

NESACS 2012 Program Report
Chair-Elect and Program Chair, Liming Shao

On January 12, 2012 the 920th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Pfizer Cambridge site, 200 Cambridge park Drive, Cambridge, MA 02140; <http://www.pfizer.com>)

Presiding by Prof. Ruth Tanner, Dr. Mark Bunnage (Vice President, Head of Biotherapeutics Chemistry) welcomed all attendees. Dr. Osamu Shimomura, Professor Emeritus, Marine Biological Laboratory, Woods Hole; the 2008 Nobel Prize Laureate in Chemistry, gave a speech titled 'The Discovery of the Green Fluorescent Protein GFP'.

The green fluorescent protein GFP consists of a single peptide chain with a fluorophore. It can be cloned and genetically produced in living organisms. Nowadays GFP and analogous fluorescent proteins are extensively used as protein markers in biological and medical research.

Prof. Shimomura used many pictures talked about his long research history and the how he discovered GFP. He also brought in a simple experimental set to demonstrate and help to understand the mechanism of fluorescence.

January Meeting Photos, please visit

http://www.nesacs.org/pub_photos/2012/jan2012meeting/jan2012meeting.html

On February 9th, 2012 the 921th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Holiday Inn Boston (Brookline, 1200 Beacon Street, Brookline, MA 02446). Dr. Craig F. Ferris gave a seminar titled 'Functional MRI in Awake Animals: Imaging the Neural Circuitry and Pharmacological Control of Aggression, Sex, and Fear'. Dr. Ferris is the Professor of Psychology and Pharmaceutical Sciences, Director of Center for Translational Neuroimaging, Northeastern University. His academic research focuses on developmental behavioral neuroscience with a comparative approach studying a variety of animals, including hamsters, rats, and monkeys. Functional magnetic resonance imaging (fMRI) in awake animals is a window on the brain, allowing behavioral neuroscientists the ability to image the brain activity associated with highly motional behaviors like aggression, sex and fear. Dr. Ferris presented the data showing changes in brain activity associated with aggressive motivation. His laboratory uses standard molecular and neurobiological techniques to study the brains of rodents. In addition, ultra-high field magnetic resonance imaging is used as a noninvasive tool for developmental studies in monkeys, enabling one to follow changes in brain structure, chemistry, and function in the same animal over the course of its life.

The goal of Dr. Ferris' research is to better understand the brain mechanisms contributing to mental illness and drug addiction in the hope of improving psychosocial and psycho-pharmacologic intervention strategies. His talk generated very active discussion during the meeting.

February Meeting Photos, please visit

http://www.nesacs.org/pub_photos/2012/feb2012meeting/feb2012meeting.html

On March 8th, 2012 the 922th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Harvard Faculty Club (20 Quincy St., Cambridge, MA). The meeting was also 2012 ACS Richards Medal Award Meeting. After reception and dinner, the Richards Award Ceremony was held at Mallinckrodt Building, Pfizer Lecture Hall - MB23 (12 Oxford Street, Cambridge, MA). 2012 Richards Medalist is Prof. Tobin J. Marks, Charles E. & Emma H. Morrison Professor of Chemistry, Vladimir N. Ipatieff Professor of Chemistry, and Professor of Materials Science and Engineering, Northwestern University, Evanston, Illinois 60208. Tobin Marks' research interests include transition metal and f-element organometallic chemistry; catalysis; vibrational spectroscopy; nuclear magnetic resonance; synthetic facsimiles of metallo protein active sites; carcinostatic metal complexes etc. Marks has published over 1035 papers and holds 206 US patents. After ceremony, Marks gave a lecture titled 'Plastic Solar Cells with Engineered Interfaces'. The ability to fabricate molecularly tailored interfaces with nanoscale precision can selectively modulate charge transport and molecular assembly at hard matter-soft matter interfaces and can facilitate transport of the "correct charges" while blocking transport of the "incorrect charges." In his lecture, Marks illustrated the challenges and the opportunities for three specific and related areas of research: 1) controlling charge transport across hard matter-soft matter interfaces in electroluminescent devices, 2) controlling charge transport across hard matter-soft matter interfaces in organic photovoltaic cells, 3) controlling charge transport by active layer organization at electrodes. He demonstrated that rational interface engineering along with improved bulk-hetero-junction polymer structures affords high solar power conversion efficiencies along with greater cell durability.

