Monthly Meeting
Henry Hill Award Meeting at Holiday Inn Boston-Brookline
Recognition of 50- and 60-Year Members

Process Chemistry Symposium
At Novartis Institutes for BioMedical Research, Cambridge, MA

NESACS New Hampshire Meeting
At the University of New Hampshire, Durham, NH

National Chemistry Week Events
At Boston Museum of Science and Boston Children’s Museum
In Memoriam

Christine Jaworek-Lopes
June 1, 1970–May 21, 2016

By Michael P. Filosa

As the Nucleus Editor I knew Christine as the meticulous organizer of National Chemistry Week for the Northeastern Section. Chris would invariably have the event organized by mid-summer and had her flyer announcing her plans ready for the Nucleus so that it could run in the Summer, September and October editions. Her events were very successful and I was always pleased to publish the reports she submitted on these events. She also won a number of Chemluminary Awards for her NCW efforts at Summer ACS National Meetings.

I also knew Christine as a fellow board member and Councilor for NE-SACS. It was at last summer’s Boston Meeting that I found out she had been ill with advanced colon cancer since early in the year and was in the fight of her life. I, coincidentally, bumped into her in a back hall of the Convention Center. She looked well, I thought, and she thanked me for saying so. Later she attended Council while a pump was administering her chemotherapy.

Later I followed her illness through her Caring Bridge blog. She was generally upbeat and factual about her treatments and prognosis. She did her best and never gave up even when she wrote that the doctors said they had no more treatment options for her. She poignantly wrote after our last light snow on April 3rd, “I am glad it snowed today as this may be the last snow I see fall. Thanks for following the journey.”

She will be missed by all of us who knew her.

I want to share a happy story from the Anaheim ACS Meeting in the Spring of 2011. I happened to rent a car for that trip since I have relatives in the area. I bumped into Christine and Marietta Schwartz who were rooming together at the conference. I don’t recall exactly how it happened but I ended up agreeing to drive them to the airport. We had quite a few hours so we left the conference and went to the Long Beach Aquarium and enjoyed the sea creatures and other animals. I recall Marietta in a picture with a parakeet on her shoulder. We also stopped and enjoyed walking the beach. Somehow, I lost the photos I took, but the memories are still fond.

In addition to the Chemluminary Awards mentioned above, Christine was the 2015 recipient of the Henry A. Hill Award for Meritorious Service to the Northeastern Section and the 2008 E. Ann Nalley Northeast Regional Award for Volunteer Service to the ACS. She was a beloved Associate Professor of Chemistry at Emmanuel College where she was known as “Dr. J” or Dr. J-Lo.”

Sister Janet, President of Emmanuel College, recently announced a new faculty award (Faculty Excellence in Service to the Community award) in honor of Christine. She is the first recipient of the Award.


Christine was from Palmer, Massachusetts and was salutatorian of her class at Palmer High School. She received her B.S. and Ph.D. from Tufts University. During her time at Emmanuel she served as Chair of the Chemistry Department.

She is from Palmer, Massachusetts and was salutatorian of her class at Palmer High School. She received her B.S. and Ph.D. from Tufts University. During her time at Emmanuel she served as Chair of the Chemistry Department.

Professor of Chemistry Daniel J. Sandman of the University of Massachusetts-Lowell Chemistry Department passed away on March 4, 2016.

Dr. Sandman received a B.S. from Drexel University and a Ph.D. from Princeton University, and was a post-doctoral researcher at the University of Wisconsin. He was a Senior Staff Scientist in Corporate Research at Xerox Corporation and at GTE Labs in Waltham prior to being appointed to Professor of Chemistry at the University of Massachusetts in Lowell in 1993.

He is survived by his wife, Alma; his daughters, Suzanne Pasko and Dr. Karen Sandman; his sons-in-law,
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October 22, 2016 at the University of New Hampshire. James Cameron, Dow Electronic Materials and Thomas M. Connelly, Jr., Executive Director and CEO of the ACS to speak.

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Cover: Speaker at the October NESACS Meeting, Professor Malika Jeffries-EL, Department of Chemistry and Division of Materials Science, Boston University (Photo courtesy of Professor Jeffries-EL)

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January 2017 Issue: November 15, 2016

The Nucleus

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Remembering Vivian Walworth

By Victor King McElheny, 18 June 2016, Spoken at The First Congregational Church, Concord, MA on the occasion of a memorial service held for Vivian K. Walworth

We remember Vivian as a person who treated us with affection and respect. But we also remember her constantly calling on us to work on significant things. For decades, she was devoted to building a considered, almost official account of both instant photography and applications of light polarization. For her tasks, she was always giving us assignments.

