

# THE NUCLEUS

October 2017

Vol. XCVI, No.2



## Monthly Meeting

*at Waters Corporation, Milford, MA*

*Recognition of 50- and 60-Year Members*

## Marietta Haeg Schwartz

1961–2017

## 21<sup>st</sup> Andrew H. Weinberg Symposium

*James E. Bradner, M.D., to speak at Dana-Farber  
Cancer Institute*

## 2017 NESACS/GDCh Exchange Trip to Mainz

*By Thomas Gilbert*



## SAVE THE DATE

# Northeastern Section of the American Chemical Society Process Chemistry Symposium

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**Date** Thursday, October 12, 2017

**Location** Merck Boston Auditorium  
33 Avenue Louis Pasteur  
Boston, MA 02115

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**Confirmed Speakers** **Stephen Buchwald**, Massachusetts Institute of Technology  
**Timothy Curran**, Vertex Pharmaceuticals Inc.  
**Jamie McCabe Dunn**, Merck & Co.  
**Steven Mennen**, Amgen Inc.  
**Sarah Reisman**, California Institute of Technology  
**Richmond Sarpong**, University of California, Berkeley  
**Corinna Schindler**, University of Michigan  
**Jim Yang**, Biogen

- Save the date – October 12, 2017 - for a day-long symposium focused on process chemistry and featuring speakers from industry and academia. There will be opportunities to network with members of the local chemistry community during lunch and a late afternoon reception.
- Seating is limited, and registrations will be honored on a first come, first served basis. Register at:
- <http://www.acssymposium.com/NESACS/registration.html>
- Questions? Please contact a member of the symposium organizing committee.
  - Katherine Lee [katherine.lee@pfizer.com](mailto:katherine.lee@pfizer.com)
  - Matthew Maddess [matthew\\_maddess@merck.com](mailto:matthew_maddess@merck.com)
  - Steven Mennen [smennen@amgen.com](mailto:smennen@amgen.com)
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*1961-2017*

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**Cover:** *James E. Bradner, M.D., Novartis Institutes for Biochemical Research, speaker at the 21st Annual Andrew H. Weinberg Symposium. Photo courtesy of Dr. Bradner.*

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# Lecture by Prof. Jean-Marie Lehn at Northeastern University

On Friday, May 12, 2017, Chemistry Nobel Laureate, Professor Jean-Marie Lehn of the University of Strasbourg (France) Institute for Advanced Study, spoke at a special seminar in the College of Engineering at Northeastern University. His talk, entitled “Perspectives in Chemistry: From Supramolecular Towards Adaptive Chemistry - Pure and Applied,” was followed by a luncheon reception that was co-sponsored by NESACS and the Northeastern University College of Engineering.

Professor Lehn shared the 1987 Nobel Prize in Chemistry with Donald Cram (UCLA) and Charles Pedersen (Du Pont) “for their development and use of molecules with structure-specific interactions of high selectivity,” which is the chemical basis for “molecular recognition” in biological processes whereby a receptor molecule recognizes and selectively binds a substrate.

Over the years, Prof. Lehn’s work led to the new field of “supramolecular chemistry,” which deals with the complex entities formed by the association of two or more chemical species held to-



(l-r) Thomas Webster (Chair, Department of Chemical Engineering, NU); Nadine Aubry (Dean, College of Engineering, NU); Jean-Marie Lehn (University of Strasbourg); Hicham Fenniri (Professor, Department of Chemical Engineering, NU); Mindy Levine (Professor, Department of Chemistry, University of Rhode Island; NESACS Chair-Elect).

Photo by Francesca Fuerman

gether by noncovalent intermolecular forces, in contrast to molecular chemistry where the entities are constructed from atoms linked by covalent bonds. That area of research has developed into the chemistry of “self-organization” processes, and more recently toward “adaptive chemistry,” dynamic networks, and complex systems.

Prof. Lehn was born in 1939 in Rosheim, France. He received his Ph.D. in 1963 from the University of Strasbourg on the early use of proton NMR for structure elucidation, and spent the following year at Harvard University as a postdoctoral research associate in the laboratory of R.B. Woodward, where he worked on the synthesis of Vitamin B<sub>12</sub>. He also had the opportunity to perform quantum mechanical computations with Roald Hoffmann in what would be the development of the Woodward-Hoffmann rules. He returned to a faculty position at the University of Strasbourg and was promoted to Professor in 1970. He spent the spring semesters of 1972 and 1974 as visiting professor at Harvard University. In 1979, he was elected to the chair of *Chimie des Interactions Moléculaires* at the Collège de France in

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## Senior Chemists Luncheon

Monday, October 16, 2017

2:00 – 4:00 P.M.

Panera Bread  
1684 Massachusetts Avenue  
Lexington, MA  
(parking behind the building)

Please join us for relaxed fellowship and a chance to catch up with each other and with ACS happenings.

Friends and family welcome! ◇

Paris. The author of more than 950 scientific publications, Lehn is a member of many academies and institutions, and has received numerous international honors and awards.