March Meeting Photos, please visit

http://www.nesacs.org/pub_photos/2012/mar2012_richards_meeting/mar2012richards_meeting.html

On April 19th, 2012 the 923rd Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Harvard Faculty Club (20 Quincy St., Cambridge, MA). Esselen Award Meeting

Welcomed by Dr. Howard Mayne, Chair of Esselen Award Committee, Dr. Myron S. Simon, Founding Member of the Esselen Award Committee described the history of The Esselen Award and Dr. Jon Clardy, Hsien Wu and Daisy Yen Wu Professor, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School made Introduction of the Award Recipient. Finally Gustavus J. Esselen, IV presented of the Award to Dr. Bruce Ganem, (Franz and Elisabeth Roessler Professor,

and Stephen H. Weiss Presidential Fellow in the Department of Chemistry and Chemical Biology, Cornell University).

Dr. Ganem's synthetic and mechanistic studies of the shikimic acid pathway helped elucidate how plants and micro-organisms biosynthesize aromatic amino acids, vitamins, hormones, and other essential nutrients. In the area of bioanalytical chemistry, Dr. Ganem showed for the first time that enzyme-substrate, receptor-ligand and other noncovalent macromolecular complexes could be detected and analyzed by electrospray mass spectrometry under physiological conditions. A principal focus of his current research is the development of new multiple component condensation reactions for use in combinatorial chemistry.

Dr. Ganem gave a lecture titled 'Lost (Sometimes) in Translation: Advancing Chemical Discoveries Beyond the Laboratory' after award ceremony. In his lecture, he talked about several challenges front individual chemical researchers seeking to translate chemical discoveries into products and services for the public good. He also gave Specific examples selected from his interdisciplinary chemical research program over nearly forty years at Cornell to illustrate some of those challenges and how (where possible) they were surmounted.

April Meeting Photos, please visit

http://www.nesacs.org/pub_photos/2012/apr2012esselen_meeting/apr2012esselen_meeting.html

On May 10th, 2012 the 924th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Tufts University (51 Winthrop Street, Medford, MA). It was 'Education Night'.

At award meeting, welcomed by Dr. Ruth Tanner (NESACS Chair), David Sittenfeld (Manager of the Forum Program, Museum of Science) gave a lecture titled 'Chemistry in the Museum: Engaging Public with Demonstrations and Conversations'. In addition to overseeing the Museum's Forum Program, David regularly gives talks on the topics in current science and technology at the Museum, delivers demonstrations in the exhibit halls, and manages special programs and exhibit project.

At meeting numerous awards were presented to the awardees that includes, James Flack Norris/Theodore William Richards Awards for Excellence in Teaching at Secondary School Level, Undergraduate Summer Research Fellowships, Undergraduate Grant-in-Aid, Undergraduate Research Symposium, Phyllis Brauner Book Award, Project SED Students, Induction of New Member into Aula Laudis, Simmons College Prize, Avery A. Ashdown Chemistry Awardees.

On September 13th, 2012 the 925th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Crowne Plaza (15 Middlesex Canal Park, Woburn, MA 01801). The meeting was coupled with Medicinal

Chemistry Group (MCG) half-day symposium ‘Globalization of Japanese Pharmaceutical Industry — Strategies, Innovations, and Future Trends’.

Pharmaceutical industries have been going through a big transition into a new era. Japanese pharmaceutical industry is riding the wave well and expanding their presence around world, particularly in US. This NESACS symposium invited eminent speakers from major Japanese pharmaceutical companies to give a snapshot.

Chaired by Dr. John Wang (Vice-President, Medicinal Chemistry, H3 Biomedicine Inc.) and Dr. Yibin Xiang (Acton Biotech), 6 distinguished speakers gave seminars at symposium, they are Dr. Wayne D. Klohs (Senior Vice President, Global Therapeutic Area Leader, Oncology, Astellas Pharma Global Development); Kyle D. Kovalanka (Vice President, Corporate Strategy and Development, Millennium Pharmaceuticals, The TAKEDA Oncology Company); Dr. Kenichi Nomoto (President of Oncology Product Creation Unit (PCU), Eisai, Japan); Dr. Eiichiro Suzuki (Executive Fellow, Ajinomoto, Japan); Dr. Peter G. Smith (Executive Director, Drug Discovery Biology, H3 Biomedicine Inc.); Dr. Atsushi Nagahisa (Founder and Director, RaQualia Pharma Inc., Aichi, Japan).

The evening meeting was coupled with NESACS monthly meeting. Presiding by Dr. Ruth Tanner, Chair, NESACS, Dr. Maki Umemura (Cardiff University, UK) gave a lecture on the history of Japanese pharmaceutical industries ‘Crisis and change in the system of innovation: the Japanese pharmaceutical industry since the 1990s’.

