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NESM news

PROMOTING THE INTERCHANGE OF KNOWLEDGE OF MICROSCOPY AND ITS TECHNIQUES IN NEW ENGLAND

President's Letter – A Time to Reflect and Give Thanks

Dear Fellow Microscopists,

I can proudly say that, at the 45 years-old mark, NESM is maturing very well. Just one look at the popularity of our meetings and the quality of the presentations and workshops would be enough to convince anyone. As we are closing another successful and exciting year for NESM, I would like to reflect back on the meetings and activities we had so far in 2012.

We launched the year with our February Meeting at Saint-Gobain, which was well-attended by 44 members mingling over the dinner and attending the two after-dinner presentations. Then we had our Spring Symposium in May at the Marine Biological Laboratory in Woods Hole, with three workshops on the first day and six presentations on the second day. And about two months ago we had our Fall Meeting at UMass Amherst, which educated and entertained the attendees with four workshops and two after-dinner presentations. The workshops received so much interest from our members that they are now becoming a standard part of our Spring Symposium as well as the Fall Meeting. Poster sessions at NESM meetings are becoming increasingly more popular as well, so we are planning to continue to host them. Our next meeting is the 46th Annual

Fall Symposium & Business Meeting. It will be held on November 30th at Gordon College in Wenham, MA. You can find the meeting agenda in the following pages.

So what is next? How can we get NESM to the next level? How can we reach more people, especially young minds? At NESM board meetings, we have been discussing how NESM can contribute more to the world of microscopy. We came up with three ideas during our last board meeting, which are (1) visiting local high schools, (2) offering intensive multi-day microscopy courses, and (3) contributing at popular educational events such as Nanodays (Museum of Science in Boston). We are planning to develop these ideas further in the coming months. If you have any feedback, please feel free to share it with us.

As the year nears to an end, it is time to fill the positions that will be opening up on our board of directors. These openings are for the positions: President-Elect, Treasurer, Clerk, Corresponding Secretary, two Biological Sciences Directors, and one Physical Sciences Director. If you have nominations, we are very interested in receiving them. The elections will be held at the Gordon College meeting.



UMass Amherst student, Hannah Kincaid, presenting her group poster at the Spring Symposium in Woods Hole

On behalf of the NESM board, I would like to thank everyone who helped, sponsored, attended, and presented at our events this year! I hope to see you on November 30th.

May the Focus be with you!

Fettah Kosar
NESM President

46th Annual Fall Symposium & Business Meeting at Gordon College

Friday, November 30, 2012

- 12:30–1:00 Meeting Registration (KOSC)
- 1:00–1:10 Welcoming Remarks
- 1:10–2:00 **“Neurogenesis in adult brains: A hematopoietic connection?”**, Barbara S. Beltz, Ph.D., Jeanne L. Benton and Paula G. Chaves da Silva, *Wellesley College, Wellesley, MA*
- 2:00–2:50 **“Printing at the micro and nano scale”**, Alexander Smetana, Ph.D., *NanoInk Inc.*
- 2:50–3:30 Coffee Break
- 3:30–4:20 **“Scanning Electron Microscopy-Based Techniques for the Large-Scale Visualization of Biomineralized Structures”**, James C. Weaver, Ph.D., *Wyss Institute, Harvard University, Boston, MA*
- 4:20–5:10 **“Integration of atomic force microscopy with optical spectroscopy”**, Pavel Dorozhkin, Ph.D., *NT-MDT Co., Zelenograd, Moscow*
- 5:10–5:45 Business Meeting
- 6:15–7:30 Dinner
- 7:30–8:30 **Keynote: “Macro to Micro Functional Anatomy of Biosonar”**, Darlene R. Ketten, Ph.D., *Woods Hole Oceanographic Institute, Woods Hole, MA*
- 8:30–8:40 Closing Remarks

**REGISTER
ONLINE:**

Visit

nesmicroscopy.org
for more details



Symposium Costs:

\$40 Regular Members

\$65 Regular Non-members
(includes 2013-year membership)

\$15 Student Members

\$25 Student Non-members
(includes 2013-year membership)

\$15 Retiree Members

\$25 Retiree Non-members
(includes 2013-year membership)

Additional \$5 – Walk-ins



GORDON
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Business Meeting

Rock the vote!