Professor of Chemical Engineering Hicham Fenniri of Northeastern University, who studied for his Ph.D. under Lehn’s supervision in Strasbourg and was instrumental in inviting him to Boston for his talk, stated, “This event was attended by researchers from most academic and industrial institutions in the greater Boston area, whose feedback has been nothing but gratitude and amazement at the opportunity to hear from one of the most influential scientific minds of our time.” ◇



# Monthly Meeting

*The 972<sup>nd</sup> Meeting of the Northeastern Section of the American Chemical Society – Hosted by Waters Corporation*

**Presentation of 50- and 60-year members.**

**Thursday, October 5, 2017**

**Waters Corporation**

34 Maple St., Milford, MA 01757

## Agenda:

**4:30 pm** Board Meeting (Alliance Room)

**5:30 pm** Social Hour (Atrium Rooms 1, 2, 3)

**6:15 pm** Dinner (North Cafe)

**7:15 pm** Welcome and Introduction

**7:30 pm** Presentation of 50- and 60- year members

**7:50 pm** Evening Program: **Professor Katherine Mirica**, Assistant Professor, Department of Chemistry, Dartmouth College  
*“Stimuli-Responsive Materials for Chemical Sensing and Microelectronics”*

To register use the following Eventbrite link: <https://www.eventbrite.com/e/nesacs-october-meeting-at-waters-corporation-in-milton-ma-05-oct-2017-tickets-37157156054>

"For further information contact the Section Administrative Coordinator, Anna Singer at <[secretary@nesacs.org](mailto:secretary@nesacs.org)>. Please note that the office is open on a Part-Time basis only.

THE PUBLIC IS INVITED - RESERVATIONS ARE REQUIRED before September 28, 2017.

Registration is required and an ID will be required to enter the Waters facility. Parking is available on-site.

**Directions:** [http://www.waters.com/waters/en\\_US/Directions-To-Waters-US/nav.htm?cid=10062899](http://www.waters.com/waters/en_US/Directions-To-Waters-US/nav.htm?cid=10062899) ◇

# Biography:



Katherine Mirica was born and raised in eastern Ukraine, and moved with her family to the state of Rhode Island during her freshman year in high school. She attended Boston College, where she developed a passion for Materials Chemistry, working in the laboratory of Lawrence T. Scott. She graduated with high honors in 2004, and later that year moved across the river to pursue graduate studies at Harvard University. In 2011, Katherine earned her Ph.D. in Chemistry from Harvard University under the guidance of George M. Whitesides. Her doctoral dissertation focused on the development and characterization of a simple and portable method that used magnetic levitation for density-based chemical analysis. She also contributed to several other research efforts in the areas of paper-based diagnostics and protein biophysics. Katherine then joined the laboratory of Timothy M. Swager at the Massachusetts Institute of Technology as an NIH postdoctoral fellow to pursue the development of portable electronic carbon-based chemical sensors for the detection of hazardous gases and vapors. At MIT, she developed a solvent-free approach, operationally analogous to drawing with pencil on paper, for the fabrication of sensitive and selective sensors from carbon nanomaterials. Katherine began her independent scientific career as an Assistant Professor in the Department of Chemistry at Dartmouth College in July 2015. ◇

limable organic compounds, with promising utility in the fabrication of micro-electronic devices. ◇

# Abstract:

Stimuli-responsive materials hold promise for enabling the fabrication of portable chemical sensors and micro-electronic devices with the goal of improving human health, safety, efficiency, and quality of life. This presentation will describe the molecular design, synthesis, and characterization of stimuli-responsive multifunctional materials. The first part of the presentation will describe several approaches for interfacing conductive metal-organic frameworks (MOFs) with electrodes to create devices

with promising utility in gas detection and capture. I will present several approaches for direct self-assembly of conductive two-dimensional (2D) MOFs into portable device architecture, and demonstrate the utility of this approach in the context of gas sensing. I will also describe how the modular structure-property relationships within this class of 2D MOFs can be designed to achieve electrochemically-driven capture and release of gases directly at the solid-gas interface. The second part of this presentation will introduce a novel approach to designing materials for temporary adhesion, which relies on the use of sub-

# Call for Nominations

## *The Gustavus John Esselen Award for Chemistry in the Public Interest*

The Northeastern Section of the American Chemical Society (NESACS) is inviting nominations for its prestigious Gustavus John Esselen Award for Chemistry in the Public Interest. This award is given annually to a chemical scientist, whose scientific and technical work has contributed to the public well-being and has thereby communicated the positive values of the chemical profession. The significance of this work should have become apparent within the five years preceding nomination. The awardee shall be a living resident of the United States or Canada at the time of the nomination.

There is no limitation to the field of chemistry. The selection committee focuses on the general public recognition of the work, as well as its scientific/technical significance.

The Award consists of a bronze medal and the sum of \$5,000. Travel expenses incidental to the conferring of the award will be reimbursed. The award will be presented at the April 2018 meeting of the Section. The Awardee is expected to deliver an address on the subject of the work for which the honor is conferred, or for work in progress which is also directed toward chemistry in the public interest.

Nominations should be submitted as a single pdf file including: 1) a letter signed by the primary sponsor with a description of the nominee's work recognized as making a major contribution to the public welfare and as communicating positive values of the chemical profession, plus the names of two co-sponsors; 2) short supporting co-sponsor statements; 3) the nominee's professional biography including a list of no more than ten of the nominee's publications selected for their pertinence to the work nominated for recognition; and 4) copies of popular and technical press news or feature articles indicative of public ben-

# ACS National Election

Ballots for the 2017 ACS fall national election will be distributed on September 29, with a voting deadline four weeks later, on October 27. In a change of procedures, all members with an email address on file and eligible to vote will receive an electronic ballot with the option to request a paper ballot. Those members with no email address on file will be sent a paper ballot with the option to still vote electronically. The ACS election vendor, Survey & Ballot Systems, will send three email reminders during the voting period to those who have not voted as of the reminder date. ◇

efit and interest. Further information is available at [www.nesacs.org](http://www.nesacs.org).

**Nominations Are Due October 20, 2017** to [drkallen@bu.edu](mailto:drkallen@bu.edu) with cc to [JPiperGrady@gmail.com](mailto:JPiperGrady@gmail.com). Award recipients will be notified by February 1, 2018.