In the summer of 1972, after I had turned in a consultant’s report on the development and functions of the remarkable Polaroid SX-70 film and camera system, Vivian pulled me into reviewing multiple drafts of the article she co-authored with Edwin Land and Howard Rogers for the Seventh edition of Neblette’s Handbook of Photography and Reprography. This was the chapter that the company published as a paperback in 1977, and which evolved into an article with Stan Mervis in the 1989 Eighth edition of Neblette’s, which she edited with John Sturge and Allan Shepp.

This opportunity for me to repeatedly study the Neblette chapter was a significant step in mastering Land’s technical universe for what became my biography of him in 1998.

Vivian’s assignments kept coming. In 1978, thanks to Vivian, I had the chance to interview many more of the SX-70 pioneers at Polaroid for a book chapter. They spoke eloquently of how their association with Land had raised their sights higher than they ever expected.

Soon after Land’s death in 1991, I was one of the many editors Vivian helped pull together for what became the three volumes of Edwin Land’s essays, edited by Mary McCann and published by the Society for Imaging Science and Technology. As you probably know, Vivian not only served as president of the society but edited its journal for six years. Vivian assigned me to check over Land’s 1947 paper on one-step photography before its text was digitized.

After my book on Land came out, I spoke before quite a few professional groups, including the Society for Imaging Science. I not only interviewed Vivian for the book, but she also steered me to a source that opened up contacts with Land’s very large set of relatives – eighteen first cousins and the two sons of his sister.

Several years ago, I had the fun of going with Vivian to visit Harvard’s Baker Library to see some World War II 3-D vectographs that had been specially unfrozen for her and several colleagues from Stereojet. This gave me a new appreciation that vectographs were not only important for reconnaissance but also for detailed training in assembly and repair of military equipment.

Just last year, Vivian recruited me for a stimulating Forum here at the First Parish that was followed by vivid audience questions. And soon after, I found myself speaking at the MIT Museum in Cambridge on an occasion that Vivian inspired. This was the dedication of an American Chemical Society plaque to be placed outside Land’s laboratory at the corner of Osborn and Main Streets. It seemed appropriate to discuss Land as an innovator and enthusiast for popular involvement in the excitement of science.

Amid all Vivian’s other activities, the thrill of discovery was a central theme of her life. I feel proud and grateful to have known her for more than forty years. ♦

What’s Yours?
Many local employers post positions on the NESACS job board.

Find yours at
www.nesacs.org/jobs
## Monthly Meeting

The 963rd Meeting of the Northeastern Section of the American Chemical Society

Presentation of 50- and 60-year members

Presentation of the Henry A. Hill Award for Outstanding Service to NESACS to Jim and Karen Piper.

Thursday, October 13, 2016

Holiday Inn Boston-Brookline
1200 Beacon Street, Brookline, MA

Agenda:

4:30 pm  Board Meeting (Whitney A)
5:30 pm  Reception (Lower Level Foyer)
5:30 pm  Poster Session Younger Chemists Crossing Borders
6:30 pm  Dinner (Sit-down service, Whitney B)
7:30 pm  Evening Program, Dr. Jerry Jasinski, NESACS Chair, Presiding

Introduction of the Speaker, Leland L. Johnson, Jr, NESACS, Chair-Elect

Professor Malika Jeffries-EL, Associate Professor, Department of Chemistry and Division of Materials Science, Boston University

“From molecules to materials: designing organic semiconductors for advanced applications”

For those who would like to join us for dinner, please register by noon, Thursday, October 6, using PayPal: http://acssymposium.com/paypal.html. Select the pay with credit or debit card option and follow the additional instructions on the page. Cost: Members, $30; Non-members, $35; Retirees, $20; Students, $10. Dinner reservations not cancelled at least 24 hours in advance must be paid.

If you wish to join us for this meeting and not eat dinner, please register by noon, Thursday, October 1, using PayPal: http://acssymposium.com/paypal.html. Select “Seminar only”. The fee is $1.

New members or those seeking additional information, contact the NESACS administrative coordinator, Anna Singer, at secretary@nesacs.org or at (781) 272-1966. Please note, the office is open on a part-time basis.

THE PUBLIC IS INVITED. RESERVATIONS ARE REQUIRED BY NOON, OCTOBER 6 THOSE WITHOUT RESERVATIONS WILL NOT BE ADMITTED TO THIS EVENT.

Directions:

By Public Transportation: The Holiday Inn Boston-Brookline hotel is conveniently located across from the Green Line “C” St. Paul Street trolley stop.

From the Mass Pike: From US I-90, take Exit 18. Follow Cambridge signs right to Storrow Drive/Kenmore Square exit. Take the immediate right onto Beacon St., and proceed for 2 miles.

From 93 North or South: Take I-93 to US 90W, then take Exit 18.

Parking: Metered parking is available on Beacon Street (bring quarters). Parking is available in the Holiday Inn garage ($15 maximum).