The annual NESM Business Meeting is the occasion for registered NESM members to vote and elect new Board Members for any and all open positions. As stated in the Society's bylaws, it is the task of the Nomination Committee to provide a slate of candidates for each open position to the membership for a majority vote. Positioned marked "Interim" indicate that the candidate will be fulfilling the remainder of an existing term. In addition to those nominated by the Nomination

Committee, NESM encourages all members to suggest candidates to be placed on the ballot. For all nominations, please contact Richard Schalek ([email](#)). Once elected, all Board Members are encouraged to attend all of the Society's technical meetings (typically four) and the Board Meetings (typically four per year) during their tenure. All open Board Member positions are outlined and discussed below. Immediately following each description are all of the current candidates.



Seven Board Member positions to be voted on and filled at the November 30th Business Meeting

2 year term **President-Elect** - The NESM President-Elect is the Program Chairperson tasked with organizing the Society's four technical meetings for the year and is responsible for arranging dates, locations, speakers, and meeting accessories (e.g. meals, coffee, workshops, and poster contests). Additional Board Members are selected by the President-Elect to assist in the identification of speakers. The President-Elect prepares programs and other meeting-related documents and forwards these to the Corresponding Secretary for dissemination to the general membership.

2014 Candidate **Mr. Blair Rossetti, Marine Biological Laboratory (currently Corresponding Secretary)**

2 year term **Treasurer** - The NESM Treasurer manages the financial matters for the Society. This includes receiving all society funds such as dues and registrations and paying all duly authorized bills such as fees for meetings and Board approved expenditures. These funds are maintained in Massachusetts bank accounts, a credit card account and a Paypal account. The Treasurer prepares financial reports for the Board and the Annual Business meetings. The Treasurer maintains and updates the NESM membership list along with sending out dues notices. Manages other duties as required by the Board such as assisting with management at the meetings. The Treasurer insures that state and federal requirements are met.

2013 Interim Candidate **Mr. Louis Kerr, Marine Biological Laboratory (currently acting as interim Treasurer)**

2 year term **Clerk** - The NESM Clerk acts as the Corporate Member Liaison, assisting the President as needed, and helping to arrange the Corporate Exhibits at the Woods Hole Meeting. The Clerk handles the voting of new board members, obtaining a slate of candidates from Past President, and tallying votes. The Clerk also handles Board Meeting tasks when President is unavailable.

2014 Candidate **Mr. Jared Kelly, MicroVision Laboratories, Inc.**

2 year term **Corresponding Secretary** - The NESM Corresponding Secretary disseminates information to the general membership, especially notification of upcoming meetings. The Corresponding Secretary handles advance registration and provides feedback to President-elect (e.g. number of meals needed). The Corresponding Secretary, assisted by the Treasurer and Directors, is responsible for meeting-site, collecting fees, nametags, handouts, etc.) The Corresponding Secretary interacts with the Treasurer to maintain membership list and payments such as dues, registration.

2014 Candidate **Dr. Monica Zugravu, Harvard University**

3 year term **Directors** - The NESM Biological and Physical Sciences Directors attend the Board Meetings and provide counsel and support to tasks that aid the Society. Senior Directors actively assist the President-Elect to prepare the evening technical meetings (e.g. identifying locations and speakers). Junior Directors help the President-Elect and Corresponding Secretary run the longer meetings (e.g. Fall and Spring Symposia). There are three Physical and three Biological Science Directors, rotating yearly. Presently two positions are open for Biological Sciences Director and one for Physical Sciences Director.

2013 Interim Biological Sciences Director Candidate

Dr. Trevor Wardill, Marine Biological Laboratory (re-election)

2015 Biological Sciences Director Candidate

Dr. Jennifer Ross, UMass Amherst

2015 Physical Sciences Director Candidate

Mr. Robert Brandom, Bruker (currently Clerk)

NESM Business Meeting Ballot

Friday, November 30, 2012

**this is a preview of the ballot and not to be used for voting*

The Nominating Committee is pleased to present to the membership the following Slate of Nominees for your consideration at the Annual Meeting and Election of Officers to be held at Gordon College, Wenham, MA.