Inquiries may be directed to Dr. Karen Allen, Tel. (617) 358-5544 or Jeananne Piper Grady, Tel. (617) 620-8315. Address: 11 Thaxter St., Hingham, MA 02043. ◇



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# Grants-in-Aid to Undergraduates

## *to Attend the 255<sup>th</sup> ACS National Meeting & Exposition, March 18-22, 2018, in New Orleans, LA*

The Northeastern Section of the American Chemical Society (NESACS) will provide Grants-in Aid of \$350 to each of four undergraduates to attend the 255<sup>th</sup> ACS National Meeting in New Orleans, LA, and to present a paper at the Undergraduate Research Poster Session in the Division of Chemical Education. The institutions of the successful applicants are expected to match the award.

**Eligibility:** Applications will be accepted from students at colleges and universities within the Northeastern Section of the ACS. The undergraduate student must be a chemistry, biochemistry, chemical engineering, or molecular biology major in good standing with at least junior status, and must be currently engaged in undergraduate research.

**Application:** Application forms may be obtained from the NESACS web site at <http://www.nesacs.org>. The deadline for receipt of completed applications by Professor Matthew Gage, Chair of the Grants-in-Aid Committee, is October 2, 2017. Completed applications are to be sent to: Professor Matthew Gage, Department of Chemistry, University of Massachusetts Lowell, 1 University Avenue, Lowell, MA 01854 Phone: 978/934-3683 Fax: 978/934-3013; e-mail: [Matthew\\_Gage@uml.edu](mailto:Matthew_Gage@uml.edu)

**Notification:** Applicants will be notified of the results by e-mail on October 9, 2017. The deadline for electronic submission of abstracts to the American Chemical Society in Washington, D.C. is October 23, 2017, 11:59 PM. ◇

# 21<sup>st</sup> Annual Andrew H. Weinberg Symposium

**James E. Bradner, M.D.**

**President, Novartis Institutes for Biochemical Research**

*“New Paths to the Waterfall: Rethinking the Science of Therapeutics for Pediatric Malignancies”*

**Wednesday, November 1, 2017**

**4:00 pm – 5:00 pm**

**Yawkey Conference Center, 3rd floor of the  
Yawkey Center for Cancer Care**

at the Dana-Farber Cancer Institute.

Located at 450 Brookline Ave, Boston, MA 02215.

**Free parking in the Yawkey Center garage,  
entrance on Jimmy Fund Way.**

**Contact: Tracey Cook, 617-632-4450, [tracey\\_cook@dfci.harvard.edu](mailto:tracey_cook@dfci.harvard.edu)**

**Webstreaming:**

**<http://video.dfcionline.org/accordent/WeinbergSymposium110117>**

## Biography:

Dr. James (Jay) M. Bradner, M.D., has been President of Novartis Institutes for BioMedical Research, Inc. at Novartis AG since March 1, 2016. Dr. Bradner is the Founder of C4 Therapeutics, Inc. He is a Scientific Founder of Acetylon Pharmaceuticals, TetraLogic Research and Development Corporation, Syros Pharmaceuticals, Inc. and Tensha Therapeutics, Inc.

He serves as Staff Physician at Dana-Farber Cancer Institute. He serves as Physician-Scientist, Chemical Biology Group, Broad Institute; Associate Physician, Brigham and Women's Hospital; and Instructor of Medicine, Harvard Medical School.

He leads a chemical biology group at the Broad Institute investigating cellular function of histone deacetylases and the role of autophagy in hematologic malignancies. His group applies forward and reverse chemical genetic platforms, high-content screening and small-molecule microarrays for ligands

modulating autophagy.

Dr. Bradner is Associate Director of the Center for the Science of Therapeutics (CSofT) at the Broad Institute where he has worked since 2004. He serves as an Assistant Professor of Medicine at Harvard Medical School. He was an Associate Professor at Harvard Medical School.

He serves as a Director of Tensha Therapeutics, Inc. He serves as a Director of TetraLogic Research and Development Corporation. He serves as a Member of Scientific Advisory Board at Acetylon Pharmaceuticals, Inc. He served as a Member of the Supervisory Board at Qiagen NV since June 2015 until December 31, 2015. He served as a Director and Member of Scientific Advisory Board at Syros Pharmaceuticals from April 2013 until October 2015. He has served as a Member of Scientific Advisory Board at Agios Pharmaceuticals, Inc., since November 24, 2008.

Dr. Bradner has co-authored more than 130 scientific publications and 30 United States Patent applications. He is attending physician in the Department

## Abstract:

“Dr. Bradner will discuss the relationship between academia and industry in cancer drug development. He will provide a specific emphasis on pediatric oncology drug development. He will provide relevant examples from his own laboratory work focused on new targets. This will include targets involved in determining structure of chromatin (complex of DNA and proteins that constitute chromosomes) and transcription (converting DNA into an RNA message). A key example will be bromodomain inhibitors, a novel class of drugs with anti-cancer agents now in clinical trials.” ◇

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of Hematology-Oncology at the Dana-Farber Cancer Institute. Dr. Bradner received his AB in Biochemical Sciences from Harvard University in 1994, his M.D. from the University of Chicago in 1999 and his M.M.S. from Harvard Medical School. ◇



# 2017 NESACS/GDCh Exchange Trip to Mainz, Germany

by Tom Gilbert

The 2017 edition of the German Exchange Program (GEX) included twelve student–delegates from nine colleges and universities in the Northeastern Section. Among them were 8 graduate students:

- Zhehui Li, Boston College
- Alfred Burney-Allen, Boston University
- Gina Kim, Boston University
- Brendan Mattingly, Boston University
- Reem Telmesani, Boston University
- Li Zha, Harvard University
- Sita Gurung, University of Massachusetts, Dartmouth
- Min Song, University of New Hampshire

and four undergraduates:

- Amelia McCue, Saint Anselm College
- Jordan Mattheisen, Simmons College
- Jasper Du, Tufts University
- Margaret, Klureza, Wellesley College

The delegates were selected from among 25 applicants based on the quality of their research presentations and interviews conducted in late November, 2016. They were accompanied on the trip to Germany by two former participants in the GEX program, Emel Adaligil and Andrew Scholte, and by GEX Co-chair Tom Gilbert. Also joining the delegation was Brendan Mattingly's father, Daniel Mattingly from Jacksonville, FL, who served as a guide for his sight-impaired son.