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**Biography:**

Malika Jeffries-EL received BA degrees in Chemistry and Africana Studies at Wellesley College and Master’s and Ph.D. degrees in chemistry from The George Washington University. After spending one year at Smith College as a Mendenhall Fellow she worked as a post-doctoral researcher under the direction of Professor Richard D. McCullough at Carnegie Mellon University. In 2005, she joined the faculty in the Chemistry Department at Iowa State University and was promoted to associate professor with tenure in 2012. She joined the Department of Chemistry and Division of Materials Science at Boston Univeristy in 2016. Dr. Jeffries-EL’s research focuses on the development of

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**Abstract:**

The past two decades have seen a dramatic increase in the number of consumer electronics in use. Previously, most households had a landline phone, one or two televisions and the occasional desktop computer. These days most people own numerous electronic devices, resulting in an increased demand on the semiconducting materials that drive this technology, in addition to the energy needed to power them. Accordingly there has been a large amount of interest in the development of organic semiconductors, as many of the inorganic materials used in these devices are in limited supply. Organic semiconductors are either polymers or small molecules that feature an extended pi-conjugation. These materials possess many exceptional electronic, optical and thermal properties and thus are well suited for

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Northeastern Section of the American Chemical Society
Process Chemistry Symposium

Date: Thursday, October 20, 2016
Location: Novartis Institutes for BioMedical Research
250 Massachusetts Avenue, Cambridge, MA

Confirmed Speakers:
Matthew Beaver, Amgen Inc.
Richard Braatz, Massachusetts Institute of Technology
Abigail Doyle, Princeton University
Eric Jacobsen, Harvard University
Albert Kwok, Biogen
Kian Tan, Novartis Institutes for BioMedical Research
Pete Ruggiero, Vertex Pharmaceuticals Incorporated
Jin-Quan Yu, The Scripps Research Institute

• Join us 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.

• Registration information
  Register at http://www.acssymposium.com/symposium_paypal.html
  Seating is limited and will be allotted on a first come, first served basis.
  All attendees must bring a photo ID to be admitted to the event.
  Registration fees: $50 for regular attendees; $25 for students – includes continental breakfast, lunch and reception. PayPal questions: please contact the NESACS administrative coordinator, Anna Singer, at secretary@nesacs.org (preferred) or at (781) 272-1966. Please note the office is open on a part-time basis.

• Organizing Committee
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Biographies

Biography
Dr. James Cameron
Fellow, Dow Electronic Materials

Jim Cameron is currently a R&D Fellow at Dow Electronic Materials (Dow EM). As a Dow R&D Fellow, Jim provides technical leadership for many material driven projects within Dow EM’s Lithography Business Unit.

Jim started his career in electronic materials in 1993 with Shipley Company and then worked at Rohm and Haas Electronic Materials prior to its merging with Dow in 2009. Over this period, Jim has held key roles of increasing responsibility in material synthesis and product development and has made many important contributions to the development of photoactive materials, photoresists, antireflective coatings and underlayer materials. Jim’s achievements in these areas have significantly influenced the success of Dow EM’s Lithography business.

Jim has filed more than 35 US patents and presently holds 28 granted US patents. He has also authored more than 90 scientific publications. Jim received his B.Sc. in Chemistry in 1984 from the University of Strathclyde, Glasgow, UK. In 1988, he received his Ph.D. degree in synthetic organic chemistry from the same institution. Prior to joining Shipley, Jim held postdoctoral appointments with Dr. J.M.J. Frechet at Cornell University and Dr. C.G. Wilson at IBM’s Almaden Research Center.

Abstract:
“Chemistry at the Forefront of Advanced Semiconductor Manufacturing”

The manufacture of today’s advanced semiconductor chips is driven by a complex process known as photolithography...
Young Chemists Continuing to Build International Relationships:

Reflections from the Annual GDCh-NESACS German Exchange Program
Compiled by Felicia Lucci

The deadline for applying for this year’s exchange is Nov. 1st. You can find details on Page 6 of the Summer-September issue of the Nucleus or on the NESACS Website. You can also contact the selection committee directly at GEX@nesacs.org.

Twelve students from NESACS recently explored the science and culture of Kiel, a maritime city in Germany, as part of the annual Gesellschaft Deutscher Chemiker (GDCh)-NESACS German Exchange Program in conjunction with the Jungchemikerforum (JCF). The focus of the trip was a student-organized conference at Christiana Albertina University of Kiel, where graduate and undergraduate students presented their research to international colleagues. With tours of local scientific facilities such as Shell Technology Center, Geomar Helmholtz Centre for Ocean Research, and Leibniz Institute for Science and Mathematics Education, this program gave students a unique appreciation for German industry, academia, and culture. Below are the students’ impressions of the program highlighting personal intellectual growth, admiration of German industry, and formation of lasting friendships.

