



THE NUCLEUS

October 2019

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Monthly Meeting

A Panel Discussion on Start-Up Support Mechanisms at LabCentral, Cambridge, MA

CCEW Report

By Jayashree Ranga, Emily Hostetler and David Sittenfeld

2019 American Chemical Society Presidential Election

Information on candidates H.N. Cheng and Carol A. Duane

Approved Oncologic Drugs for Pediatric Use in 2018-2019

By James S. Weinberg



CCEW Report

Enthusiastic Science Educators Celebrate *Chemistry of Paper* at the Museum of Science, Boston: Chemists Celebrate Earth Week Related STEM Outreach Event through NESACS

By Jayashree Ranga, Salem State University, Emily Hostetler and David Sittenfeld, Museum of Science

Chemists Celebrate Earth Week (CCEW), an engaging STEM outreach event, was organized at the Museum of Science, Boston on Saturday, April 13, 2019 from 11 am - 3 pm by the Northeastern Section of American Chemical Society (NESACS) and the Museum of Science (MoS). About ~80 motivated and committed science educators from 12 organizations engaged young visitors with 14 hands-on chemistry activities related to this year's theme "*Take Note: The Chemistry of Paper.*" About 500 visitors participated in these fun-filled CCEW activities at the event. Activities related to this year's theme included testing Tyvek paper, blooming paper, diaper dissection, nano-stained glass windows, make your own paper, thin films, flour erasers, goldenrod paper messages, testing your tastes with PTC paper, and chemistry is colorful.

Most of the science educators were undergraduate students from organizations in and around Greater Boston Area. Special thanks to science educators from Beyond Benign, Cabot Lab, Gordon College, Museum of Science, NESACS, Northeastern University, Raytheon, Salem State University, Salesforce, Stonehill College, Suffolk University, and University of Massachusetts, Lowell.

NESACS also participated in the CCEW-2019 Illustrated Poem contest. The student received a \$25 gift card from amazon.com and the teacher also received a \$25 gift card from amazon.com.

Congratulations to the winner!

Student: Anisha Kundu (9-12 Category)

School or Sponsoring group: Lincoln-Sudbury Regional High School

Teacher: Regina Shopiro

Thank you CCEW science educators!*

Beyond Benign

- Natalie Adamez
- Liza Antonelli
- Sunatib Choudhry
- Loren Po
- Gabriella A. Taslitsky
- Minesha Washington

Cabot Corporation

- Tina Maguylo

Gordon College

- Lian Atlas
- Heather Gordon
- Audrey Kim
- Anna Maeng
- Danielle McGibbon

Museum of Science

- Elizabeth Bell
- Sara Benson
- Katie Baur
- Cory Kelly
- Janna Doherty
- Lindsey Kolenda
- Phil Manna
- Carol Martin
- Janine Myszka
- Jill Neblett

NESACS

- Bill Eykamp
- Cosmo Sabatino

Northeastern University

- Michelle Chen



CCEW guest educators at the MoS on April 13, 2019. Photo by Mr. David Sittenfeld.



Ms. Anisha Kundu with her certificate from NESACS CCEW-2019 Illustrated Poem contest. Photo by Ms. Regina Shopiro



Pictures from the event can be viewed here.

<https://photos.app.goo.gl/R6KXn-nVrzMsUWP387>

- Serena Diliberti
- PJ Donnelly
- Annie Ikemoto
- Zachary Goss
- Kayla Mathiowetz
- Hope Meikle
- Sanya Mittal
- Ben Rich
- Haley Curtis
- Daniel Encarnacion
- Alexandra Hughes
- Brian Li
- Lauren Mercer
- Serena C. Moge
- Hailey C. Moreira
- Ryan E. Nolan
- Melody B. Okapal
- Sarah J. Parker
- Joshua W Ruby
- Jesse Schwed
- Rebecca C. Smalley
- Sarah C. Stanhope
- Jonathan V. Svenson
- Jonathan A. Weaver

Raytheon

- Himanshu Shah

Salem State University

- Benjamin W. Bergstrom
- Kelly Biv
- Amanda Cesero
- Changqing Chen
- Brandon E. Creador

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Courtesy of James S. Weinberg

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Cover: Terry Fry, MD, speaker at the 23rd annual Andrew H. Weinberg Memorial Lecture. (Photo courtesy of Dr. Fry).

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Announcement of 2020 ACS National Awards

The list of the recipients of awards administered by the American Chemical Society for 2020 was published in the August 19/29, 2019, issue of *C&EN*, and is on the ACS website. Among the recipients to be honored at the awards ceremony on Tuesday, March 24, 2020, in conjunction with the ACS Spring 2020 National Meeting and Exposition in Philadelphia, are the following from the Northeastern Section:

Amir H. Hoveyda, Boston College and University of Strasbourg: *Herbert C. Brown Award for Creative Research in Synthetic Methods*, sponsored by the Purdue Borane Research Fund and the Herbert C. Brown Award Endowment.

Yogesh Surendranath (Preceptor), Massachusetts Institute of Technology, and **Anna Wuttig** (Student), University of California, Berkeley, *Nobel Laureate Signature Award for Graduate Education in Chemistry*, sponsored by Avantor Performance Materials.

JoAnne Stubbe, Massachusetts Institute of Technology, *Priestley Medal*, sponsored by ACS.

In addition, the *ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry*, sponsored by Strem Chemicals, will go to **Bruce E. Bursten**, Worcester Polytechnic Institute.

As well, **Herbert Mayr**, Ludwig-Maximilian University Munich, will receive the *James Flack Norris Award in Physical Organic Chemistry*, sponsored by the ACS Northeastern Section. ◇

What's Yours?

Many local employers post positions on the NESACS job board.