The group began its journey on Saturday, March 25, with an overnight flight from Boston to Zurich and a connecting flight to Frankfurt – at least that was the plan. Unfortunately, a short connection time coupled with a late departure from Boston and slow passport control in Zurich Airport led to the group missing its connecting flight. Fortunately, enough seats were available on the next flight to Frankfurt, and our group (and luggage) reached Frankfurt airport in mid-afternoon on Sunday. There they were greeted by Dr. Elisabeth Kapatsina, head of the Education Department of the German Chemical Society (GDCh). Elisabeth served as principal host and guide for the group during their time in Germany.

A half-hour train ride brought the group to Mainz, a city of 200,000 located west of Frankfurt at the confluence of the Main and Rhine Rivers. Mainz is the home of Johannes Gutenberg University, Mainz (JGU), which was the site of the principal activity of the trip: participation in a research symposium organized by the Young Chemists Committee of the GDCh (Jungchemikerforum or JCF).

After checking into their hotel the group headed to a welcoming dinner hosted by members of the JCF, who were responsible for organizing and running the research symposium

and who did a marvelous job of hosting the delegates during their time in Mainz. Among them were Valentina Breising, John Haupt and Benjamin Breitenbach. At dinner the NESACS contingent also met delegates from Russia, Brazil, Nigeria, and Vietnam who were attending the JCF symposium through the International Young Chemists Network (IYCN). These students traveled with our group during the remainder of time in Germany.



*The welcome dinner took place in a Mainz restaurant that is also a brewery. The beer was fresh and delicious, which contributed to the many smiles in this photo.*

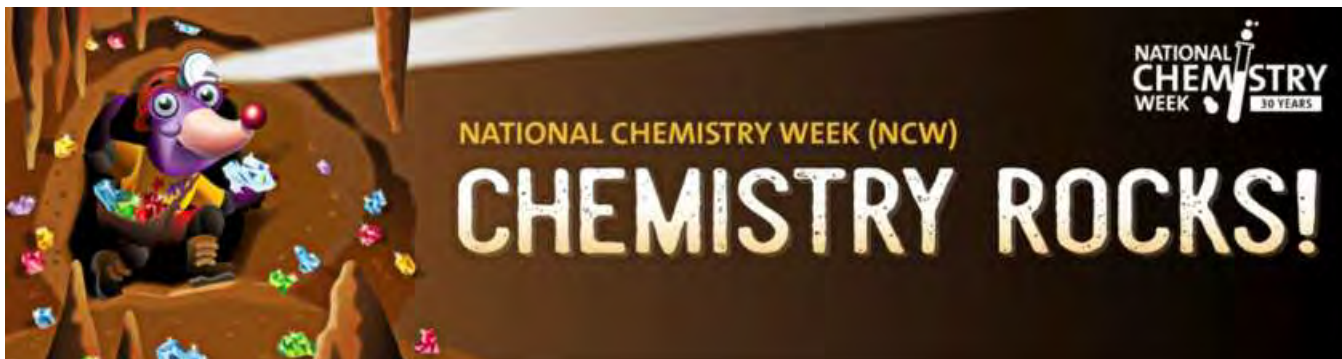
On Monday our delegates were up early for a trip to Darmstadt and the world headquarters of Merck KGaA. There they learned about the history of this pharmaceutical and chemical company and about its scientists' recent advances in developing anti-cancer drugs, innovative photovoltaic technology, and organic light-emitting diodes (OLED) for ultra-



*Conclusion of the trip to Merck headquarters in Darmstadt provided a photo opportunity that showcased the sunny, warm weather the group enjoyed in Germany.*

*continued on page 10*





## Sunday, October 15, 2017 – Museum of Science, Boston

### *Phyllis A. Brauner Memorial Lecture by Dr. Bassam Shkhashiri*

Dr. Bassam Shkhashiri is a Professor of Chemistry at the University of Wisconsin-Madison and is the William T. Evjue Distinguished Chair for the Wisconsin Idea. Professor Shkhashiri has captivated audiences with his scientific demonstrations at a variety of locations including Boston's Museum of Science, the National Academy of Sciences and the Smithsonian's National Air and Space Museum in Washington.

Taking place in Cahners Theatre (2nd floor, Blue Wing) at 1:00pm and 4:00pm

\*Admission to the museum is required. Free tickets to Dr. Shkhashiri's show will be available on a first come, first serve basis. Tickets are available via advance reservation. To reserve tickets, please contact the NESACS secretary via email [secretary@nesacs.org](mailto:secretary@nesacs.org) before October 10, 2017. Tickets will be available for pick-up in the lobby of the museum at the ACS table.

### *Hands-on Activities Related to Geochemistry & Much More*

NCW guest educators will be available from 11:30am – 3:30pm to perform demonstrations and assist in hands-on activities suitable for museum visitors of all ages.

## Saturday October 28, 2017 – Boston Children's Museum

Come join our NCW volunteers from 11am – 4pm for hands-on activities suitable for all ages



## NESACS/GDCh Trip

*Continued from page 8*

thin TV displays. Our tour included a presentation about OLED technology from Prof. Dr. Herwig Buchholz, Merck's Global Head of Chemistry R&D.