“As a 4th year Ph.D. student, I can say quite confidently that this trip to Germany will be one of the best memories of my doctorate studies. It was so refreshing to get out of the lab for a week and explore what being a chemist means outside of my own research. For the first few days in Kiel, we did a bit of sightseeing and toured large academic and industrial labs. The last 4 days of the trip were focused on the JCF-Fruehjahrssymposium, which is a conference attracting researchers from all over the world. At this conference I had the pleasure of presenting my own research to a general audience of chemists, as opposed to a specialized audience like I’m used to.”

Andrew Therrien, Graduate Student, Tufts University

“When I found out I was selected to participate in the exchange program, I was thrilled. Not only was this a chance to travel to a new country, but the chance to present my research at an international conference and interact with my peers from all over the world….After being involved with the NSYCC for 3 years now, I have felt a great sense of community here in Boston and in our section. As a result, I have been empowered to expand my horizons and my network even further. Rarely do these chances come about and I am glad I took it. I look forward to seeing this program continue to grow and change lives!”

Catherine Rawlins, Graduate Student, Northeastern University

“Overall, this was an excellent program for me: First, it provided a platform for young chemists from different continents to communicate with each other; we all made new friends and these relationships are very valuable. Second, our visits to scientific institutions and our participation in the JCF conference expanded our view of other modes of research as we got to know what’s chemists are thinking in another country. Third, beyond the science, the visits to local industries and cities allowed us to learn about the German way of living and its culture.”

Chen Bai, Graduate Student, Brandeis University

“Our gracious hosts, including Elisabeth Kapatsina (GDCh) and several JCF members, ensured that we experienced the culture and history of the city of Kiel, as well as the impact the cities of Kiel and Hamburg have had and continue to have on the scientific community. We had some amazing visits, including tours of the Geomar, Shell, and the Agrolab facilities. I think I can speak for the entire group when I say we are so appreciative of the hospitality we received at every facility we visited.”

Emily Nicotera, Graduate Student, Tufts University

“As a 5th year graduate student in the field of chemistry, I have noticed throughout my years at the University of New Hampshire that it is easy to fall into a pattern and routine. This is good for some things; however, when it comes to innovating and networking within your field, this is not the ideal situation. Deciding to apply to the German Exchange Program was a profound opportunity. Not only would this be an awesome cultural and sightseeing opportunity, but this would be a great forum to have fresh new innovative ideas and meet people within my field of research that might otherwise be impossible to do. The valuable experience that I was able to gain from this trip was immeasurable and I truly consider this to have been an experience of a lifetime. I believe that all of my fellow travelers and scientists had this type of experience in mind.”

Casey Grenier, Graduate Student, University of New Hampshire

“Originally I was under the impression that we would all go to Germany and present our research at a conference, and when we had time, we would see some sights. This last statement could not be further from the truth. This exchange was filled with visits to various academic and industrial sites; we were always on the move. Visiting the University in Kiel was very exciting because we got to see a lot of great science and instrumentation that I would never have been exposed to without the exchange. We met with graduate students from different labs who talked about their research on photo-switchable molecules and how the various labs were incorporating these molecules in different ways. The industry tours we went on were also amazing. We had the oppor-

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Young Chemists

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tunity to tour different labs around Kiel, such as Shell, AgroLab, and the Geomar Institute. Visiting all of these places got me excited about the various types of chemistry research from fuel additives at Shell to ocean acidification at the Geomar. This experience has gotten me to think about different ways that we use chemistry, as well as possible career options.”

Kyle Cole, Graduate Student, Boston College

“So far the German Exchange has been one of the most influential and helpful experiences of my young scientific career. As an undergraduate, the opportunity to present my research at a scientific conference was a tremendous learning experience. First, I gained valuable experience communicating with other scientists. Communication skills are a critical asset for any scientist, whether manifested in poster sessions, talks, or papers. Watching others within the field present their research allowed me to reflect on how I would like to communicate my own research, which I was able to put into practice at the poster session. The conference was also valuable because it exposed me to the different types of problems people are working on. It gave me an overall sense of what people really care about, and how science can step in to potentially solve those problems.”

Jacob Ganley, Undergraduate Student, Northeastern University

“The trip to Germany was a wonderful experience educationally as well as culturally. Since it was my first time in Europe I got to experience the beautiful culture and learn about the beautiful place… As a chemist we know how important the Diels-Alder reaction is in the field of organic chemistry, and we got the honor of visiting University of Kiel where the reaction was discovered by Otto Diels and Kurt Alder…. Then we had the conference for the next four days where we attended the talks from the brilliant speakers from all over Europe who seemed very enthusiastic about sharing their work… All the memories we created in Germany will be cherished forever.”