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www.nesacs.org/jobs



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Monthly Meeting

The 990th Meeting of the Northeastern Section of the American Chemical Society

Sponsored By
LabCentral

*Supporting Start-ups Through non-funding Mechanisms
in the Boston Ecosystem*

Thursday – October 10, 2019

LabCentral

700 Main Street, Cambridge, MA 02139

This month's meeting will be the second of a three part series on the chemical start-up environment in Boston named "Supporting Start-ups Through non-funding Mechanisms in the Boston Ecosystem". This event will concentrate on supporting startups and will feature a panel spanning the different strategies on funding a startup. Panelists will include:

The panel will be moderated by Kuldeep Neote (V.P. External Innovation, Eli Lilly)

Panelists will include:

- Iva Toudjarska (Senior Vice-President, BRIDGEs, Evotec)
- Johannes Fruehauf (Founder and President, LabCentral)
- Mark Moreau (General Manager, Cambridge Innovation Center)
- Rachele Ryan (Manager of MassCONNECT, Mass Bio)

Meeting Agenda:

4:30 pm NESACS Board Meeting

5:30 pm Panel Discussion

6:30 pm Networking and hors d'oeuvres

YOU MUST REGISTER IN ADVANCE TO ATTEND THE MEETING: THERE IS NO REGISTRATION FEE TO ATTEND THE MEETING; DINNER RESERVATIONS ARE REQUIRED. PUBLIC IS INVITED

- For those who would like to join us for hors d'oeuvres, register by noon, Thursday, October 3, at <https://NESACS-innovation-panel-2019.com>. Cost: Members, \$30; Non-members, \$35; Retirees, \$20; Students, \$10. Meal reservations not cancelled at least 24 hours in advance will not be refunded. For additional information, contact the Administrative Coordinator, Anna Singer, via e-mail at secretary@nesacs.org.
- If you wish to join us for this meeting and not hors d'oeuvres, please register by noon, Thursday, October 3, at <https://NESACS-innovation-panel-2019.com>. Select "Seminar only".
- Directions to LabCentral from I-90 west: 1. From Route 90 take exit 18 to Cambridge Street (0.6m). 2. Merge onto Cambridge Street (0.1m). 3. Turn right onto Memorial Drive (0.8 m). 4. Turn left onto Vassar Street (0.8 m). 5. Take left onto Mass Ave (0.1 m) 6. Turn right onto Windsor St (433 ft). 7. Turn right onto State St (387 ft). 8. Turn right onto Osborn St; building is on the left.
- From east (Boston): 1. Take Storrow Drive west to Government Center/Kendall Square exit. 2. Take Longfellow Bridge (0.6 m). 3. Turn onto Main St (0.1 m) 4. Follow Broadway (0.2 m). 5. Turn left onto Ames St Way (0.1 m). 6. Turn right onto Main St. (0.4 m). 7. Turn left onto Osborn St; building is on the left.

If you have any questions or require additional information, contact the Administrative Coordinator, Anna Singer, via email at secretary@nesacs.org. ◇

American Chemical Society Candidates for 2020 President-Elect

Please vote in the upcoming ACS Election to help choose the next President of the American Chemical Society

H.N. Cheng

<https://hncheng-acis.org>

Biography:

H. N. Cheng obtained his B.S. from UCLA and his Ph.D. from the University of Illinois at Urbana-Champaign. In his R&D work, he has been active in developing and promoting green polymer chemistry as a platform to produce eco-friendly and sustainable products. As part of this work, he has been involved with the use of biobased materials, biocatalysis, green processing, and green methodology. He has also done a lot of on polymerization theory and polymer NMR. He is currently a Research Chemist at USDA Southern Regional Research Center in New Orleans. Prior to 2009, he was Senior Research Fellow at Hercules Incorporated in Wilmington, Delaware, where he held various R&D and managerial positions. He has authored or co-authored over 260 papers and 26 patent publications. He has organized 35 symposia at national meetings since 2000 and edited 21 books.

He was selected a Fellow of the American Chemical Society (ACS) (2009), a Fellow of the ACS Polymer Chemistry Division (2010), and a Fellow of the ACS Agricultural and Food Chemistry (2018). He was the recipient of ACS Volunteer Service Award (2016), Tillmans-Skolnick Award for Outstanding Service from the ACS Delaware Section (2006), Distinguished Service (2005) and Special Service (2015) Awards from ACS Polymer Division, and ACS Delaware Section Award for research excellence (1994).

H. N. Cheng has been active in ACS for many years and has served in numerous ACS committees and task forces. In 2019 he serves as a member of the ACS Committee on Public Relations and Communication (CPRC), Chair of ACS Polymer Chemistry Division Workshop Committee, the Alternate Councilor and the Newsletter Editor for the ACS Louisiana Local Section. He is also a candidate for the 2020 President-Elect of the ACS.

On the personal side, he is married and has two grown children. In his spare time, he enjoys studying history and poetry, and he does some volunteer work for his local church.

Statement:

I am honored to be a candidate for ACS President-Elect. This is a time of change and challenge for the chemistry enterprise. From studies of history we know that a great nation needs strong leadership, supportive citizens, competitive advantages, the ability to adapt to change, and a national spirit



Carol A. Duane

<https://caroladuane.com>

Biography:

Carol A. Duane is president of D&D Consultants of Mentor, a management and marketing consulting company, established in 2012. Her business career includes entrepreneurial and executive management roles. Duane is expert in strategic planning, strategic collaborations, networking, team building, entrepreneurial actualization. She excels at achieving results and is a champion for 'chemists as leaders.'

Duane is a Fellow and emeritus member of ACS. She has served in governance roles at the division, local section, and national levels for more than 30 years. Currently she is co-chair of the ACS Leadership Advisory Board (LAB); program review subcommittee chair for the Committee on Budget & Finance; alternate councilor and regional meetings chair for the division of Business Development and Management (BMGT), and a facilitator for the ACS Leadership Development System (LDS) Strategic Planning Retreats.

She has served as Vice Chair of the ACS Committee on Nominations and Elections, Chair of the ACS Committee on Committees, a member of DAC and MAC, and has chaired the BMGT and Chemical Information Divisions. She served as the Northeast Ohio local section councilor for more than 25 years.

As co-developer and a certified facilitator for the ACS LDS Strategic Planning Retreat (SPR), she has facilitated more than twenty retreats and trained several SPR facilitators. Duane is also an experienced, certified lead facilitator for the ACS Extraordinary Leader course.

To celebrate the 50th anniversary of leadership development in ACS, Duane organized the Presidential Recommends symposium: Leadership Skills as a Strategic Advantage: The Chemist's Competitive Edge.

She is a founding member of the current highly successful ACS Leadership Development System and Leadership Institute programs, which celebrated their 10th Anniversary this year with a BMGT-PRES symposium in San Diego, entitled: Leadership Development —the ACS commitment now and for the future.

She has organized five highly regarded and well attended Chemistry Plus symposia, featuring chemists who combine being a chemist with passions and interests, other professional expertise, and leadership skills to create unusual and successful career paths. She has spoken on the regional and national



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H.N. Cheng

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to keep the nation going in good times or bad. Likewise, if ACS is to continue its success in the future, it needs similar attributes. I believe an effective ACS President should be a strong leader who can strengthen the bond between ACS and the members, advocate for science, and catalyze the changes needed to grow ACS and to benefit the profession. If elected, I will work hard in conjunction with ACS members, governance, and staff in order to enhance our profession and benefit our members.