On Tuesday morning the group traveled to the enormous (over 7,000 people work there) Sanofi research and manufacturing center at Frankfurt-Höchst. A bus tour of the sprawling facility included stops at several R&D and manufacturing facilities. Among them: the plant that produces the world's supply of fexofenadine hydrochloride, the active ingredient in the allergy medicine Allegra.



*The group gathers after their tour of the expansive Sanofi campus at Frankfurt-Höchst.*

In the afternoon, the group toured downtown Frankfurt, and took in the view from the top of one of the city's tallest buildings. Later they visited the historic buildings and public spaces near the Römer, which has served as Frankfurt's city hall since the early 1400s. That evening the group dined at Apfelweinwirtschaft Wagner, a famous restaurant in Frankfurt that is noted for its homemade apple wine.



*The NESACS group takes in the view of Frankfurt and its surroundings from the top of one of its tallest skyscrapers. Our members (front row from left): Emel Adaligil, Sita Gurung, Jordan Mattheisen, Andrew Scholte, and Jasper Du. Back row: Tom Gilbert, Brendan Mattingly, Li Zha, Amelia McCue, Reem Telmesani, Maggie Klureza, Gina Kim, Zhehui Li, Min Song, Alfred Burney-Allen, and our remarkable host, Elisabeth Kapatsina.*

On Wednesday the group stayed in Mainz, touring the chemistry research and teaching facilities of the Johannes Gutenberg University, Mainz, which has more chemistry students (over 1100) than any other German university. The tour included the JGU's extensive NMR, polymer chemistry and physical chemistry research facilities. It was followed by a tour of the Max-Planck Institute for Chemistry, which is located on the campus of JGU. That tour featured a presentation on the institute's research activity on the chemistry of Earth's atmosphere, lithosphere and hydrosphere. After-lunch activities included a tour of the university's TRIGA nuclear reactor and a presentation on the research it supports. That evening the JCF conference began with a welcome reception where the group had its first opportunity to connect with the more than 300 young chemists attending the conference from Germany and many other countries.

Thursday, Friday and Saturday morning were filled with a blend of plenary lectures from well-known senior chemists and oral and poster presentations from student participants. Two of our delegates, Reem Telmesani and Li Zha, were invited to give oral presentations. All presentations were delivered in English, although Li gave his acknowledgment and thanks to our JCF hosts in German, and received an enthusiastic round of applause for doing so. The official conference dinner was held on campus Friday night followed by a late night/early morning celebration at a club near ancient Roman baths on the east side of Mainz. Many of our delegates had little sleep that night.



*Delegates and their new JCF friends toast a successful and very enjoyable conference.*

On Saturday morning six of our delegates presented their research during the final poster session, which was followed by the symposium's closing ceremony. During this event Reem received the Best Oral Presentation award. Saturday afternoon was a time for souvenir shopping for many delegates, followed by a farewell dinner for them and the IYCN delegates hosted by GDCh. Gifts were exchanged as our delegates thanked our JCF and GDCh colleagues for their gracious hospitality and for a rewarding and enjoyable experience. Toward the end of dinner a cake was served to help celebrate Brendan Mattingly's birthday.

*continued on page 11*



## NESACS/GDCh Trip

Continued from page 10



Reem and Jasper with their award certificates at the NSYCC conference



On the way to our farewell dinner, hosted by GDCh, in downtown Mainz



Reem and her Best Oral Presentation Award

The Sunday return flights (again through Zurich) were thankfully uneventful. Conversations at the airports and on the planes were filled with delegate comments about what a great educational and cultural experience they had had.

**Epilogue:** On the Saturday following their return from Germany, GEX dele-

gates participated in the Northeastern Section Younger Chemists Committee's Northeast Student Chemistry Research Conference at Harvard University. During the awards ceremony at the conclusion of the conference, Reem Temesani was presented the Most Promising Fe-

## CAREER DEVELOPMENT

Being an active participant in NESACS activities will enable you to network with major institutions and corporations in our area and can open up new career opportunities.

The NESACS Board of Publications, which is responsible for both the *Nucleus* newsletter and the NESACS website, is looking to increase its activities in this arena.

We would like to expand our capabilities for keeping our membership informed on what is happening in our field and how to adapt to changing times and new technologies.

You can help us do that. All we ask of you is a few hours a month and a smile.

Call or email to see what opportunities are available.

contact – Michael Filosa  
NESACS Board of Publications  
Phone - 508-843-9070

Email [filosam@verizon.net](mailto:filosam@verizon.net)

male Scientist Award and Jasper Du received the Outstanding Undergraduate Student Poster Award. ◇



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# NESACS Receives Chemluminary Award

The Northeastern Local Section was presented with the Outstanding Sustainability Activities ChemLuminary Award at the 19<sup>th</sup> Annual Ceremony (*Our Volunteers and Their Monumental Impact*) on August 22, 2017, at the ACS national meeting in Washington, D.C.

NESACS received the award from the Committee on Environmental Improvement (CEI) for hosting a day-long workshop in partnership with its Younger Chemists Committee, Pfizer Pharmaceuticals, and the New England Scientists and Teachers for Sustainability (NESTS) Association that featured talks from research chemists who apply green chemistry principles in their daily lives, and educators who develop lesson plans and strategies about green chemistry. NESACS had received a Local Section Sustainability Programming Grant in 2016 to make the event possible. This CEI-sponsored award recognizes a local section that has introduced a new and outstanding program promoting sustainability at the local level.

Details about the workshop, which was held on November 5, 2016, at the Integrated Science Center at UMass-Boston, were published earlier: R. Borg, *The NUCLEUS*, 95, 2 (January 2017). The collaboration between Pfizer and UMass-Boston was initiated by Prof. Jonathan Rochford of the UMB Chemistry Department.

NESACS was also a finalist for six other awards for its activities in 2016 based on self-nominations in its annual report.