FOR PRESIDENT-ELECT

(Term: 2 years – ends 2014)

- Blair Rossetti, *Marine Biological Laboratory*
- Write-In: _____

FOR INTERIM TREASURER

(Term: 1 year – ends 2013)

- Louis Kerr, *Marine Biological Laboratory*
- Write-In: _____

FOR CLERK

(Term: 2 years – ends 2014)

- Jared Kelly, *MicroVision Laboratories, Inc.*
- Write-In: _____

FOR CORRESPONDING SECRETARY

(Term: 2 years – ends 2014)

- Monica Zugravu, *Harvard University*
- Write-In: _____

FOR INTERIM BIOLOGICAL SCIENCES DIRECTOR

(Term: 1 year – ends 2013)

- Trevor Wardill, *Marine Biological Laboratory*
- Write-In: _____

FOR BIOLOGICAL SCIENCES DIRECTOR

(Term: 3 years – ends 2015)

- Jennifer Ross, *UMass Amherst*
- Write-In: _____

FOR PHYSICAL SCIENCES DIRECTOR

(Term: 3 years – ends 2015)

- Robert Brandom, *Bruker*
- Write-In: _____

The Board of Directors has compiled the following Bylaw changes for your consideration at the Annual Meeting to be held at Gordon College, Wenham, MA. An existing version of the Bylaws can be found on the [here](#).

EXISTING TEXT

Article V. – MEETINGS OF THE SOCIETY

Section 1. The Annual Business Meeting will be held in early December at 5:00 P.M., in conjunction with a Technical Meeting.

PROPOSED CHANGES

Article V. – MEETINGS OF THE SOCIETY

Section 1. The Annual Business Meeting will be held in **late November or** early December **at 5:00 P.M.**, in conjunction with a Technical Meeting.

PROPOSED FINAL TEXT

Article V. – MEETINGS OF THE SOCIETY

Section 1. The Annual Business Meeting will be held in late November or early December, in conjunction with a Technical Meeting.

- Accept proposed bylaw change
- Reject proposed bylaw change

EXISTING TEXT

Article VIII. – AMENDMENTS

If the proposals are to be acted on at the Annual Business Meeting, they will be mailed to the Society Membership along with the notice of that Meeting. If the proposals are to be acted on by mail ballot, the Clerk shall mail the proposals and ballots to the Society Membership no later than two weeks after he/she receives them, and shall close the balloting thirty days after they are mailed. In either case, a two-thirds majority of those voting is required for passage; providing, however, in the case of a mail ballot, that the number of ballots received is at least equal to a quorum, else the proposals will have failed.

PROPOSED CHANGES

Article VIII. – AMENDMENTS

If the proposals are to be acted on at the Annual Business Meeting, they will be mailed **or emailed** to the Society Membership along with the notice of that Meeting. If the proposals are to be acted on by mail **or email** ballot, the Clerk shall mail **or email** the proposals and ballots to the Society Membership no later than two weeks after he/she receives them, and shall close the balloting thirty days after they are mailed **or emailed**. In either case, a two-thirds majority of those voting is required for passage; providing, however, in the case of a mail **or email** ballot, that the number of ballots received is at least equal to a quorum, else the proposals will have failed.

PROPOSED FINAL TEXT

Article VIII. – AMENDMENTS

If the proposals are to be acted on at the Annual Business Meeting, they will be mailed or emailed to the Society Membership along with the notice of that Meeting. If the proposals are to be acted on by mail or email ballot, the Clerk shall mail or email the proposals and ballots to the Society Membership no later than two weeks after he/she receives them, and shall close the balloting thirty days after they are mailed or emailed. In either case, a two-thirds majority of those voting is required for passage; providing, however, in the case of a mail or email ballot, that the number of ballots received is at least equal to a quorum, else the proposals will have failed.