Rekha Chhetri, Graduate Student, University of New Hampshire

“I was not expecting such an action packed trip. I appreciated being able to see science internationally and in a different setting. Before the JCF symposium, we took a trip to the Diels-Alder Institute, where we listened to students talk about the chemistry research and demonstrate their photo-activated switch compounds. We also saw their instrumentation such as their Mossbauer, EPR setup, and IR. The Geomar was one of the coolest experiences, where we were able to see all the sensors for ocean sample collection and meet chemists and engineers in this field. We also were able to see the Agro lab where they had high-throughput analysis of water samples. These trips exposed us to many interesting chemistry applications to solving very difficult scientific problems. The biggest part for me was being able to network at the JCF symposium and set up science relationships that will last. I have become a part of the NESACS community and going on this trip has allowed me to set up local collaborations as well as recognize more opportunities to become involved in the local chemistry community.”

Amanda Vo, Graduate Student, Boston University

“Every morning we would make our way through the Kiel Hauptbahnhof to catch a bus to the lecture hall at Kiel University. The lectures we listened to were very impassioned, from people who, like all of us, had chosen to devote their lives to the pursuit of science and knowledge. Their excitement was infectious, even though the majority of us were operating on next to no sleep. We saw great posters, met extraordinary professionals, exchanged contact information, and shared drinks and bonded over the scientific insanity that brought us all together. In the evenings, we would forget that we were all bound by science and go out and explore the

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National Chemistry Week
Chemistry of Fibers & Forensics

October 16, 2016 – Museum of Science, Boston

Phyllis A. Brauner Memorial Lecture by Dr. Bassam Shakhashiri
Dr. Bassam Shakhashiri is a Professor of Chemistry at the University of Wisconsin-Madison and is the William T. Evjue Distinguished Chair for the Wisconsin Idea. Professor Shakhashiri 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. Shakhashiri’s show will be available on a first come, first serve basis. Tickers are available via advance reservation. To reserve tickets, please contact the NESACS secretary via email secretary@nesacs.org before October 11, 2016. Tickets will be available for pick-up in the lobby of the museum at the ACS table.

Hands-on Activities Related to Forensics Science
From 1pm – 5pm, NCW volunteers will be on-hand to perform demonstrations and assist in hands-on activities suitable for all ages

October 22, 2016 – Boston Children’s Museum
A crime has been committed at the museum, and we need YOU to solve it! Learn how to take fingerprints, analyze blood types, use chromatography to identify different substances, and lots more, all using the power of chemistry. Can you solve the mystery and find the suspect?

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

*Admission to the museum is required ☥
Chemists Celebrate Earth Day
celebrations at Museum of Science

by Dr. Jayashree Ranga, Salem State University and David Sittenfeld, Museum of Science

Chemists Celebrate Earth Day event was organized at Blue Wing of Museum of Science, Boston on Sunday, April 10, 2016 from 12 - 4 pm by the Northeastern Section of American Chemical Society and Museum of Science (MoS). Enthusiastic volunteers (~140) from various organizations presented more than 15 hands-on activities related to this year’s theme “The Great Indoors – Your Home’s Ecosystem”. About 1000 visitors participated in these activities at the event. Activities presented included nano sand, exploring sizes, hydrogel, scented balloons, green indoors, pH in the home ecosystem, self-inflating balloons, specific heat lab, sharklet with nano-sized pattern on plastic film, absorption of dyes on different fabrics, and titration analysis of common household systems.

The key goal of this event was to motivate young visitors with engaging science activities. The volunteers did a fantastic job of engaging young visitors. Special thanks to volunteers from Beyond Benign, Fitchburg State University, Gordon College, Malden High School, Museum of Science, Northeastern University, NESACS, Raytheon, Salem State University, and Suffolk University.

NESACS also participated in the CCED-2016 Illustrated Poem contest. The student received a $25 gift card from amazon.com and the teacher received a $25 gift card from teacher www.teachersource.com.

Congratulations to the winners!

Student: Anthony J. Kim, Grade 7 (6th - 8th Category)
School/organization: Fay School
Teacher: Ms. Emily Gifford