Innovation. Innovation is the engine of growth for any society. We need to advocate increased funding for scientific research. We need to shape public policies that benefit innovation and strengthen the scientific community. As part of this effort, we must redouble our efforts to communicate chemistry's value to the public at large and also to the government leaders.

Education. The long-term future of chemistry depends on a healthy pipeline of scientists, engineers, and students in colleges and universities. We need to attract and support younger chemists to work in chemistry. ACS has always had strong educational programs. We need to continue these programs and work with federal and state, and local governments to get continued support for science education.

Involvement in ACS. To be successful, we need members who care about the chemistry enterprise and want to make it better. We must energize our members, inform them of the ongoing issues, and enhance the benefits of ACS membership. I am a strong supporter of diversity, and I believe we need to boost our efforts to recruit and retain diverse members and volunteers for the society. Another goal is to increase industrial involvement. Although industrial members constitute about 50% of our membership, far fewer industrial members are engaged in ACS governance. I believe we need close collaboration among industry, academia, and government labs in order to work together to promote innovation and ensure the continued health and vitality of the chemistry enterprise.

Future Growth. Two of the major trends in chemistry today are international development and multidisciplinary. I have previously served in leadership positions in International Activities Committee, ACS Task Force on Multidisciplinary, and the Committee on Economic and Professional Affairs (CEPA) Task Force on Globalization. I believe both international and multidisciplinary areas represent great opportunities for future ACS growth and collaboration, and I strongly support our continuing growth efforts in these areas.

Jobs and Careers. In a tough supply/demand job market, it is not easy to find (and keep) jobs. As a former member and Chair of CEPA, I know ACS has many resources available for our members. Indeed, in addition to academic, industrial and government jobs, there are possible opportunities in small businesses (starting your own or joining one), chemistry-related fields, and alternative careers. The international and multidisciplinary arenas may present new employment opportu-

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Carol A. Duane

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level on chemical information management and entrepreneurial startups.

In 2018 Duane was recognized with the national ACS Volunteer Service Award and the NEO local section service award. She received the distinguished honor of being named a Fellow of the American Chemical Society in 2010 and in 2011 she received the ACS Shirley B. Radding Award for volunteer service in ACS.

She has an M.S. from The Ohio State University in physical organic chemistry and a B. A. from the University of Washington. She completed coursework for the Ph.D. in biochemistry at the University of Illinois. She was inducted into Phi Beta Kappa and Iota Sigma Pi.

She is married to Warren Duane, a biochemist and active ACS volunteer and has two grown professional daughters. Both her parents were chemists and instilled in her the belief in giving back to the profession. When she is not involved with ACS activities, she is playing bridge and playing pickle ball.

Statement:

Thank you for considering me for president-elect of the American Chemical Society. This is an opportune time for ACS to embrace our reputation as a global voice for chemistry, and I would be honored to lead us and confirm our value as the recognized authority for our science, our enterprise, and our professionals.

We can do this by empowering our members to be highly effective professionals—successful recognized leaders and high-performing scientists; by forming powerful collaborations between our technical divisions and industry leaders in the chemical enterprise to address solutions for the world's critical issues; and by fostering innovation and foresight to advance the broader chemistry enterprise and its practitioners for the benefit of Earth and its people.

Empower members

A fully empowered membership will enhance ACS's reputation as the authoritative resource and advocate of science for the world. I believe leaders are critical for organizations to excel; extraordinary leaders make a significant difference for an organization, and an organization cannot have too many great leaders.

As ACS president, my primary goal will be to leverage our successful established leadership programs to create more opportunities to build the leadership competencies that empower our members to excel and advance in their professional lives and careers. Highly effective professionals and successful leaders will enhance ACS as a preeminent scientific voice for the chemistry enterprise and its practitioners.

Powerful collaborations

Our technical divisions showcase the multifaceted aspects of the science of chemistry and its potential applications. Corporations in the chemistry business world excel at actualizing

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Approved Oncologic Drugs for Pediatric Use in 2018-2019 - A record year!

By James S. Weinberg, Ph.D., BioPhysics Assay Laboratory

Since the 2018 Andrew H. Weinberg Memorial Lecture, the US FDA has approved six new drugs with indications for pediatric oncological use (see table to follow, with information courtesy of Gregory H. Reaman, M.D., Associate Director Oncology Sciences, Office of Hematology and Oncology Products, OND, CDER, Associate Director for Pediatric Oncology, Oncology Center of Excellence, US FDA).

New Approved Drugs for Pediatric Use With Pediatric Dosing Information in the Label during 2018-2019	
Larotrectinib(VITRAKVI)	Adult and pediatric patients with NTRK gene fusion-driven solid tumors
Calaspargase-pegol (ASPAR-LAS)	As a component of multi-agent therapy for acute lymphoblastic leukemia
Emapalumab (GAMIFANT)	Relapsed or refractory primary hemophagocytic lymphohistiocytosis (HLH)
Iobenguane I-131	Adult and pediatric patients >12 yrs of age with Iobenguanine scan + unresectable or locally advanced or metastatic pheochromocytoma or paraganglioma
Nilotinib	Pediatric patients with newly diagnosed Philadelphia(+) Chronic myelogenous leukemia (CML) in chronic phase or resistant/intolerant to prior tyrosine kinase inhibitor (TKI) therapy
Tagraxofusp-erzs (ELZON-RIS)	Adults and children >2 with blastic plasmacytoid dendritic cell neoplasm.

This brings the total in the last 66 years (since 1953) to 40 drugs approved (about one every 20 months). This last year with six drugs approved is a record year.

Special thanks for the founding and continuous support from the NESACS and funding from Team Andrew Weinberg Boston Marathon Jimmy Fund Walk, And The Symposium Committee:

James S. Weinberg, Ph.D., BioPhysics Assay Laboratory

Julie S. Weinberg, M.M.S., PA-C, Brigham and Women's Hospital

Glenn Bublely, M.D., Beth Israel Deaconess Medical Center

Steven DuBois, M.D., M.S., Dana-Farber / Boston Children's

Peter Ho, M.D., Ph.D., Boston Pharmaceuticals

Cigall Kadoch, Ph.D., Dana-Farber / Boston Children's

Holcombe E. Grier, M.D., Dana-Farber / Boston Children's

Lindsay Ciancola, B.A., Dana-Farber Cancer Institute

Andrew E. Place, M.D., Ph.D., Dana-Farber Cancer Institute / Boston Children's ◇

The 23rd Annual Andrew H. Weinberg Memorial Lecture

Terry J. Fry, M.D.