- Accept proposed bylaw change
- Reject proposed bylaw change

Past & Future Meetings: A Year in Review

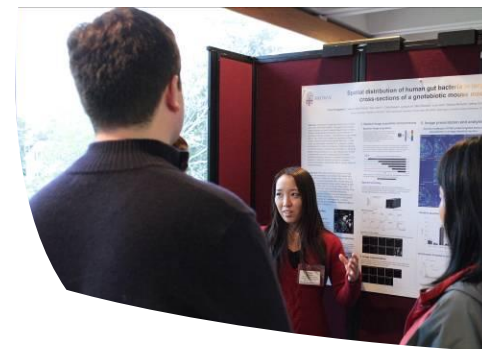
*29th Annual Spring Symposium, Woods Hole, MA –
May 3-4, 2012*

The 29th Annual Spring Symposium and workshops were held once again at the Marine Biological Laboratory (MBL) on May 3 and 4, 2012. This is the second year that we used the format of Thursday afternoon workshops and an all-day meeting on Friday.

For the workshops, participants could choose one of three topics. The workshops included Advanced SEM use presented by John Yorston (Carl Zeiss Microscopy) and Richard McLaughlin (Oxford Instruments). The second workshop explored two different optical techniques of laser microdissection and optical tweezers taught by Blair Rossetti (MBL) and live cell imaging on a spinning disc confocal system taught by Jim McIlvain (Carl Zeiss Microscopy). The final workshop was an introduction to confocal, two-photon imaging presented by Trevor Wardill (MBL) and spectral imaging using a specially configured confocal system, presented by Blair Rossetti (MBL). Twenty participants took advantage of this opportunity utilizing instrumentation in

the MBL Central Microscopy Facility. The meeting on Friday combined platform presentations, our corporate vendor presentations and a friendly time for lunch. About 80 members were present for the meeting. We heard about new ways to image muscle using super-resolution techniques by Elizabeth Brainerd, Brown University. Amazing to see that there continue to be different ways to image something so much studied like mammalian muscle. We then moved onto how various microscopy techniques and expert analysis can help discern origins from forgery in art, presented by Richard Newman, Boston Museum of Fine Arts.

Our corporate vendors showed us the interesting and helpful items they can provide to make our microscopy tasks better. About 20 vendors set up tabletop exhibits that were available throughout the meeting. The MBL Swope Center provided a full lunch during which time we could talk with new and old friends.



The afternoon session began with Barry Carter, University of Connecticut, presenting on how TEM has been and continues to be an important tool in the nanotechnology field. Barry is a past president of the Microscopy Society of America (MSA). Brian Monteleone from just up the street at the Woods Hole Oceanographic Institution (WHOI) gave us an introduction to ion microbe analyses used to better understand global scale processes. Brian manages the Northeast National Ion Microprobe Facility at WHOI. We then heard about endocytosis and cell signaling by Justin Topp, Gordon College. The meeting concluded with a talk by Trevor Wardill, MBL, talking about improvements he and others have made to activity indicators in neuronal systems. He is among a new generation of scientists at the MBL looking at all aspects of the neuronal systems.

-Louie Kerr
Interim Treasurer

Microscopy & Microanalysis Meeting – July 29 - Aug. 2, 2012

The MSA held its annual Microscopy and Microanalysis 2012 meeting in Phoenix, AZ from late July to early August. The event was held at the Phoenix Convention Center, and drew a large crowd. Starting with the Sunday Opening Reception, this year's social event was at the breathtaking Phoenix Convention Center ballroom. The Sunday Social Event was a great opportunity to catch up with friends and colleagues, make some new ones, and enjoy some wine, local beer, and a delicious Southwestern supper buffet. The meeting chair was Luke Brewer from the Naval Postgraduate School, and he did an impressive job in the program for the meeting.

The meeting provided an opportunity for professional education, exposure to première vendors, and the opportunity

for fun and entertainment around every corner. Phoenix proved to uphold its reputation as “hot” with the temperatures reaching 110 °F on most days — yes it was really hot.