Thank you CCED volunteers!* 

Beyond Benign: Kate Anderson, Mollie Enright, Cynthia Ibarra, Loren Po, Joe Romeo, Sarah Willey
Fitchburg State University: Kara Hudson, Dr. Mathangi Krishnamurthy, Kelly Palmer, Heather Rotti
Gordon College: Daruenie Andujar, Brooke Arthur, Julia Bilancieri, Ashley Cordero, Verna Curfman, Beth Fjellstad, Luke O’Donnel, Eimi Percival, Harrison Miller, Ivy Ngo, Jade Stern, Logan Walsh
Malden High School: Martin Berryman, Erica Bueno, Caron Camille, Emma Ceplinskas, Louis Chevy, Ka Wing Cheung, Ricky Cordero, Sabrina Dushinksi, Caroline Fitzgerald, Aigul FitzGerald, Sandy Ip, Brynn Kankel, Marwa Khudaynazar, Heresa Laforce, Hien Lai, Lynh Le, Winnie Li, Karen Luo, Alex Lombardi, Pedro Pagani, Amanda Nash, Karen Ng, Phuong Nguyen, Vivian Nguyen, Huda Irshad, Deborah Kibazo, Grace Melo, Beth Sisay, Nbi Tran, Rachel Tran, Christine Tranguyen, Prentice Tang, McKenzie Vo, Xiao Ling Wang, Jennie Xie, Saeko Yonetan, Yan Zheng, Emily Zou, Beatrice Chaimae, Kuag Kunchok, Mane Rishly
Museum of Science: Laura Sirale, Jorge Bernal
Northeastern University: Gaby Arreola, Suzanna Borg, Joyce Chen, Jaime Conway, Jason Conway, Duy-Khoi Dang, Travis DeLano, Melanie Fritsche, Brittany Laramee, Danielle Lefebvre, Sunandhaa Narasimhan, Nicole Nelson, Kelsey Patrick, Sanjana Phatak, Loren Po, Clarissa Santori, Jamie Gullikson, Yehui Sun, Kelly Wong
Raytheon: Himanshu Shah
Suffolk University: Janice Bautista, Aracelli Acevedo, Stefanie Aguiar, Aziz Biyari, Omar Biyari, Julie Bautista, Emma DeFrank, Cheikh Diop, Dr. Edith Enyedy, Mileika Jaime, Lily Johnsky, Meri Kalashyan, Dr. Doris Lewis, Kaylee Lampert, Alicia Lynch, Shaza Mass, Thao Nguyen, Brenda Ntaganda, Mario Rojas, Delois Rupia, Danielle Silva, Sydney Thomas, Sara Trimble
List of other volunteers: Cosmo V. Sabatino

*I apologize if your name is not on this list.

NESACS will be organizing National Chemistry Week (NCW) in October. The 2016 theme for NCW is “Solving Mysteries through Chemistry”: Exploring the chemistry of fibers and forensics.
Jeffries Biography

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organic semiconductors—materials that combine the processing properties of polymers with the electronic properties of semiconductors. She has won numerous awards including the 3M Non-Tenured Faculty Award (2008), the Lloyd Ferguson Award from the National Organization of Black Chemists and Chemical Engineers (2009), NSF CAREER award (2009), the ACS-Women Chemists Committee Rising Star award (2012) and the Iota Sigma Pi Agnes Fay Morgan Award (2013). She is also a dedicated volunteer and has served in several activities within the American Chemical Society including the advisory board for the Women Chemists of Color Initiative. Member-at-large for the Organic Division, Program co-Chair for the Polymer division and councilor for the Ames local section. She has also served on the editorial advisory boards for Macromolecules and Chemical and Engineering News.

Jeffries Abstract

Continued from page 5

applications, such as transistors, solar cells and light emitting diodes. Unfortunately, there are several issues that have to be addressed before real-life products can be developed. Our group focuses on the design and synthesis of new organic semiconductors based on low cost and/or easily prepared starting materials. Since the properties of organic semiconductors can be readily modified through chemical synthesis, we have turned our attention towards the design and synthesis of novel aromatic building blocks. Our system of choice, benzobisazoles possess many exceptional electronic, optical and thermal properties and thus are ideally suited for diverse organic semiconducting applications. However, these materials have found limited utility due to their lack of solubility in organic solvents and the harsh conditions required for their synthesis. Our group has developed a mild approach for the synthesis of benzosizoxazoles resulting in several building blocks suitable for designing new materials. As a result we have been able to prepare wide band gap materials for use in organic light-emitting diodes and narrow band gap materials for use in photovoltaic cells. Our work on the synthesis and properties and utility of these polymers will be presented.

Young Chemists

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build up a network to enhance their career. GDCh and NESACS - with the great support of their younger chemists committees (JCF & NSYCC) - breathe life into this advice via their students exchange that brought twelve students from Boston to Kiel in 2016. As one of the organizers from GDCh, it’s wonderful to see how the students from US, Germany and other countries get connected. They start talking about their research, but soon a lot more topics follow: culture, food, sports and so on. I am sure that a lot of friendships were built during the exchange and I am looking forward to meeting the American students again when GDCh/JCF visits Boston in 2018 or if they possibly come back to Germany for a PostDoc.”