- Outstanding Local Section Career Program (Committee on Economic and Professional Affairs, CEPA), won by the Colorado Local Section.
- Outstanding Local Section Younger Chemists Committee (Younger Chemists Committee, YCC), won by the Savannah River Local Section.
- Outstanding or Creative Local Section Younger Chemists Committee Event (Younger Chemists Committee, YCC), won by the Colorado Local Section.



With the ChemLuminary Award: (l-r) Sofia Santos (Massachusetts General Hospital/Harvard Medical School; NSYCC Past-Career Chair), Caitlyn Mills (Northeastern; NSYCC Chair), Ray Borg (currently at UC-Santa Barbara; NSYCC Past-Outreach Coordinator, NESTS Past-Chair), Javier Magano (Pfizer), Catherine Rawlins (Northeastern; NSYCC Past-Chair), Meredith Ward (UMass-Boston; NESTS Education Chair).  
Photo by Timothy Bergeron

- Outstanding Collaboration Between a Local Section and Division (Committee on Local Section Activities and Committee on Divisional Activities, LSAC and DAC), won by the Louisiana Local Section.
- Outstanding Local Section Industry Event (Corporation Associates, CA), won by the East Central Illinois Local Section.
- Best Overall Local Section Minority Affairs Committee (Committee on Minority Affairs, CMA), won by the Orange County Local Section. ◇

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[WWW.NESACS.ORG/CAREERS](http://WWW.NESACS.ORG/CAREERS)

Q. Exactly, how many awards and scholarships does NESACS sponsor?

A) One    b) Two    c) Many

[www.nesacs.org/awards](http://www.nesacs.org/awards)

# ACS Announces 2018 Awards

The following NESACS members have been named winners of awards administered by the ACS for 2018. With the exception of the Cope Scholars Awardees, these recipients will be honored at the Awards Ceremony on Tuesday, March 20, 2018, in conjunction with the 255th ACS National Meeting in New Orleans, LA.

**ACS Award in Applied Polymer Science** sponsored by Eastman Chemical: Paula T. Hammond, M.I.T.

**ACS Award in Pure Chemistry** sponsored by the Alpha Chi Sigma Fraternity and the Alpha Chi Sigma Educational Foundation: Mircea Dinca, M.I.T.

**Ronald Breslow Award for Achievement in Biomimetic Chemistry** sponsored by the Ronald Breslow Award Endowment: David R. Liu, Harvard University.

**Arthur C. Cope Scholar Awards** sponsored by the Arthur C. Cope Fund: Emily P. Balskus, Harvard University; James P. Morken, Boston College.

**Nobel Laureate Signature Award for Graduate Education in Chemistry** sponsored by Avantor™ Performance Materials: Aleksandr V. Zhukhovitskiy (Student), University of California, Berkeley, and Jeremiah A. Johnson (Preceptor), M.I.T.

Also, the **James Flack Norris Award in Physical Organic Chemistry** sponsored by NESACS will be presented to Cynthia J. Burrows, University of Utah.

In addition, our Brauner Memorial Lecturer at National Chemistry Week will be honored:

**James T. Grady–James H. Stack Award for Interpreting Chemistry for the Public** sponsored by ACS: Bassam Z. Shakhshiri, University of Wisconsin-Madison. ◇



# 2017 NESACS 50, 60 and 70-year Members

## 50-Year Members

Jay Alan Bouwens, Henry Thomas Brown, Stephen James Brudno, Robert Laurent Caret, Linda Jean Charpentier, Gerald Leslie Cooper, Andrew Joseph Corcoran, Guy Alexander Crosby, Kenneth L. Demerjian, Nelson McFarland Frew, A. K. Ganguly, Thomas R. Gilbert, Darlene Janice Goldstein, James Albert Golen, George William Goodloe, John Francis, Grogan, Jay Kenneth Gunther, Robert B. Hall, David Ernest Hamer, Robert Hanninen, Judith Herzfeld, Joyce Lefever Illinger, Howard Craig Jordi, Theodore Francis Jula, Fredrick James Kull Arthur Lucien Lafleur, Louis Lieto, Samuel William Page, Dimite J. Rasmussen, Marvin J. Rudolph, Reinhard Sarges, Roger Ervin Shamel, David George Shaw, Lawrence Sheftel, Helen R. Steele, Sophia R. Su, Keith Tornheim, Jeffrey Alan Ulman, Ioannis Vassiliou Yannas

## 60-Year Members

Robert J. Allen Nicholas Ashford, Joseph A. Baglio, Thomas Joseph Brett, Sam S. Brody, L. W. Duncan, Earl Julian Forman, Francis H. Girard, Sydney Gordon, Leon E. Granahan, Richard Samuel Herd, Dudley Robert Herschbach, William J. Holloway, Richard Hadley Holm, Albert W. Horlbeck, Martin Isaks, Lee A. Johnson, Margaret E. Langmuir, Sheldon Markofsky, Edward W. Merrill Joseph S. Panto, Frank Louis Pilar, Charles P. Riley, James F. Riordan, John L. Roebber, Ronald H. Rogstad, Louis Shuster, Augustine Silveira, Per Sten Stensby, Donald L. Townsm David L. Williams

## 70-Year Members

Maurice Peter Bellis, Elias James Corey, Jr., John L. Ennis, Martin E. Epstein, Hanna Friedenstien, Gerald Louis McLeod ♦

# Marietta Haeg Schwartz

1961–2017



From the Editor: *Marietta Haeg Schwartz passed away on September 6, 2017 at Winchester Hospital at the age of 55. Marietta was a major contributor to NESACS and the ACS and served in many capacities.*

*She was NESACS Chair-Elect and Program Chair in 2007 and was NESACS Chair in 2008. She served on the Board of Publications (1999-2003). Marietta served the Section as a Councilor, Chair of the Norris Award Committee and as Chair of the Education Committee.*

*Marietta will be deeply missed by her many friends and colleagues in the local and national chemistry communities.*

Marietta was born in St. Cloud, Minnesota, the oldest child and only daughter of six children. Raised on a small farm in Minnesota, Marietta graduated from Cathedral High School in St. Cloud in 1979, College of St. Benedict in 1983, and received her Ph.D. from the University of Wisconsin – Madison in 1988.