The MSA Council members and Planning Committees did a great job, as the meeting was well advertised, well organized, affordable, interesting and fun! Really, it was the Phoenix nightlife that was fun! Classes and tutorials were well attended and covered a wide range of technical topics. The symposia were also very diverse, ranging from the plenary lecture to the impact of Cryo-preparation for Biological EM.

The MSA vendors were, as always, generous with their time, with their displays in the Convention Center, and

with their “invitation only” events, such as the FEI reception and the Arizona science center, which was well attended, and the Zeiss reception at the Hyatt.

Arizona State University offered tours to the Cowley Center, perhaps the world's premier High-Resolution Transmission microscopy center, although NCEM would disagree. It is an impressive facility.

There are currently 32 independent Local Affiliated Societies (LAS) active nation-wide, with NESM being one of the biggest and most active among them. NESM strongly encourages all members to become members of MSA and enjoy the benefits of the national society.

-David Bell
Physical Sciences Director

Fall Meeting & Workshops, UMass Amherst – Sept. 28, 2012

Science and Engineering Center (MRSEC) on Polymers at UMass Amherst) for a donation to support UMass student attendance at the fall meeting. We hope to see all our new student members at a future meeting.

The meeting started with four well attended workshops in the afternoon: Introduction to HRSEM for Soft Materials presented by Alex Ribbe (UMass Amherst), Lessons Learned by Building a Multicolor TIRF/STORM Microscope presented by the Ross Lab (UMass Amherst), Modern Raman Spectroscopy and Emerging Applications in Materials Science, Nano-Technology and Other Fields presented by Joe Dorsheimer & Alex Rzhetskii (Thermo Scientific), and Helium Ion Microscopy for Materials Application and Biological Imaging presented by Bernhard Goetze & Bipin Singh (Carl Zeiss). NESM sincerely thanks all the presenters for putting on such great workshops.

After dinner, Professor Lori Goldner (UMass Amherst) presented her work on single-molecule sensitive fluorescence microscopy of droplet-confined biomolecules. Professor

Goldner shared her groups experience making single-molecule sensitive fluorescence measurements and discussed several schemes for trapping, tracking, mixing, and making measurements in nanodroplets.

The evening concluded with a talk from Professor Joseph Goldstein (UMass Amherst) on the Extraterrestrial metal as observed by electron microscopy techniques. Professor Goldstein generously passed around some polished samples of meteors so we could all appreciate the Widmanstatten pattern up close. He then explained how, by using electron microscopy to study the metal phases, he could determine the cooling rate of different meteors and determine the history of the early solar system.

NESM thanks both speakers for generously giving up their Friday evening to share their research with us.

-Arthur McClelland
Physical Sciences Director



Professor Joseph Goldstein presenting at the Fall Meeting at UMass Amherst

The UMass Amherst Physics Dept. and Polymer Science and Engineering Dept. jointly hosted the NESM fall meeting. Thanks for Dr. Jennifer Ross and Dr. Alex Ribbe for all their help setting up the meeting. NESM would also like to say a special thanks to Dr. Todd Emrick, (Director of the National Science Foundation Materials Research

NESM News Live

Looking for upcoming meeting dates? Wondering how to become a NESM member? Interested in affiliated societies? Keep updated on all things NESM by checking us out on the web. Visit our homepage, nesmicroscopy.org, for the latest information on meetings and events. Peruse the website to find membership applications, Society documents, and contact information. Scan the QR codes below with your smartphone to find NESM on the web.



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2012 Corporate Members

Many thanks to those who help keep the NESM motor running

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Bruker Nano	LEICA Microsystems, Inc.
Carl Zeiss Microscopy	Oxford Instruments America, Inc.
EDAX, Inc.	SPI Supplies
Electron Microscopy Sciences	Ted Pella, Inc.
FEI Company	Tescan USA, Inc.
Fluidity Software, Inc.	Topcon Positioning Systems, Inc.
Gatan, Inc.	tousimis Research Corporation

NESM would like to extend our deepest thanks and appreciation to all of our Corporate Members. Your sustained commitment to NESM allows us to continue to promote excellence in microscopy here in New England. NESM would also like to thank our affiliated societies – MSA, MAS, and ConnMS – for their continued support.