Elisabeth Kapatsina, Departmental Manager Education, GDCh-office

Q. Exactly, how many awards and scholarships does NESACS sponsor?
A) One  b) Two  c) Many

www.nesacs.org/awards

KIEL WAS AN INCREDIBLE OPPORTUNITY. AS ONE OF THE ORGANIZERS FROM GDCH, IT’S WONDERFUL TO SEE HOW THE STUDENTS FROM US, GERMANY AND OTHER COUNTRIES GET CONNECTED. THEY START TALKING ABOUT THEIR RESEARCH, BUT SOON A LOT MORE TOPICS FOLLOW: CULTURE, FOOD, SPORTS AND SO ON. I AM SURE THAT A LOT OF FRIENDSHIPS WERE BUILT DURING THE EXCHANGE AND I AM LOOKING FORWARD TO MEETING THE AMERICAN STUDENTS AGAIN WHEN GDCH/JCF VISITS BOSTON IN 2018 OR IF THEY POSSIBLY COME BACK TO GERMANY FOR A POSTDOC.”

Elisabeth Kapatsina, Departmental Manager Education, GDCh-office

A) One  b) Two  c) Many

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Q. Exactly, how many awards and scholarships does NESACS sponsor?
A) One  b) Two  c) Many

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PETER K. DORHOUT FOR ACS PRESIDENT-ELECT

⇒ VOTE IN OCTOBER
- Membership needs and benefits
- Career outlook and jobs
- Industry-academic partnerships
- Recognition for chemists

EMAIL: PKDorhout@cox.net
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KANSAS STATE UNIVERSITY
Phy. This process uses light to pattern a photosensitive material known as a photore sist; whereby, the wavelength of the light, the numerical aperture of the lens, the mask pattern and most importantly, the patterning capability of the resist chemistry combine to define the ultimate resolution capability.

The initial light induced image is subsequently amplified then developed in dilute base and the image ultimately transferred into the underlying substrate. For more than 40 years, this patterning process has been the enabling technology to meet the ever increasing demand for smaller and faster chips. Over time this process has migrated to complex multilayer stacks in which every layer has a specific function whether it be to enhance photo patterning and/or improve etch pattern transfer. Research in this area is both rewarding and challenging as it combines aspects of chemical transformations, photochemistry, material science, optics and physics. This talk will highlight the rich and diverse chemistry of the materials used to pattern state of the art computer chips. The chemistry of photoresists, antireflective coatings and underlayer materials will be reviewed with an emphasis on chemical structure, material properties and application requirements.

**Biography:**
Dr. Thomas M. Connelly, Jr.
Executive Director and CEO of the American Chemical Society (ACS)

Thomas M. Connelly, Jr. is the Executive Director and CEO of the American Chemical Society. Prior to joining ACS, he served as Chief Science and Technology Officer, and then as Chief Innovation Officer for the DuPont Company. In these roles, he was responsible for science and technology, with special emphasis on polymer science, chemical process development, and later, bioprocessing for chemical synthesis and production. At DuPont, Dr. Connelly led R&D organizations and businesses, while based in the US, Europe and Asia. Dr. Connelly graduated with highest honors from Princeton University with degrees in Chemical Engineering and Economics. As a Winston Churchill Scholar, he received his doctorate in chemical engineering from the University of Cambridge. In 2016, Dr. Connelly was elected to the National Academy of Engineering. He has served in advisory roles to the U.S. Government and the Republic of Singapore.

**Abstract:**
“ACS: Charting the Course for Chemists”
Dr. Connelly, has been working with the ACS Board of Directors and staff on setting strategic direction that will help chemists to be successful in the global marketplace. He will talk about some of these efforts, as well as the future direction of ACS and our support to members including student members.

---

**Daniel J. Sandman**
1942 – March 4, 2016
Continued from page 2

Christopher Pasko and Dr. Sandeep Mulgund; and his daughter-in-law, Dr. Bushra Zawaydeh and her husband, Erik Peterson. He was predeceased by his son, Daniel, Jr. He is also survived by his grandchildren: Amanda, Bethany, and Michael Pasko, Mira and Sonia Mulgund, and Laura Sandman, as well as his step-grandchildren, Adelina and George Peterson. ◇

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NESACS received three awards at the 18th Annual ChemLuminary Ceremony (For the Love of Chemistry) on August 23, 2016, at the ACS national meeting in Philadelphia for its activities in 2015.

Outstanding Continuing Public Relations Program of a Local Section Award from the Committee on Public Relations and Communications for STEM Journey II, which was held with 100 volunteers and more than 1,000 attendees from the general public for keynote speakers, hand-on activities, and exhibitors related to the theme of Great White Sharks to Deep Ocean Exploration. The award is given to recognize outstanding efforts by a local section to promote chemistry to the public.

