Monthly Meeting

The 915th Meeting of the Northeastern Section of the American Chemical Society

Education Night

Thursday, May 12, 2011

Tufts University, 51 Winthrop Street, Medford, MA

4:00 pm NESACS Board Meeting

5:00 pm Reception

6:00 pm Dinner

7:00 pm **Award Meeting**, Dr. Patrick Gordon, NESACS Chair, presiding. A panel discussion, *Towards a Sustainable Energy Future,* **Prof. Deyang Qu,** UMass Boston, **Prof. Jonathan Rochford,** UMass Boston, third panelist to TBD.

7:45 pm **Presentation of the Education Night Awards**

James Flack Norris/Theodore William Richards Awards for Excellence in Teaching at the Secondary School Level

Undergraduate Summer Research Fellowships

Undergraduate Grants-in-Aid

Undergraduate Research Symposium, Phyllis Brauner Book Award

Project SEED Students

Induction of New Members into *Aula Laudis*

Simmons College Prize

Avery A. Ashdown Chemistry Examination Awardees

Dinner reservations should be made no later than noon, Friday, May 6th. Please call Anna Singer at (781) 272-1966 or e-mail at secretary(at)nesacs.org . Please specify vegetarian. Reservations not cancelled at least 24 hours in advance must be paid. Payment is made at the door by cash or check (no credit cards). Members, $30; Non-members, $35; Retirees, $20; Students, $10.

DINNER IS BY RESERVATION ONLY

THE PUBLIC IS INVITED

Directions with Campus Map: http://www.tufts.edu/home/visiting_directions/medford_somerville/

VIA MBTA (See 'Directions' link above)

From the West/Massachusetts Turnpike (See 'Directions' page above)

Parking: Parking will be free after 4:00 PM in the Dowling Hall Parking Garage at 419 Boston Avenue (within one block of 51 Winthrop Street; the event site is on the corner of Winthrop Street and Boston Avenue) Push the visitor's button when entering the garage to open the gate. ◇

Abstract

Towards a Sustainable Energy Future

The security of an energy supply, its sustainability and environmental consequences are concerns both at a national and global level in our society today. Fossil fuels supply approximately 85% of global energy demands today and are being increasingly exploited. Clean and renewable alternative energy sources are urgently needed to mitigate rising CO_2 levels in our atmosphere and resolve our dependence on fossil fuels. Therefore, the development of feasible new and safe ways to store and distribute energy/fuel, as well as to provide essential feedstocks for industry, represent one of the grand challenges of science today. A panel composed of researchers from academia and industry will lead discussion of current and future chemical technologies presently

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Biographies

Professor Deyang Qu

Prof. Deyang Qu graduated with a B.Sc. in electrochemistry with honors from the Department of Chemistry, Wuhan University, China in 1986. He continued his graduate studies at the University of Ottawa in Canada with Professor B.E. Conway and earned his Ph.D. in electrochemistry in 1994. Right after graduation, Prof. Qu started his career in the battery industry as a researcher. Before joining the faculty of UMass Boston in the spring of 2005, Prof. Qu had spent twelve years in industry. At UMass Boston, Prof. Qu has developed research programs in the area of metal air batteries, fuel cells, and supercapacitors.

Professor Jonathan Rochford

Prof. Jonathan Rochford earned his B.Sc. in Pure and Applied Chemistry with first class honors at the School of Chemical Sciences, Dublin City University (DCU), Ireland in 2000. He continued his studies at DCU where in 2004, under the supervision of Dr. Mary T. Pryce, he completed his Ph.D. with a thesis entitled, "Steady state and laser flash photolysis studies of ferrocenyl group VI Fischer carbenes and metallo-porphyrins." Subsequently, Prof. Rochford spent two years as a Postdoctoral Associate in the research group of Prof. Elena Galoppini at Rutgers University investigating molecule-semiconductor interfaces in dye-sensitized solar cells. In 2007, Prof. Rochford joined the Thermal, Photo- and Radiation-Induced Reactions in Condensed Media program at Brookhaven National Laboratory as a Research Associate. There, under the supervision of Dr. Etsuko Fujita, he

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NSYCC Exchange

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socialize with the JCF constituents. At the conclusion of the conference, awards were given for outstanding oral and poster presentations. Out of the > 200 presenters, three from the NESACS/YCC group were awarded with these prestigious recognitions – one-third of the total prizes awarded. For their talks, Kathryn Bewley and Joseph Wzorek won the 2nd and 3rd place prizes, respectively; and Allison Greene (Boston College) won the 2nd place poster prize. Each award included a certificate and a chemistry related textbook.

Our week also included several chemistry-related activities. During a visit to the University Erlangen-Nürnberg we learned much about the exciting chemistry taking place in the Department of Chemistry and Pharmacy. To learn about their ongoing research activities, visit their website at http://www.chemie.uni-erlangen.org/index.shtml. At the company Eckart we were treated to an informative presentation about the business of manufacturing and marketing so called "effect pigments" and a tour of the facility where such pigments are made. We also visited Knauf Gips – a company that specializes in building materials. While at Knauf we were lead into an active mine where the company acquires the raw materials for its dry wall and insulation products. We also toured the production factory, the logistics center and their R & D center, which included highly sophisticated, cutting-edge instrumentation. The facilities at Eckart and Knauf are not typically open to the public – in fact, we were forbidden from taking pictures with our own cameras! Even so, our guides were informative and highly forthcoming when answering all of our questions. We are grateful to our GDCh/JFC hosts for arranging these activities and to the companies for allowing us such unrestricted access.