Children's Hospital Colorado, Co-Director of the Human Immunology and Immunotherapy Initiative

Thursday, October 24, 2019

4:00 pm – 5:00 pm.

Yawkey Conference Center, 3rd Floor, Y306 and Y307,
Dana-Farber Cancer Institute, 450 Brookline Ave, Boston, MA 02215

Complimentary parking in the Yawkey Garage

Symposium Weblink:

<https://externalmediasite.partners.org/Mediasite/Play/a46012e230fe42229252e4275e05008d1d>

Dr. Fry was among the first scientists to investigate the potential to insert modified genes into a child's own T-cells to target CD19, a surface protein found on nearly all cells affected by acute lymphoblastic leukemia (ALL). The first product using this technology was approved by the FDA for pediatric use in August 2017, achieved an astonishing 80% remission rate in children with leukemia previously resistant to all other therapies including conventional bone marrow transplant. ◇

Biography:

Terry Fry, M.D. is a Professor of Pediatrics, Hematology and Immunology and Co-Director of the Human Immunology and Immunotherapy Initiative at the University of Colorado School of Medicine and holds the Robert and Kathleen Clark Endowed Chair in Pediatric Cancer Therapeutics at the Children's Hospital Colorado. He arrived at Children's Hospital Colorado in 2018 after serving as Head of the Hematologic Malignancies Section in the Pediatric Oncology Branch at the NIH where he led efforts in Cellular Immunotherapy for pediatric leukemia. Prior to the NIH, Terry was Chief of Blood and Marrow Transplantation at Children's National Medical Center in Washington, D.C. Terry's research focuses on the preclinical and clinical development of chimeric antigen receptor

Abstract:

Dr. Fry is an international expert in the development of cellular therapies for the management of children with cancer, with an emphasis on acute leukemia. He will present work from his laboratory that will inform about translation of new cellular therapies into pediatric clinical trials. He will also provide translational data that will address the issue of duration of response and mechanism of resistance to cellular therapies. ◇

T cells for pediatric cancers. He serves on the Committee for Scientific Affairs for the American Society of Hematology, Vice Chair for Biology in the Cellular Therapy Committee of the Children's Oncology Group and was elected into the American Society for Clinical Investigation. ◇



Dr. Terry Fry works with his research staff advancing the treatment of pediatric cancers”

Regulatory Approved Oncology Drugs for Pediatric Use

Drug	
1953-2003¹	Oncology Drugs Approved for Pediatric Use With Pediatric Dosing Information in the Label
	Indication
1, L-Asparaginase	Acute lymphocytic leukemia
2, Cyclophosphamide	Leukemias, lymphomas, neuroblastoma, retinoblastoma
3, Cytarabine	Acute nonlymphocytic leukemia in adults and children
4, Dactinomycin	Wilm's tumor, rhabdomyosarcoma, choriocarcinoma, testicular carcinoma, Ewing's sarcoma, sarcoma botryoides
5, Daunorubicin	Acute lymphocytic leukemia in adults and children
6, Doxorubicin	Wilm's tumor, neuroblastoma, soft tissue sarcomas, Hodgkin's disease, other malignant lymphomas, acute lymphocytic leukemia, acute myelogenous leukemia
7, Lomustine, CCNU	Brain tumors, Hodgkin's lymphoma
8, Mercaptopurine	Acute lymphocytic leukemia in adults and children
9, Methotrexate	Acute lymphocytic leukemia, meningeal leukemia, osteosarcoma, non Hodgkin's lymphomas
10, Pegaspargase	For acute lymphocytic leukemia patients with hypersensitivity to native E.coli asparaginase
11, Procarbazine	Hodgkin's lymphomas
12, Thioguanine	Acute Non-lymphocytic leukemia
13, Teniposide	Refractory childhood acute lymphocytic leukemia
14, Tretinoin	Acute promyelocytic leukemia
15, Vinblastine	Histiocytoses, testicular germ cell carcinomas, Hodgkin's lymphoma
16, Vincristine	Acute leukemias, lymphomas, , rhabdomyosarcoma
17, Actinomycin D	Rhabdomyosarcoma, Wilm's tumor, Ewing's sarcoma
18, Ara-C (Arabinosylcytosine)	Acute lymphocytic leukemia, acute myeloid leukemia, chronic myeloid leukemia
2004-2011²	
19, Clofarabine	Acute lymphocytic leukemia
20, Nelarabine	T-cell acute lymphoblastic leukemia
(10, Pegaspargase)	First line- acute lymphoblastic leukemia
21, Imatinib	Philadelphia(+) Chronic myelogenous leukemia (CML)

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Regulatory Approved Pediatric Oncology Drugs

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2011-2014³	
22, Levoleucovorin	For rescue of high-dose methotrexate for patients with Osteosarcoma and acute lymphocytic leukemia
23, Erwinia asparaginase	For patients with acute lymphocytic leukemia and hypersensitivity to E.coli derived asparaginase
24, Everolimus	Subependymal giant cell astrocytoma
25, Purixan™ (mercaptapurine oral suspension)	Acute lymphocytic leukemia in adults and children
26, Denosumab	Giant cell tumor of bone in skeletally mature adolescents
27, (Imatinib)	Ph+ acute lymphocytic leukemia in children
2015-2016⁴	
28, Dinutuximab (tradenname Unituxin)	Chimeric anti-GD2 antibody, indicated for high risk neuroblastoma in combination with GM-CSF and IL-2 and 13-cis retinoic acid who have achieved at least a partial response to first-line, multi-agent, multi-modality therapy
29, Blinatumomab (trade name Blincyto)	Children with relapsed/refractory Acute Lymphoblastic Leukemia (ALL).
2016-2017⁴	
30, Pembrolizumab (tradenname Kaytruda)	Microsatellite instability-high solid tumors
31, Avelumab (tradenname Bavencio)	Children 12 years of age and older with Merkle cell carcinoma
32, Gemtuzumab ozogamicin (tradenname Mylotarg.)	Pediatric patients aged 2 years and older with CD33-positive acute myeloid leukemia (AML)
33, Tisagenlecleucel T-suspension (trade-name Kymriah,) — (the first chimeric antigen receptor (CAR) T-cell therapy)	Patients aged up to 25 years with refractory B-cell precursor Acute Lymphoblastic Leukemia (ALL), relapse.
34, Nivolumab (tradenname Opdivo)	Pediatric (12 years and older) patients with microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) metastatic colorectal cancer
2018-2019⁴	
35, Larotrectinib(VITRAKVI)	Adult and pediatric patients with NTRK gene fusion-driven solid tumors
36, Calaspargase-pegol (ASPARLAS)	As a component of multi-agent therapy for acute lymphoblastic leukemia
37, Emapalumab (GAMIFANT)	Relapsed or refractory primary hemophagocytic lymphohistiocytosis (HLH)
38, Iobenguane I-131	Adult and pediatric patients >12 yrs of age with Iobenguanine scan + unresectable or locally advanced or metastatic pheochromocytoma or paraganglioma
39, Nilotinib	Pediatric patients with newly diagnosed Philadelphia(+) Chronic myelogenous leukemia (CML) in chronic phase or resistant/intolerant to prior tyrosine kinase inhibitor (TKI) therapy
40, Tagraxofusp-erzs (ELZONRIS)	Adults and children >2 with blastic plasmacytoid dendritic cell neoplasm.