Outstanding Local Section Younger Chemists Committee Award from the Younger Chemists Committee for the wide range of programs hosted by the NESACS-YCC (NSYCC) for career development, networking, community outreach, and social events in 2015. These included the Northeastern Student Chemistry Research Conference, a community outreach event (The Magic of Science) that featured entertaining chemistry experiments for elementary grade students, and programming at the Fall 2015 ACS National Meeting in Boston of three symposia, a networking reception for young chemists, and the hosting of attendees from three international exchange programs. The award is given to a local section YCC in recognition of efforts to serve chemists under the age of 35.

Outstanding Local Section Industry Event from Corporation Associates for the Process Chemistry Symposium that featured scientific presentations from four companies (Amgen, Biogen, Johnson Matthey, and Vertex) and four academics (Philip Baran, Erick Carreira, and Xiaoyi Bao). The award is given to recognize outstanding efforts by a local section to promote chemistry to the public.

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
NESCACS Board of Publications
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- Our Section (NESACS) is the largest in the ACS.
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- www.nesacs.org

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October 4
Prof. Marion Emmert (WPI)
“Activating Strong Bonds and Recycling Rare Earths: Adventures in Sustainable Chemistry.”
Tufts, Pearson, Rm. P106
4:30 pm
Dr. David Grills (Brookhaven National Lab)
Univ. New Hampshire, Parsons N104
11:10 am
Prof. Michael Doyle (Texas-San Antonio)
Boston College, Merkert 130
4:00 pm

October 5
Prof. Ann English (Concordia University)
“Shedding light on how organisms deal with oxidative stress.”
Northeastern, 129 Hurtig Hall
12:00 pm

October 10
Prof. David Case (Rutgers)
Brandeis, Gerstenzang 121
4:00 pm

October 11
Dr. Glenn Harris (908 Devices)
Univ. New Hampshire, Parsons N104
11:10 am

October 12
Prof. Eric Schmidt (Utah-Salt Lake City)
“Natural Products: Biodiversity, Drug Discovery, Synthetic Biology.”
Northeastern, 129 Hurtig Hall
12:00 pm

October 17
Prof. Squire Booker (HHMI and Pennsylvania State)
Harvard, Pfizer Lecture Hall
4:15 pm

October 18
Prof. Jared Lewis (Chicago)
Tufts, Pearson Rm. P106
4:30 pm

October 19
Prof. Robert Grubbs (SUNY-Stonybrook)
“Stimulus-Induced Morphological Transformation of Ternary Copolymer Micelles.”
Northeastern, 129 Hurtig Hall
12:00 pm

October 20
Prof. Satoshi Maeda (Hokkaido University)
Harvard, Pfizer Lecture Hall
4:15 pm

October 21
Prof. Satoshi Maeda (Hokkaido University)
“Chemistry Education, Science Education, Science Communication.”
Northeastern, 129 Hurtig Hall
12:00 pm

October 25
Dr. Naijun Wu (Celgene)
Univ. New Hampshire, Parsons N104
11:10 am

October 26
Prof. Hannah Sevian (UMass-Boston)
“Glycosyl Cations: From Observation to Exploration.”
Tufts, Pearson Rm. P106
4:30 pm

October 27
Prof. Paul Knochel (Ludwig-Maximilians-Universität & Dr. Daniel Fandrick (Boehringer-Ingelheim))
MIT, Room 6-120
4:00 pm

October 31
Prof. Alan Aspuru Guzik (Harvard)
“Billions and billions of molecules.”
Brandeis, Gerstenzang 121
4:00 pm

Notices for The Nucleus Calendar of Seminars should be sent to:
Xavier Herault, email: xherault(at)outlook.com

Calendar
Check the NESACS home page for late Calendar additions: http://www.NESACS.org
Note also the Chemistry Department web pages for travel directions and updates.
These include:
http://www.bc.edu/schools/cas/chemistry/seminars.html
http://www.bu.edu/chemistry/seminars/
http://www.brandeis.edu/departments/chemistry/events/index.html
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http://chemistry.harvard.edu/calendar/upco ming

Outstanding Local Section Industry Event Award
(1-r) Diane Grob Schmidt (ACS Immediate Past-President), Steven Mennen (Amgen), Jennifer Maclachlan and Jack Driscoll (PID Analyzers).
Jennifer Love, and Barry Sharpless) with more than 150 local scientists from companies and schools in attendance. The award is given to a local section to recognize outstanding efforts in producing an event that benefits industry members or students seeking a career in industry.

The Northeastern Section was also a finalist in three other award categories for its activities in 2015 based on self-nominations in its annual report: Outstanding Local Section Career Program (Committee on Economic and Professional Affairs), Outstanding or Creative Local Section Younger Chemists Committee Event (Younger Chemists Committee), and Local Section Partnership Award (Committee on Local Section Activities). The winners in those categories were the Detroit, San Diego, and Tampa Bay Local Sections, respectively.