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NESM news

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

President's Letter – NESM Presents New Web Presence

Dear Fellow Microscopists,

The end of another year is on the horizon and the holidays are upon us. Several important changes have occurred since I last addressed the membership two years ago. In particular, the Society now has a more accessible and efficient online presence that provides a foundation for future growth. To see some of these changes please visit <http://www.nesmicroscopy.org/>, and follow us on NESM Facebook and Twitter @NESMicroscopy. In addition, we are now using the resources of an event planning website (Eventbrite). These changes, along with the transition from mail based communication several years ago, brings us closer to maximizing use of mainstream information sharing technologies.

NESM membership seems to have plateaued in recent years. The 2011 Society membership stands at a total of 87. This includes 55 regular members, 6 student members 4 retired members and 22 corporate members. In general, these numbers reflect a healthy membership; however, the Board continues searching for ways of increasing membership in all categories with an emphasis on younger microscopists on the upward arc of their careers. To assist the Board in anticipating and understanding future needs of the Society, the Board has recently drafted a member survey. When you receive the survey, please take the time to respond.

This information will greatly aid the Board in developing strategies for serving the membership.

Financially, the Society has maintained a strong positive balance (over \$10,000 balance) for at least the past 20 years. The Executive Board has made conscious efforts to minimize meeting registration costs. In part, this is done through the generous support of our corporate sponsors. Through the use of web-based event planning software and PayPal capabilities, tracking finances and member activity has been immensely simplified. In addition, these electronic transaction recorders significantly reduce the burden of manual accounting.

The NESM meeting attendance remains reasonably strong. The Board has been excited to observe the strong attendance at recent meetings including the Fall Meeting at Harvard's Center for Biological Imaging which had 53 attendees, with 21 attending pre-meeting workshops. With proper planning and execution the Board expects to continue providing interesting and timely meetings that attract a diverse group of microscopists.

The beginning of the year started out a little rough, but everything is back on track with the Board making many positive and healthy changes. As Interim President, I would like



to thank all the membership for their continued support to the Society. The corporate sponsors deserve special thanks for participation and stable financial support. In addition, I would like to thank fellow Board members for their efforts in keeping the Society running smoothly. Finally, I would also like to wish the incoming NESM President and board members success.

Sincerely,
Richard Schalek
NESM Interim President

45th Annual Fall Symposium & Business Meeting at Gordon College

Thursday, December 1, 2011

- 12:30–1:00** Meeting Registration (KOSC 124)
- 1:00–1:10** Welcoming Remarks
- 1:10–2:00** “Using Light to Illuminate Alternative Splicing Decisions in the Nervous System”, John Calarco, Ph.D., *Bauer Fellow, FAS Center for Systems Biology, Harvard University, Cambridge, MA*
- 2:00–2:50** “Dramatic Reduction of Surface Recombination by *in situ* Surface Passivation of Silicon Nanowires”, Yaping Dan, Ph.D., *School of Engineering and Applied Sciences, Harvard University, Cambridge, MA*
- 2:50–3:20** Coffee Break
- 3:20–4:10** “Intermediate Phenotypes: Insights in biology through pathology”, Praveen Arany, Ph.D., *School of Engineering and Applied Sciences, Harvard University, Cambridge, MA*
- 4:10–5:00** “Imaging Circuit Organization in the Mouse Visual System”, Josh Morgan, Ph.D., *Dept. of Molecular and Cellular Biology, Harvard University, Cambridge, MA*
- 5:00–5:45** Business Meeting
- 5:45–6:15** Student Poster Session
- 6:15–7:30** Dinner (Chairman's Room)
- 7:30–8:30** “Visualizing Microtubule Remodeling”, Jennifer Ross, Ph.D., *University Massachusetts Amherst, Amherst, MA*
- 8:30–8:40** Closing Remarks

**REGISTER
ONLINE:**

Visit

nesmicroscopy.org
for more details



Symposium Costs:

\$40 General Members

\$65 General Non-members
(includes 2012-year membership)

\$15 Student Members

\$40 Student Non-members
(includes 2012-year membership)

\$15 Retiree Members

\$40 Retiree Non-members
(includes 2012-year membership)