¹ Steven Hirschfeld, Peter T.C. Ho, Malcolm Smith, and Richard Pazdur, Regulatory Approvals of Pediatric Oncology Drugs: Previous Experience and New Initiatives, Journal of Clinical Oncology, Vol 21, No 6 (March 15), 2003: pp 1066-1073, Peter T.C. Ho, Andrew H. Weinberg Memorial Lecture November 16, 1995, DFC

² Communication Peter T.C Ho, MD, PhD

³ Communication: Malcolm A. Smith, MD, PhD and Gregory H. Reaman, M.D.

⁴ Communication: Gregory H. Reaman, M.D.



Guest educators from local high schools and universities will guide visitors through hands-on activities suitable for museum visitors of all ages.

Sunday, October 13, 2019 – Museum of Science, Boston

“Marvelous Metals” Hands-on Activities

Blue Wing, Lower Level, 11:00am – 3:00 pm

Admission to the museum is required.

Phyllis A. Brauner Memorial Lecture by Dr. Bassam Shakhashiri

Cahners Theatre (2nd floor, Blue Wing) at 1:00pm and 3:00pm

Admission to the museum is required.

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.

Saturday, October 19, 2019 – Boston Children’s Museum

“Marvelous Metals” Hands-on Activities

11:00am – 4:00 pm

Admission to the museum is required.



American Chemical Society 258th ACS National Meeting San Diego, California August 25-29, 2019

Councilor Talking Points:

Summary of Governance Issues and Actions

The following summary is provided to help Councilors report to their Local Sections and Divisions on key actions of the ACS Council meeting held August 28, 2019, and the Board of Directors meetings held August 23-25, 2019, at the 2019 ACS fall national meeting in San Diego, California.

Actions of the Council

Election Results: Elected Committees of Council

- By electronic ballot, the Council elected Anne M. Gaffney, Lydia E. M. Hines, Will E. Lynch, and Sally B. Peters for three-year terms (2020-2022), and Dee Ann Casteel for a one-year term (2020) on the Council Policy Committee (CPC).

George M. Bodner	172
James C. Carver	177
*Dee Ann Casteel	183
Kenneth P. Fivizzani	136
*Anne M. Gaffney	201
Joseph A. Heppert	175
*Lydia E. M. Hines	199
*Will E. Lynch	222
*Sally B. Peters	235
Margaret J. Schooler	178

- By electronic ballot, the Council elected Michelle V. Buchannan, Charles E. Cannon, Alan A. Hazari, Amber S. Hinkle, and Thomas H. Lane for three-year terms (2020-2022) on the Committee on Nominations and Elections (N&E).

V. Dean Adams	132
Mark A. Benvenuto	126
*Michelle V. Buchanan	212
*Charles E. Cannon	179
Alan B. Cooper	163
Alan M. Ehrlich	148
*Alan A. Hazari	198
*Amber S. Hinkle	302
*Thomas H. Lane	288
Joseph P. Stoner	119

- By electronic ballot, the Council elected Lisa M. Balbes, D. Richard Cobb, Emilio X. Esposito, Jason E. Ritchie, and Stephanie J. Watson for three-year terms (2020-2022) on the Committee on Committees (ConC).

Satinder Ahuja 99

*Lisa M. Balbes	242
*D. Richard Cobb	266
Harry J. Elston	78
*Emilio X. Esposito	247
Sarah M. Mullins	175
*Jason E. Ritchie	210
Susan M. Schelble	172
Andrea B. Twiss-Brooks	169
*Stephanie J. Watson	176

Other Council Actions

Continuation of Committees

- On the recommendation of the Committee on Committees, and with the concurrence of the Council Policy Committee, Council approved the continuation of the Committees on International Activities and Professional Training, contingent on approval by the Board of Directors.

Establishment of an International Chemical Sciences Chapter

- On the recommendation of the Committee on International Activities, and with the concurrence of the Council Policy Committee, Council approved the creation of an ACS International Chemical Sciences Chapter in the Republic of Georgia, contingent on approval by the Board of Directors.

Redistricting of a Local Section

- On the recommendation of Nominations & Elections, the Council voted that the Pittsburgh Local Section be transferred from District II to District III in order to bring District III's member population into compliance with bylaw requirements.

Resolutions

The Council passed resolutions

- in memory of former Executive Director John Kistler Crum;
- In memory of other deceased Councilors;
- in recognition and celebration of the 100th birthday of Gerald Meyer, and his 80 years of service to the Society
- in gratitude for the officers and members of the San Diego Local Section - host Section for the 258th National Meeting, the divisional program chairs and symposium organizers, and ACS staff; and
- acknowledging Bonnie A. Charpentier's service as ACS President and presiding officer of the Council.

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ACS National Meeting

Continued from page 13

Highlights from Committee Reports

Nominations and Elections

The Committee on Nominations and Elections solicits Councilors' input of qualified individuals for President-Elect and/or Directors for future consideration. Suggestions can be sent to nomelect@acs.org.

Ballots for the 2019 fall national election will be distributed starting on September 30th, with a voting deadline four weeks later on October 25th. ACS members eligible to vote and with an email address on file 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 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 dates. N&E encourages all ACS members to vote for President-Elect and the Constitutional Amendment. Election information may be viewed at acs.org/elections.

