopes and the Spectroscopic Ellipsometer to measure surface characteristics and thin film thickness.

The successful candidate must possess excellent communication and interpersonal skills, laboratory management skills and the ability to master new software programs, along with the ability to prepare technical reports and provide useful feedback to senior engineers. Experience in AFM and/or SE is highly desirable, as is experience with surface analysis on materials including, but not restricted to, semiconductors, magnetic thin films, and optics.

BS degree in a related field is required. Experience using other highly technical analytical tools is also very desirable.

For more information:

Please send resume to: Chris Santeufemio, Epion Corporation, 37 Manning Rd.
Billerica MA 01821 Tel. (978)670-1910 fax (978)670-9119

We are pleased to announce the availability of a Summer Internship in Transmission Electron Microscopy at Intel Corporation, in Santa Clara, California. The period of employment will be summer, 2001, approximately from June through August, depending on availability.

The goals of the internship will be to develop techniques using Electron Tomography to characterize the three-dimensional structure of elements of microelectronic devices. The ideal candidate should be a graduate student in materials science, physics, biophysics, or equivalent. In addition, the ideal candidate should be familiar with Transmission Electron Microscopy theory and practice, and should be very facile with computers. Prior experience with Electron Tomography techniques, FIB specimen preparation and Silicon Graphics would be especially beneficial.

US citizenship, a Green Card, or an unrestricted work permit are required. For candidates geographically distant from California, relocation assistance may be available. Intel is an equal opportunity employer.

Interested candidates are invited to contact John Mardinly directly at John.Mardinly@Intel.Com, 408-765-2346.

Resumes must be submitted as text in an e-mail, not an attachment, or can be submitted through postal mail at: John Mardinly, Intel Corporation, Mail Stop SC2-24, 2200 Mission College Blvd., Santa Clara, CA 95052-8119

Meetings, Conferences, & Courses 2001

March 6, 2001
NESM March Meeting
Perkin Elmer Life Sciences
Boston, MA
Contact: Mary McCann
(617)484-7865
mccanns@tiac.net

March 4-9, 2001
PITTCON 2001
New Orleans, LA
www.pittcon.com

March 14-16, 2001
TEM Speciman Preparation Course
University of Central Fla.
Orlando, Florida
Contact: Lucille Giannuzzi
lag@mail.ucf.edu

May 5-7, 2001
SCANNING 2001:(FAMS)
New York, New York
Contact: Paula Pivnick
(201) 818-1010
scanning@fams.org

June 6-8, 2001
28th Annual AGM
Fredericton, New Brunswick
Canada
Contact: Dr. Joseph White
(506) 447-3185
www.unb.ca/msc2001

June 18-21, 2001
**17th Ann. Short Course on
Molecular Microspectroscopy**
Oxford, OH
(513)-529-2874

NESM Application for Membership

New Members:

- Regular Member \$15.00
 Student Member \$5.00
 Retired Member \$5.00
 Corporate Member* \$100.00

Please make your check payable to NESM and send along with this application to:

NESM
 c/o Mary McCann
 McCann Imaging
 161 Claflin Street
 Belmont, MA 02478

Current Members:

- Change of Address Only

*Each Corporate Membership entitles two representatives to receive our newsletter. Please duplicate mailing information form as needed.

Mailing Information:

Date _____ Dr. Ms. Mr.

Name _____

Mailing Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Email _____

Company/University _____
(if not part of mailing address)

Major Interest: Biological Sciences Physical Sciences
 Microscope Type: SEM TEM Light
 Confocal STEM Other

NESM Membership News 2001

The New England Society for Microscopy (NESM), a local affiliate of the Microscopy Society of America (MSA), is a professional organization dedicated to the promotion and advancement of the science and practice of all microscopical imaging, analysis, and diffraction techniques.

Each year, NESM holds four local meetings which feature speakers from both biological and physical science backgrounds. Social hours and buffet dinners are enjoyed at each meeting.

New Members: NESM has a calendar-year membership; new members may join at anytime. To join, please check one of the member categories, and return the above application along with your check payable to NESM.

Membership Renewal: An invoice for annual membership dues will be sent with the first newsletter each year. Dues are payable at meeting registration, or by check no later than May 31st.

Please make check payable to NESM and send c/o Mary McCann, 161 Claflin Street, Belmont, MA 02478

NESM Officers 2001

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 2001 Rick Rogers
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