On October 11th, 2012 the 926th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Nova Biomedical Corp (200 Prospect Street, Waltham, MA). This meeting consisted several events: A Small Chemical Business Symposium (Sponsored by NESACS and the Small Chemical Businesses Division of the ACS); Henry A. Hill Award; Presentation and Recognition of 50- and 60-Year Members

NESACS and the Small Chemical Businesses Division of the ACS sponsored the Small Chemical Business Symposium. The symposium speakers for symposium included Dr. Mukund Chorghade, President of Chorghade Enterprises, Inc. and Chief Scientific and Tech-nology Officer, THINQ Pharma; Dr. Jack Driscoll, a founder and Director of Nova, President, PID Analyzers, LLC, PR Chair NESACS; Dr. John Rainey, Regional Director, Mass Small Business Development Center, Worcester, MA; Beth Chea, VP, TD Bank, Andover, MA; Dr. Peter Hirst, Executive Director of Executive Education, MIT Sloan School of Management; Dr. Shankar Hegde, Founder and CEO, Yaana Consulting, The IndUS Entrepreneurs; Vinit Nijhawan, Managing Director, Technology Development Office, Boston University; Jennifer McLachlan, PID Analyzers, LLC, PR Chair Small Chemical Business Div. of the ACS & Joselin Mane, Founder, Boston Tweetup; Madeleine Jacobs, CEO, American Chemical Society, Washington, DC; Pam Randhawa, CEO and Founder, Empiriko; Dr. Raj Rajur, Chairman & CEO, CreaGen Biosciences, Inc.

At dinner meeting, welcomed by Dr. Ruth Tanner, Chair, NESACS, Dr. Dorothy J. Phillips, Chair of the NESACS Awards Committee made presentation to 50- and

60-Year ACS Members; 2012 Henry A. Hill Award for Outstanding Service to the Northeastern Section was presented by Dorothy J. Phillips to Dr. Michael P. Filosa. Finally Mrs. Madeleine Jacobs, Executive Director and CEO of American Chemical Society gave the evening lecture: "Innovation, Chemistry, and Jobs: Is Entrepreneurship in Your Future?". Audience and speaker had very active discussion on the topics.

October Meeting Photos, please visit

http://www.nesacs.org/pub_photos/2012/oct2012meeting/oct2012meeting.html

On November 8th, 2012 the 927th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Astra-Zeneca (35 Gatehouse Drive, Waltham, MA). This was an award meeting.

Presiding by Dr. Ruth Tanner, NESACS Chair, first Heyn Memorial Book Prize awarded to Karen Piper; Prof. Jerry Jasinski (Keene State College, 2012 Chair, Norris Award Committee) made the Reflections on James Flack Norris and the introduction of the Norris Award winner. This year's Norris Award was presented to Prof. Vicente Talanquer, Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ 85721

Prof. Talanquer is also part of the core faculty in an innovative science teacher preparation program within the College of Science of the U of A. The focal point of his research is the study and improvement of chemistry education and science teacher preparation. In particular, he has directed their research at trying to characterize the conceptual frame works and the patterns of reasoning used by chemistry students to answer questions and solve problems that require qualitative reasoning (classification, prediction, comparison). He is also exploring how students' ideas and reasoning strategies evolve as they develop more expertise in the discipline.

At meeting Prof. Talanquer gave his Norris Award Address 'Learning Chemistry: Fighting Intuition'

November Meeting Photos, please visit

http://www.nesacs.org/pub_photos/2012/nov2012meeting_norris_heyne/nov2012_meeting.html

On December 13th, 2012 the 928th Meeting of the Northeastern Section of the American Chemical Society (NESACS) was held at Genzyme Corporation/Sanofi (Northeastern Conference Room, 153 Second Avenue, Waltham Massachusetts 02451). This was an award meeting. This symposium meeting organized by Medicinal Chemistry Group and featured 'Epigenetic Targets'. Epigenetic regulation of chromatin structure and function abnormalities will lead to cancer development. Emerging epigenetic targets in cancer present promising epigenetic therapies. The symposium attracted many local biotech and academic scientists.

Invited speakers included Dr. William H. Miller, Director and Head of Chemistry, Oncology R&D, Cancer Epigenetics DPU, GlaxoSmithKline, Collegeville, PA 19426-2990; Dr. Dafydd Owen, Research Fellow, Worldwide Medicinal Chemistry, Pfizer Worldwide R&D, Cambridge, MA 02140; Dr. Brian Albrecht, Head of Medicinal Chemistry, Constellation Pharmaceuticals, Cambridge, MA 02142; Dr. Alex Meissner, Associate Professor of Stem Cell and Regenerative Biology, Department of Stem Cell and Regenerative Biology, Harvard Medical School, Cambridge, MA