Late Registration - *After
November 27*: Additional \$5



**GORDON
COLLEGE**

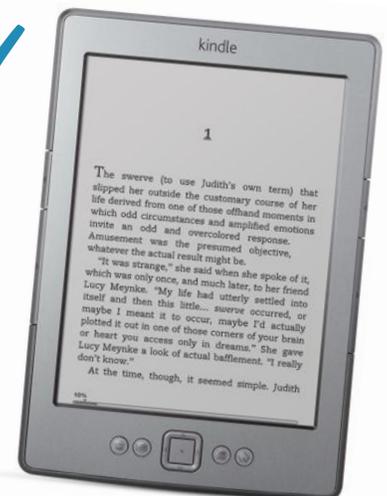
Student Poster Session

Calling All Students

Join the 45th Annual NESM
Fall Meeting at Gordon
College for our Student
Poster Session

Thursday, December 1st, 5:45 - 6:15PM
in the KOSC

**BEST STUDENT POSTER
WINS A NEW
AMAZON KINDLE**



Visit
nesmicroscopy.org
for more
information

← SCAN QR CODE WITH SMARTPHONE

Upcoming Board Elections

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 opened positions. As stated in the Society's bylaws, it is the task of the Nomination Committee to provide a slate of candidate for each opened position to the membership for a majority vote. In addition to those nominated by the Nomination Committee, NESM encourages all members to suggest candidates to

be places on the ballot. For all nominations, please contact Warren MoberlyChan at moberlychan@yahoo.com. 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 opened Board Member positions are outlined and discussed below. Immediately following each description are all of the current candidates and their bios.



Three Board Member positions to be voted on and filled at the December 1st Business Meeting

1 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.

Candidate

Professor Ming Y. Zheng has been the Chairman of the Biology Dept. at Gordon College in Wenham, MA since 2005, and has been a Biological Sciences Director for NESM for the past 3 years. Prior to joining the Biology Dept. at Gordon in 2002, Ming was Director of Research & Development for the Northwest Plant Breeding Company in Pullman, WA. He was an Associate Professor of Biology at Houghton College between 1994 and 1999; and received his Ph. D. in Genetics and Plant Breeding at Washington State University in 1994. His research focuses on plant biotechnology and crop breeding. He uses an immature pollen system as a platform to study the cellular and developmental events associated with somatic embryogenesis of plant cells. More recently, his interests also extend to the ethical, legal, social and economic impacts of genetic engineering. He has published a number of journal papers and book chapters.

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 both Biological and Physical Sciences Directors.

Biological Sciences Director Candidate

Mr. George Bell is a research assistant in Dr. Roger Hanlon's lab at the Marine Biological Laboratory in Woods Hole, MA working on cephalopod skin morphology. Various projects in the lab necessitate the use of both optical and electron microscopy, of which, George has had the opportunity to utilize several systems including confocal, SEM and TEM. George attended the University of New Hampshire and graduated with a bachelor's degree in Marine and Freshwater Biology.

Physical Sciences Director Candidate

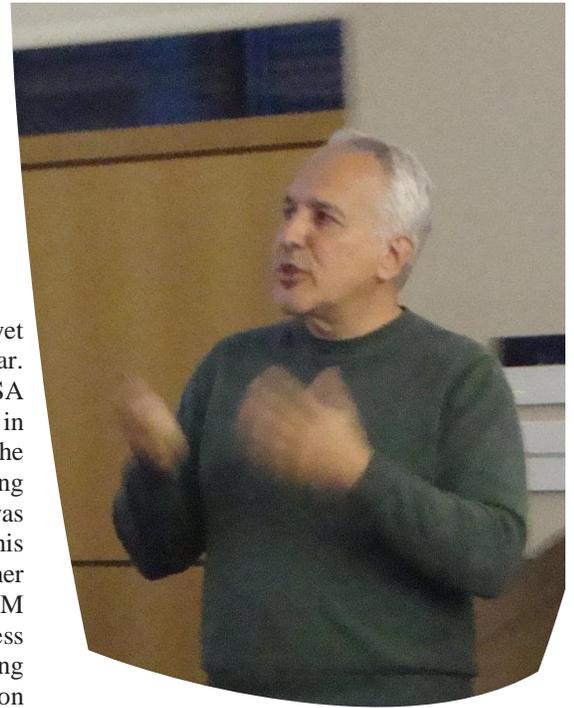
Dr. Arthur McClelland is the staff optical microscopy scientist at Harvard University's Center for Nanoscale Systems. He also has been the interim Physical Sciences Director for NESM for the past year. Arthur started working with ultrafast lasers as an undergraduate student at the University of Pittsburgh in Dr. Eric Borguet's lab. He wrote an honors thesis on femtosecond time resolved second harmonic generation of hot carrier dynamics at chemically modified germanium interfaces. He received his Ph.D. in Applied Physics from the University of Michigan in 2009 with Dr. Zhan Chen. His thesis work was on sum frequency generation vibrational spectroscopy of buried polymer and organic surfaces. For his Postdoc, Arthur worked with Dr. Paul Champion at Northeastern University studying the thermodynamic barrier to excited state proton transfer in eGFP using temperature dependent transient absorption, femtosecond coherence spectroscopy, and Raman spectroscopy.