In the fall of 1988, Marietta moved to Boston, and took a job at UMASS Boston as an Assistant Professor in the Chemistry Department. She worked at UMASS for almost 30 years, more recently serving as an Associate Dean in the College of Science and Math. Marietta also served as the Director of the Student Services Center, and Co-Director of the UTeach Program. Marietta,

with a down to earth perspective, made a positive impact on her students through her love for chemistry.

Marietta was a capable, self-reliant, and confident woman. She was a member of the American Chemical Society, and supported women in chemistry through the Women Chemists Committee. As a mother, Marietta volunteered within the Cub Scouts and Boy Scouts guiding Graham and Ian as they both became Eagle Scouts. She was actively engaged in the Wakefield community as a volunteer for the Farmer's Market, 4th of July parade, and was a longtime, passionate supporter of the Wakefield Interfaith Food Pantry. Marietta sang in the choir at St. Joseph's Church in Wakefield for many years. Compassionate with a deep sense of faith and social justice, Marietta cared about the future, and the well being of others.

At home, she loved reading, watching the Red Sox, Patriots, and doing jigsaw puzzles. She loved iced coffee, going out for Indian Food, or getting together with friends for a cup of tea and a chat.

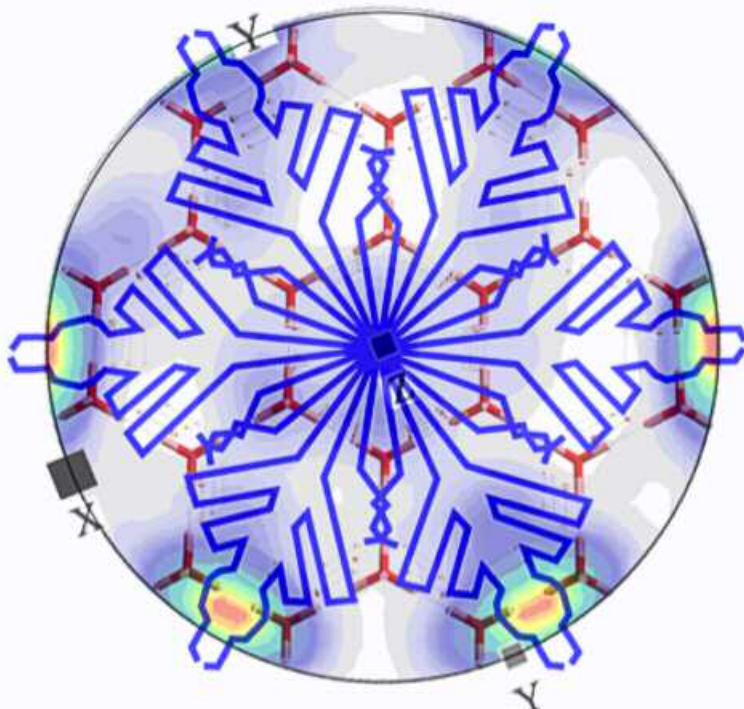
Although she made friends everywhere she went, her roots and family in Colleagueville always held a special place in her heart. She was famous for making dozens upon dozens of cookies for her family, friends, or neighbors, and loved playing a family game of "schmear." She will be missed, but always lovingly remembered and admired for her warmth, calm nature, and inner strength.

Marietta was the devoted mother of Graham T. Schwartz of Atlanta, GA, and Ian M. Schwartz of Ft. Hood, TX. Beloved daughter of Eileen and Richard Haeg of Colleagueville, MN. Dear sister of Gregory Haeg and his wife Megan of Colleagueville, MN, Daniel Haeg of Colleagueville, MN, Benedict Haeg and his wife Claire of Sauk Centre, MN, Christopher Haeg of Colleagueville, MN, and Timothy Haeg and his wife Kelly of Colleagueville, MN. Former wife of Eric Schwartz of Marblehead.

Gifts in memory of Marietta may be made to the College of Saint Benedict, Attn: Haeg Scholarship for Women in STEM, 37 S. College Ave., St. Joseph, MN 56374, or to the Wakefield Interfaith Food Pantry, 467 Main St, Wakefield, MA 01880. ♦

# Chemist Answers 400-Year Old Question

We are all familiar with the hexagonal shape of snowflakes. Over 400 years ago, Kepler speculated about the microscopic building blocks that lead to that shape. Using a combination of electron backscatter (similar to x-rays) and large single crystal ice, chemist Mary Shultz (Tufts University) and collaborators (Dartmouth College and Max Plank, Mainz, Germany) have compellingly shown the connection illustrated below. The six points of the snowflake grow from the flat sides of the chair-form hexagon of the basal face. The snowflake points align with the crystallographic *a* axes shown as hot spots in the electron backscatter data. The graphic below reflects three scales: the macroscopic snowflake (blue line), the molecular structure (red tube model), and the electron scattering diffraction (density plot).



This work was presented as an invited talk by Mary Shultz at the Spring ACS Meeting in San Francisco and is in press in *The Proceedings of the National Academy of Sciences*: "Single-crystal Ih ice surfaces unveil connection between macroscopic and molecular structure," *PNAS*, 2017 114= (21) 5349-5354.◇

## The NESACS website

Updated frequently · Late-breaking news · position postings  
Back issues of the Nucleus archived · Career-related Links · Awards and Scholarships

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- Companies for laboratory and management positions
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- [www.mboservices.net](http://www.mboservices.net)
- [www.nesacs.org](http://www.nesacs.org)

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- Our Section (NESACS) is the largest in the ACS.
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- We have more activities than any other Section.
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- We are expanding Nucleus and NESACS web site coverage of activities.