Budget and Finance

The Society's 2019 financial performance through July 31st yielded a Net from Operations of \$30.1 million. This is \$10 million favorable to the Approved Budget, and \$1.7 million less than the same period in 2018. Total revenues are right on budget at \$338 million. Total expenses are \$308 million, which is \$10 million favorable to budget.

The committee considered two 2020 program funding reauthorization requests, and on its recommendations, the Board subsequently approved funding for the ChemIDP and the International Student Chapters Programs in the 2020 Proposed Budget.

The committee considered new program funding requests for 2020 as well. The Board subsequently approved funding for the Green and Sustainable Chemistry Education Resources pilot for inclusion in the 2020 Proposed Budget.

The Society is expected to end the year in compliance with each of the five Board-established financial guidelines. Additional information can be found at www.acs.org, at the bottom of the page, click 'About ACS', then 'Financial'.

San Diego Meeting Attendance

The theme of the 258th ACS National Meeting was "Chemistry and Water." As of Tuesday evening, August 27, attendance was:

Attendees	7,488
Students	3,095
Exhibitors	995
Expo only	430
Guest	401
Total	12,409

2019 Career Navigator live data

Participating Employers	31
Number of Open Positions	81
Job Seeker Profiles	239
Lightning Talk Attendees	270

Career Pathway Registrations 1,180

Career Consultant Interactions 555

Petitions to Amend the Constitution and Bylaws

New petitions to amend the Constitution or Bylaws must be received by the Executive Director & CEO no later than December 4 to be included in the Council agenda for consideration at the spring 2020 meeting in Philadelphia. Contact the Committee on Constitution and Bylaws with any questions or requests for information at bylaws@acs.org

Actions of the Board of Directors

The Board's Executive Session

At this meeting, the ACS Board of Directors focused on a number of key strategic issues and took several related actions.

The Board's Committees

The Board received and discussed reports from its committees on Budget and Finance, Professional and Member Relations, Strategic Planning, Executive Compensation, and Pensions and Investments, as well as the ACS Governing Board for Publishing, the Task Force on the Future of Meetings, and the Society Programs Globalization Board liaison. In particular,

- On the recommendation of the Committee on Professional and Member Relations, the Board voted to approve the Society's nominees for the 2020 National Science Board Public Service Award and the 2020 Tang Prize in Biopharmaceutical Science.
- On the recommendation of the Joint Board-Council Committee on Publications and an Editor Selection Committee, the Board voted to approve the appointment and reappointment of editors-in-chief for ACS journals. Their names will be announced once they have been notified and practical arrangements for their service to ACS have been finalized.
- On the recommendation of the Society Committee on Budget and Finance, the Board voted to set the advance member registration fee for national meetings held in 2020 at \$505 – this amount is equal to the 2019 fee, adjusted for inflation – and to approve or reauthorize several program funding requests.

Executive Director and CEO Report

The Executive Director/CEO and his direct reports provided updates to the Board on the activities of Chemical Abstracts Service (CAS) and the ACS Publications Division. He offered updates on issues relating to the ACS Core Value of Diversity, Inclusion, and Respect; the current status of Society membership; ACS financials; initiatives associated with the International Year of Periodic Table; and upcoming events and activities. As part of his report, he invited the Executive Vice President for Scientific Advancement to lead an informal discussion on key issues for that division.

Other Society Business

- The Board heard reports from members of the Presidential Succession on their current activities as well as those planned for 2020, particularly the presidential symposia and endorsed symposia for this San Diego meeting.
- The Board liaison for globalization provided a summary of

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ACS National Meeting

Continued from page 14

a recent Board survey and received additional feedback from the Board on the globalization vision for Society programs. The goal here is encouragement and expansion, where appropriate, of existing successful international activities and initiatives, as well as evaluating current products and programs; exploring additional options and opportunities; and advising the Board on the assembly of a coherent and balanced program portfolio appropriate to the globalized ACS of the twenty-first century.

- The Board received a preview of recommendations from the Committee on Strategic Planning for process improvements focused on streamlining the ACS strategic planning process, including an adjustment of the cycle time; inclusion of an analysis of professional association market dynamics; and concentration on only the highest-value elements for the Strategic Plan.
- The Board received its customary extensive briefing from its Committee on Executive Compensation. The compensation of the Society's executive staff continues to receive regular review by the Board.
- The Board received a status update from the Task Force on the Future of Meetings. The task force has been charged with performing a "deep dive" on the current portfolio of ACS meetings and conferences, identifying current offerings, evaluating governance and staff support structures, revenue streams, financial targets, and business models, and recommending actions that will ensure the sustainability and future relevance of that portfolio.
- The Board also held a discussion with members of the executive committee and staff leadership of the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) on the vision, mission, and structure of SACNAS. Various components of the recently signed Chemistry Enterprise Partnership agreement were discussed, em-

phasizing the shared overarching objective of promoting and achieving diversity in STEM. The Board agreed to the appointment of a joint ACS-SACNAS task force charged with developing additional short-term goals, evaluating continued partnership potential, and developing long-term goals.

The Board's Regular Session

The Board held a well-attended interactive regular session on Sunday, August 25, that featured the work done by the Task Force on the Next Generation of the ACS leadership program portfolio as well as a celebration of the tenth anniversary of the ACS Leadership Development System.

SUPPLEMENTAL INFORMATION FOR COUNCILORS

The following is a list of URLs and email addresses for supplemental information presented in reports at the Council meeting.

Officers

Bonnie A. Charpentier, President
b.charpentier@acs.org

Luis Echegoyen, President-Elect
Lechegoyen@acs.org

Peter K. Dorhout, Immediate Past President
p.dorhout@acs.org

ACS Offices

Office of Secretary & General Counsel
secretary@acs.org

Committees

Budget and Finance
www.acs.org/AboutACS/FinancialInformation

Chemical Safety
safety@acs.org

Chemistry & Public Affairs
www.acs.org/policy

Committee on Committees
<https://www.yellowbook.acs.org>

Constitution and Bylaws
bylaws@acs.org
www.acs.org/govdocs

Economic and Professional Affairs
www.acs.org/careerfair
careers@acs.org

Environmental Improvement
cei@acs.org

Local Section Activities
www.acs.org/getinvolved

Minority Affairs

www.chemdiversity.org
www.facebook.com/ACS.CMA
Twitter @chemdiversity

Nominations and Elections

www.acs.org/elections
nomelect@acs.org

Patents and Related Matters

patents@acs.org

Professional Training

cpt@acs.org

Technician Affairs

www.acs.org/cta
cta@acs.org
Twitter: @CTA_ACS
Linkedin: ACS Committee on Technician Affairs