Past & Future Meetings: A Year in Review

44th Annual Fall Symposium & Business Meeting Minutes – December 2, 2010

The 44th New England Society for Microscopy Fall Symposium was held in the Ken Olsen Science Center at Gordon College in Wenham, MA on December 2, 2010. The annual Business Meeting convened at 5:00 PM after a half dozen talks that discussed many of the advances in electron microscopy technique. For example, the state-of-the-art TEM micrograph is no longer black & white, but rather has each atom species with a different color. Biological imaging with a SEM now keeps the sample in atmospheric conditions. President Warren Moberly-Chan opened the Business Meeting with a brief review of the previous year's Business Meeting as well as a review of the 2010 Spring Symposium. Tim McClure presented the Treasurer's Report, which revealed an increase in the NESM financial statement, as compared to a drop in finances in each of the previous few years. The Society is still in excellent long-term financial condition, with a bank statement of between \$20k and \$30k. The Society

has recently been running in the red, yet only losing a couple thousand per year. However, 2 large grants (from MSA and an anonymous donor) have aided in recent years. In addition, the registration cost for attending the Spring Symposium in Woods Hole, MA was increased in April 2010 to make this meeting more self-sustaining. Further discussions from the NESM membership at the 2010 Business Meeting requested a reduction in Spring Symposium costs so that the registration cost could be kept closer to \$100. As a result, the Spring Symposium for April 2011 was reduced to one day from its typical two to three day format. Further changes are likely to be attempted, with membership input via surveys in 2011. The slate of candidates for the 2011 election was announced by Richard Schalek. A paper ballot vote was taken and the following people were elected: David Bell - *Physical Sciences Director 2013*; Louie Kerr - *Biological Sciences Director 2013*; Blair Rossetti - *Corresponding Secretary 2012*; Tim



McClure - *Treasurer 2012*; Robert Brandom - *Clerk 2012*; Fettah Kosar - *President-Elect 2011*; and Rick Rodgers - *President 2011*. Warren Moberly-Chan thanked Dr. Ming Zheng for arranging the Gordon Business Meeting and dinner, and thanked the Society for the privilege of serving. Then a motion to adjourn the meeting was made and seconded

-Warren Moberly-Chan
Immediate Past President 2010

28th Annual Spring Symposium, Woods Hole, MA – May 6, 2011

The Annual Spring Symposium was held on May 6, 2011 for the 28th time at the Marine Biological Laboratory in Woods Hole, MA. This year the NESM Board tried a different format from past years with one full day of talks.

The meeting started at 9AM with registration and refreshments. Talks began with several diverse topics from medicine to diamonds. Dr. Alex Woollard spoke of his research on examining re-innervation within the muscles affecting facial palsy. Dr. Woollard is an English trained M.D. now visiting Dr. Jeff Lichtman's lab at Harvard. Next, we heard from Dr. Tanya Smith, also from Harvard, about her work with synchrotron X-ray microtomographic studies of dental structures in human and primate fossils. These studies have begun to resolve some debates over developmental differences between Neanderthals and

humans. Dr. James Weaver of Wyss Institute for Biologically Inspired Engineering at Harvard presented work on Biodiversity and biomimetics using a new type of SEM. Using a technique called wide-field SEM, samples such as rodent skulls were imaged with a field of view greater than 10 cm. Dr. Weaver also presented various images in 3D using red/green anaglyphs and 3D glasses. Quite eye opening!

Time was allotted for NESM vendors to present their products and services. NESM members displayed several research posters. It was an ideal time to discuss science with the poster presenters and to discuss the equipment necessary to carry out this research with our valued vendors.