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Note also the Chemistry Department web  
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These include:

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- <http://www.bu.edu/chemistry/seminars/>
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- <http://chemistry.harvard.edu/calendar/upcoming>
- <http://www.northeastern.edu/cos/chemistry/events-2/>
- <http://chemistry.mit.edu/events/all>
- <http://chem.tufts.edu/seminars.html>
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- <http://www.unh.edu/chemistry/events>
- <https://www.wpi.edu/academics/departments/chemistry-biochemistry>

### October 2

Prof. Mike McBride (Yale)

*"Viedma Ripening: How a New Old Mechanism of Crystal Growth Achieves Efficient Deracemization."*

Brandeis, Gerstenzang 121  
4:00 pm

Prof. Dustin Maly (Univ. of Washington-Seattle)  
Harvard, Pfizer Lecture Hall  
4:15 pm

Prof. Brad Pentelute (MIT)  
Boston University, Metcalf, Rm 113  
4:00 pm

### October 3

Dr. Douglas Beshore (Merck)  
Tufts, Pearson, Rm. P106  
4:30 pm

### October 4

Prof. Anna Mapp (Univ. of Michigan-Ann Arbor)  
*"Using Organic Molecules as Probes to Understand How Genes are Regulated."*  
Northeastern, 129 Hurtig Hall  
12:00 noon

### October 5

Prof. Chen Yang (Boston University)  
Boston College, Merkert 130  
4:00 pm

### October 10

Prof. Amy Keating (MIT)  
Tufts, Pearson, Rm. P106  
4:30 pm

### October 11

Prof. Connie Lu (University of Minnesota)  
Harvard, Pfizer Lecture Hall  
4:15 pm

Prof. Clara Santato (Ecole Polytechnique de Montreal)  
*"Electrical and Optical Properties of Organic Semiconductors."*  
Northeastern, 129 Hurtig Hall  
12:00 noon

### October 12

Dr. Tamas Balla (NIH)  
*"New revelations about the role of PI4Ks in organizing membrane lipid composition."*  
WPI, Gateway Park Room 1002  
12:00 noon

Prof. Xiaowei Zhuang (Harvard)  
Boston College, Merkert 130  
4:00 pm

### October 13

Prof. Guy Lloyd-Jones (Univ. of Edinburgh)  
Boston College, Merkert 130  
4:00 pm

### October 16

Prof. Dirk Trauner (NYU)  
Harvard, Pfizer Lecture Hall  
4:15 pm

Prof. M. Kevin Brown (Indiana Univ.-Bloomington)  
Boston University, Metcalf, Rm 113  
4:00 pm

### October 17

Prof. Michael Neidig (Univ. of Rochester)  
Tufts, Pearson, Rm. P106  
4:30 pm

Prof. Connie Lu (Univ. of Minnesota)  
Boston College, Merkert 130  
4:00 pm

### October 18

Prof. Alex Gorfe (Univ. of Texas)  
*"Dynamics of Ras Proteins in Solution and in Membrane."*  
Northeastern, 129 Hurtig Hall  
12:00 noon

### October 19

Prof. Matthew Lockett (Univ. of North Carolina-Chapel Hill)  
Tufts, Pearson, Rm. P106  
4:30 pm  
Prof. Tomoki Ogoshi (Kanazawa University)  
MIT, Room 6-120  
4:00 pm

Prof. Kami Lee Hull (Univ. of Illinois)  
Boston College, Merkert 130  
4:00 pm

### October 20

Prof. Tomoki Ogoshi (Kanazawa University)  
*"Synthesis of Pillar-Shaped Macrocyclic Compounds 'Pillar[n]arens' Providing Supramolecular Assemblies."*  
Harvard, Pfizer Lecture Hall  
4:15 pm

### October 23

Prof. Daniel Kahne (Harvard)  
*"Molecular Machines that Build Membranes."*  
Harvard, Pfizer Lecture Hall  
4:15 pm

Prof. Jennifer Stockdill (Wayne State)  
Boston University, Metcalf, Rm 113  
4:00 pm

### October 24

Prof. Timothy Swager (MIT)  
Tufts, Pearson, Rm. P106  
4:30 pm  
Prof. Igor Alabugin (Florida State)  
Boston College, Merkert 130  
4:00 pm

### October 25

Prof. Gang Han (Univ. of Massachusetts)  
*"Nanotechnology, Neuroscience, Bioimaging, and Therapy."*  
Northeastern, 129 Hurtig Hall  
12:00 noon

### October 26

Prof. Anna K. Mapp (Univ. of Michigan)  
Dr. Artis Klapars (Merck)  
*"Invention of New Synthetic Methods for the Manufacture of Active Pharmaceutical Ingredients at Merck."*  
MIT, Room 6-120  
4:00 pm

Prof. Michael P. Pollastri (Northeastern)  
*"Approaches and adventures in kinase inhibitor repurposing for tropical disease drug discovery."*  
WPI, Gateway Park, Room 1002  
12:00 noon

Prof. Katherine Willets (Temple)  
Boston College, Merkert 130 4:00 pm

### October 30

Prof. Dan Raleigh (Stony Brook University)  
*"Islet amyloidosis and the biophysical basis of beta cell death."*  
Brandeis, Gerstenzang 121  
4:00 PM  
Prof. Yimon Aye (Cornell)  
Harvard, Pfizer Lecture Hall 4:15 pm

**Notices for The Nucleus  
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sent to:**

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