Women Chemists

wcc@acs.org

Younger Chemists

www.acsyc.org
Facebook: YCC.ACS
Twitter: @YCC_ACS
Instagram: yccacs

#CatalyzeTheVote

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Resources on the Web

Yellow Book

<https://www.yellowbook.acs.org>

Highlights of ACS Achievements

www.acs.org/acshighlights

Governing Documents

www.acs.org/bulletin5

Chemists with Disabilities

Youtube channel

Community Activities Outreach

www.acs.org/OTP

Project SEED free webinar

<http://bit.ly/projectseedwebinar>

CPRC PR Makeover

CPRCMakeovers@gmail.com

Online Information for Councilors

<http://www.acs.org/content/acs/en/about/governance/councilors.html>

- Volunteer/National Meeting Attendee Conduct Policy

Councilor Talking Points, produced by the ACS Office of the Secretary & General Counsel.

Permission is hereby granted to distribute in whole or part.

Please direct all comments and questions to: secretary@acs.org ◇

H.N. Cheng

Continued from page 7

nities; collaborations in these areas may also help in job search and career development. Networking, personal referrals, and mutual assistance among members are helpful in career development. If elected, I plan to work with the various ACS entities involved to enhance our services to our members and students on this critical issue.

Leadership and Momentum. Thanks to the efforts of volunteers and staff, ACS has a lot of momentum right now. Working together, we can sustain the momentum and raise it to an even higher level. Peter Drucker, a founder of modern management once said, “The best way to predict the future is to create it.” I believe with strong leadership and our collective talent, we can indeed create a brighter future for us and for ACS.

I have been active in ACS for many years and have served in numerous capacities and assignments at local, divisional, national, and international levels. Over the years I have gained a good knowledge of ACS and the chemistry profession. I am active in research, in publications, and in organizing meetings and symposia. From my professional career, I have the experience in strategizing for the future, evaluating new business opportunities, managing people and budgets, organizing projects, and developing new products. Above all, I care about chemistry, and I am passionate about our profession. If elected, I am ready to represent ACS and work hard for the benefit of our members.

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in the Boston area?**
Check out the NESACS Calendar
www.nesacs.org/seminars

Carol Duane

Continued from page 7

the potential of research ideas and converting them to practical uses. As partners, they could form a powerful collaboration to apply chemistry solutions to the world’s major issues. My experience in developing business alliances and industry-association collaborations will be an advantage in finding opportunities to collaborate on a significant level.

Strategic future

ACS recognizes that a strategic eye to the future and well-considered planning is vital for our organization. Not only have we developed a strategic plan for the overall society, but the emphasis on strategic thinking is permeating all layers of the society. In 7 years, we’ve built a program that helps ACS committees, divisions, and local sections plan for and bring about a strategic future under the umbrella of the overall ACS Strategic Plan.

Throughout the numerous corporate restructurings, ownership changes, and business reinventions I experienced, I saw that finding a strategic purpose and developing innovative strategies was the key to establishing a successful enterprise.

As ACS president, I will encourage strategic thinking and planning throughout the society, so we can find ways to fulfill ACS’s mission to promote and support chemistry and its practitioners as the global champion of improving people’s lives through the transforming power of chemistry.

Giving back

I started volunteering in ACS for my benefit, but things changed along the way when I realized our contributions can make a difference.

Now it’s time to take bold, ambitious steps to improve people’s lives. With empowered and engaged professionals and the problem-solving duo of chemists and enterprise leaders, we have the wherewithal. We can step up and be the world’s big voice in creating awareness of global issues and spearheading efforts to attack them. As ACS president, I would like to lead you in these endeavors. Visit my website for more information: <https://caroladuane.com>.

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CCEW Report

Continued from page 2

Salesforce

- Mahadevan Venkatarama

Stonehill College

- Bridget Belcher
- Katie Bucking
- Claire Farnan
- Lindsey Gray
- Pete Giannini
- Erin Hickey
- Meghan Miracle
- Anna Pinckney

- Brian Porisky
- Megan Salemi

Suffolk University

- Janice Bautista

University of Massachusetts-Lowell

- Jess Allen
- Menal Almurani
- Jeffrey Cullen
- Maria Fonseca
- Jessica Garcia
- Abby Giarrosso
- Lily Green
- Allee Kogan

- Caitlin Leach
- Debbie O’Hair
- Riya Patel
- Massimo Ruscitti
- Emily Schaffter
- Brianna Williams

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

NESACS will be organizing National Chemistry Week (NCW) in October. The 2019 theme for NCW is “Marvelous Metals”, which focuses on the chemistry of metals. ◇

A Cartoon by Sidney Harris

This ironic cartoon by Sidney Harris recalls a time of the great mercury-in-tuna scare. Certainly, mercury contamination can be a deadly problem, but I think this threat pales in comparison with other environmental challenges we face for a growing population, such as how to generate more energy, how to make more drinkable water, and how to grow more food that people want to eat, all in a sustainable manner.”

— Richard N. Zare (Stanford University)



A Cartoon by Sidney Harris

It is impossible to imagine what the world around us would look like without chemistry. Whether producing high-performance athletic apparel or commercializing paint with less environmental impact, chemistry is central to everything! For me, having spent much of my career at DuPont, I continue to be personally and professionally committed to DuPont's onetime vision of making "Better Things, for Better Living, through Chemistry." Now, leading the American Chemical Society whose mission is "Improving people's lives through the transforming power of chemistry," I'm inspired to see the power of innovative chemistry harnessed worldwide. I challenge those in the chemistry enterprise to follow the lead of this cartoon and clearly communicate the wonders and benefits of this central science to everyone around them.