NESM continued to display our breadth of interests with an X-ray microtomography talk by Dr. Eric

Maire of the Universite de Lyon in France. Dr. Maire provided examples of *in situ* experiments using X-ray computed microtomography of materials. Dr. David Glenn of Harvard then presented research on developing nanometer-sized diamonds as cathodoluminescent markers for use in the SEM. The talks concluded with Nicholas Antoniou speaking on TEM sample preparation using FIB techniques. Using a SEM with integrated FIB column Nicholas showed a new and very fast process for the preparation of TEM samples that was developed at the Center for Nanoscale Systems of Harvard.

After the meeting several attendees concluded the day with a nice dinner in Woods Hole. All in all it was an inspiring day of the joy of science.

-Louie Kerr
Biological Sciences Director



Music City Hosts Microscopy & Microanalysis Meeting – Aug. 7-11, 2011

The MSA held its annual Microscopy and Microanalysis 2011 meeting in Nashville, TN in early August. The event was held at the Nashville Convention Center, and drew a large crowd, starting with the Sunday Opening Reception. The meeting provided an opportunity for professional education, exposure to premiere vendors, and the opportunity for fun and entertainment around every corner.

Nashville proved to uphold its reputation as “Music City”. The MSA attendees casually walked around the corner from the Convention Center to Broadway where every type of nightlife and music was readily available. The bars and restaurants, with nearly twenty-four hour entertainment, gave everybody plenty to do. Whether it was the fine dining, local brew-house dining

or genuine southern barbeque, the atmosphere and food were stimulating and entertaining.

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 Nashville nightlife that was fun! Classes & tutorials were well attended and covered a wide range of technical topics. The symposia were also very diverse, ranging from the plenary lecture on synchrotron X-ray analysis to the impact of Digital Diagnostic Pathology techniques. The MSA vendors were, as always, generous with their time, with their displays in the Convention Center and with their “invitation only” events.

Some MSA attendees were fortunate to plan ahead for a night at the Grand Ole Opry. Others took advantage of touring

the original Opry, the Ryman Auditorium, across the street from the Nashville Convention Center. You could feel the history of the Ryman, through the audio/visual guide and perusing the posters, printed as they’ve done throughout the city’s history by a local printing company called Hatch Showprint. The stars that made the Opry great still honor the Ryman today and many more current artists grace the stage at the refurbished Ryman, making it a classic venue steeped in music culture and history for the city of Nashville.

The MSA Meeting is the best place to network, learn, explore, shop for equipment, and socialize in the microscopy community. 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.

Nashville was one of the best places the MSA meeting in memory. For 2012, Phoenix, AZ will be the hosting the MSA conference where we can discover what makes the Grand Canyon State a great place to visit.

-Chris Santeufemio
NESM Past President

Fall Meeting & Workshops, Harvard University – Oct. 20, 2011

The Fall dinner meeting was held at Harvard University on October 20th, 2011. NESM would like to thank Zeiss for the very generous sponsoring of the dinner meeting.

The Center for Nanoscale Systems and the Center for Biological Imaging hosted sold out workshops in the afternoon before the meeting. The workshop topics included the optical super resolution techniques of structured illumination microscopy (SIM) and photoactivated localization microscopy (PAL-M), the nonlinear optical technique of coherent anti-Stokes Raman scattering (CARS) microscopy, the X-ray technique of

micro computed tomography, and two workshops on techniques for handling biological samples in transmission electron microscopy (BioTEM) and scanning electron microscopy (BioSEM).

Dr. Jeff Lichtman spoke about his Connectome project, which has the goal of mapping every neuronal connection in a mouse brain. The project developed the now famous brainbow transgenic mice, which have each neuron labeled a different color with fluorescent proteins. The Connectome project has now moved onto developing high throughput electron microscopy techniques of brain slices.

Bernhard Götz spoke after dinner about the optical super resolution techniques of structured illumination microscopy (SIM) and photoactivated localization microscopy (PAL-M). SIM works with any well fixed, well stained fluorescent sample and gives x-y localization of features of ~100nm. PAL-M requires a more specialized sample preparation, but can give x-y localization down 20-40nm.

Both talks were full of breath taking images and NESM would like to thank both speakers for taking time to share them.

-Arthur McClelland
Physical Sciences Director



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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Many thanks to those who help keep the NESM motor running

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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.