—Thomas M. Connelly, Ph.D., ACS Executive Director and Chief Executive Officer



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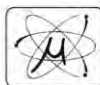
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Calendar

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>

<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>

<http://engineering.tufts.edu/chbe/newsEvents/seminarSeries/index.asp>

<http://www.chem.umb.edu>

<http://www.umassd.edu/cas/chemistry/>

<http://www.uml.edu/Sciences/chemistry/Seminars-and-Colloquia.aspx>

<http://www.unh.edu/chemistry/events>

<https://www.wpi.edu/academics/departments/chemistry-biochemistry>

October 1

Dr. Michael Grass (Lonza Pharma & Biotech)
Boston College, Merkert 130, 4:00 pm

Prof. Eugene Shakhnovich (Harvard)

Biophysics of protein evolution and evolution of protein biophysics

MIT, Rm 6-120, 4:00 pm

Prof. Hee Yeon Cho (Loyola Univ.-Chicago)

UNH, Parsons N104, 11:10 am

October 2

Dario Campana (National University of Singapore)

Transforming the treatment of childhood

leukemia with immune cells

Brandies, 4:00 pm

Prof. Julie Kovacs (Univ. Washington)

Mechanism of Formation of a Reactive, Alkyl Thiolate-Ligated Fe^{III}-Superoxo Intermediate Derived from Dioxygen

MIT, Rm 4-370, 4:15 pm

Prof. Kabirul Islam (Univ. Pittsburgh)

Protein and Small Molecule Engineering towards a Programmable Chromatin Landscape

Tufts, Parsons, Rm P106, 12:00 pm

October 3

Mathew Bio (National University of Singapore)

Mighty Machines; efficient chemistry manufacturing enabled by continuous technology

Brandeis, Gerstenzang 121, 3:40 pm

Prof. Nozomi Ando (Cornell Univ.)

Harvard, Pfizer Lecture Hall, 4:15 pm

October 4

Prof. Eric Borguet (Temple Univ.)

Boston College, Merkert 130, 4:00 pm

October 7

Prof. Jon Thorson (Univ. Kentucky)

Boston U, Rafik B. Hariri Building, Rm 208, 11:00 am

Prof. Sharon Hammes-Schiffer (Yale)

Proton-Coupled Electron Transfer in Catalysis and Energy Conversion

Harvard, Pfizer Lecture Hall, 4:15 pm

Prof. Christine Phillips-Piro (Franklin & Marshall College)

MIT, Rm 4-270, 4:00 pm

October 8

Prof. Chao-Jun Li (McGill Univ.)

Boston College, Merkert 130, 4:00 pm

Prof. Timothy H. Warren (Georgetown)

Harvard, Pfizer Lecture Hall, 4:15 pm

Prof. Carlos Silva (Georgia Tech)

MIT, Rm 34-401, 12:00 pm

Prof. Jan Henrik Andrenkjaer-Larsen (Tech. U. Denmark)

Dissolution Dynamic Nuclear Polarization

MIT, Rm 6-120, 4:00 pm

October 9

Prof. Matthew Shoulders (MIT)

Boston College, Merkert 130, 4:00 pm

Dr. Frank Fang (Eisai)

Carbohydrate-Based drug discovery and development

Tufts, Parsons, Rm P106, 12:00 pm

October 10

Prof. Natalia Shustova (Univ. South Carolina)

Boston College, Merkert 130, 4:00 pm

Prof. Cynthia Friend (Harvard)

Paradigms for controlling reaction selectivity in energy-efficient heterogeneous catalysis

Harvard, Pfizer Lecture Hall, 4:15 pm

October 15

Prof. Wesley Chalifoux (Univ. Nevada-Reno)

Boston College, Merkert 130, 4:00 pm

Scott Auerbach (UMass-Amherst)

Slipping from the Holy Grail: Simulating the Formation of Nanoporous Materials

Brandeis, Gerstenzang 121, 3:40 pm

Prof. Herbert Waldmann (Max Plank Institute-Dortmund)

Broad Inst., Rm 2040, 2:00 pm

Broad Auditorium, 4:00 pm

October 16

Prof. Michael Geeson (MIT)

MIT, Rm 4-370, 4:15 pm

October 17

Prof. Aiko Fukazawa (Kyoto Univ.)

MIT, Rm 6-120, 4:00 pm

October 18

Prof. Aiko Fukazawa (Kyoto Univ.)

Development and Exploration of the Function of Novel pi-Electron Systems Based on the Characteristics of Third-Row Main-Group Elements

Harvard, Pfizer Lecture Hall, 4:15 pm

Harvard, Pfizer Lecture Hall, 4:15 pm

October 21

Prof. Weiping Tang (Univ. Wisconsin-Madison)

Boston U, Rafik B. Hariri Building, Rm 208,

11:00 am

October 22

Prof. Isaac Chuang (MIT)

MIT, Rm 34-401, 12:00 pm

Prof. Dan Congreve (Harvard)

Excitons for light and energy

MIT, Rm 6-120, 4:00 pm

Prof. Nathan Groves (Univ. North Carolina)

UNH, Parsons N104, 11:10 am

October 23

Prof. Catherine L. Drennan (MIT)

Harvard, Pfizer Lecture Hall, 4:15 pm

Prof. Hadley Sikes (MIT)

Tufts, Medford Campus, Rm P106, 12:00 pm

October 24

Prof. Simon Billinge (Columbia)

Harvard, Pfizer Lecture Hall, 4:15 pm

October 25

Prof. Franziska Schoenebeck (RWTH Aachen Univ.)

Boston College, Merkert 130, 4:00 pm

Prof. Sarah Perry (UMass-Amherst)

Molecular Engineering of Polyelectrolyte Complex Materials

UMass-Lowell, Olney Rm 218, 3:30 pm

October 28

Prof. Benoit Roux (Univ. Chicago)

Boston U, Rafik B. Hariri Building, Rm 208, 11:00 am

Prof. Anastassia Alexandrova (UCLA)

Harvard, Pfizer Lecture Hall, 4:15 pm

October 29

Theodore Goodson (Univ. Michigan)

Molecular Spectroscopy with Quantum Light

Brandeis, Gerstenzang 121, 3:40 pm

Prof. Anastassia Alexandrova (UCLA)

Dynamic heterogeneous catalytic interfaces: ensembles of metastable states break the rules of catalysis

MIT, Rm 6-120, 4:00 pm

Prof. Ginger Schultz (Univ. Michigan)

UNH, Parsons N104, 11:10 pm

October 30

Prof. Jinjun Shi (Harvard Medical School)

Boston College, Merkert 130, 4:00 pm

Prof. Gabriela Schlua-Cohen (MIT)

Action at the Nanoscale: Single-Molecule Studies of Protein Dynamics

Tufts, Parsons, Rm P106, 12:00 pm

October 31

Prof. Daniel Nomura (UC Berkeley)

Harvard, Pfizer Lecture Hall, 4:15 pm

**Notices for The Nucleus
Calendar of Seminars should
be sent to:** Samurdhi Wijesundera,
Email: samu.amameth@gmail.com ◊