The trip wasn't all business, however, as we had opportunities to visit the many beautiful tourist attractions in southern Germany. One particularly pleasant afternoon included a trip to Würzberg for a guided tour of *Residenz Würzberg* – the palatial former residence of the Würzberg prince-bishop. The exchange participants will also all fondly remember the Conference Party, for which the organizers reserved a private room at a nightclub in Erlangen's city center. We danced the night away with over 100 of our new friends!

Overall, the 11th Annual NSYCC/NESACS – JCF/GDCh Exchange was another in a long line of successful exchanges between the two organizations. We not only learned about the exciting and ongoing research efforts of our European counterparts, but we also developed some wonderful new friendships. The 14th *Frühjahssymposium* will be in Rostock, Germany in March 2012, and promises to be a rich experience for all involved. Students in the NESACS region should be on the lookout for application materials in the fall of 2011.

2011 Exchange Participants: Sadik Antwi-Boampong (Dartmouth College), Kathryn Bewley (Boston University), Laura Brozek (Boston College), Melissa Brulotte (Bridgewater State University), Katie Ellis (Boston University), Allison Greene (Boston College), Lauren Gregor (Boston University), Timothy Lawton (Tufts University), June Lum (Boston University), Alexander Speed (Harvard University), Anupong Tangpeerachaikul (Massachusetts Institute of Technology), and Joseph Wzorek (Harvard University). ◇

Abstract

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being explored to address society's major energy challenges. ◇

Biography

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investigated proton-coupled electron transfer reactions of transition metal catalysts for application in water oxidation catalysis. Prof. Rochford joined the faculty of UMass Boston in the Fall of 2009 as Assistant Professor of Inorganic Chemistry. There he is developing an independent research portfolio with a major focus on solar driven catalysis for water oxidation and carbon dioxide reduction. ◇

Events in Chemistry

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May 21, 1936
Seventy-five years ago, Günter Blobel was born on this date. He received the Nobel Prize in Physiology or Medicine in 1999 for his discovery that proteins have intrinsic signals that govern their transport and location in the cell.

May 22, 1927
George A. Olah, a researcher in carbocations and their role in chemical reactions of hydrocarbons, was born on this date. He received the Nobel Prize in 1994 for his contribution to carbocation chemistry.

May 24, 1686
Three hundred and twenty-five years ago, on this date, Gabriel D. Fahrenheit was born. He improved thermometers by using mercury (Hg, 80) in 1720 and invented the Fahrenheit temperature scale.

May 29, 1781
Henri Braconnot, who was born on this date, isolated glucose from plant material such as sawdust, linen, or bark by boiling in acid. He also prepared "xyloidine," a precursor for plastics, by treating starch, sawdust, and cotton with nitric acid.

Additional events can be found at Dr. May's website, http://faculty.cua.edu/may/Chemistrycalendar.htm. ◇

Education Night Awards

Presented at Tufts University, Medford, Massachusetts, May 12, 2011

HIGH SCHOOL AWARDS

FIFTY-FIRST ANNUAL AVERY A. ASHDOWN HIGH SCHOOL EXAMINATION CONTEST

Student	School	Teacher
First Place - The Simmons College Award		
Ruifan Pei	Acton-Boxboro HS	David Baumritter
Second Place		
Alan Chiao	Acton-Boxboro HS	David Baumritter
Second Place (Non-eligible because of a prior award)		
James Lin	Phillips Andover Acad.	Temba Maqubela
Third Place		
Matthew Arbesfeld	Lexington HS	Parul Kumar
Fourth Place		
Kevin Wen	Lexington HS	Parul Kumar
Honorable Mention – First Year		
Andrew Lamb	Lexington HS	Janice Compton
Yusheng Hou	Lexington HS	Parul Kumar
Amy Zhang	Lexington HS	Parul Kumar
Ranfei Xu	Groton School	Sandra Kelly
Shivani Angappan	Home Schooled	
Justin Wang	Phillips Andover Acad.	Kevin Cordoza
Dawna Men	Phillips Exeter Acad.	Alison Hobbie
Christoper Desnoyers	Cambridge R&L	
Daniel Kramnick	Newton South HS	Alan Crosby
Rahul Shah	Chelmsford HS	Derrick Genova
Broyana Doyle	Home Schooled	
Honorable Mention - Second Year		
Priyanka Satpute	Nashua North HS	Allison Krones
Daniel Y. Zhang	Newton South HS	Alan Crosby
Greg Patridge	Hollis Brookline HS	Gina Bergskaug
Jonathon Cai	Phillips Exeter Acad.	Sharon Finley
Layla Siraj	Brookline HS	Julia Speyer
Tony Wang	Newton South HS	Alan Crosby
Harlin Lee	Phillips Exeter Acad.	Jeffrey Ward
Anupa Murali	Bishop Brady HS	Jim Miller
Dai Yang	Phillips Exeter Acad.	Sharon Finley
Ziv Scully	Brookline HS	Julia Speyer
Linda Wang	Andover HS	Betty Iannuccilli

AULA LAUDIS SOCIETY

Shawn Kenner	Sharon High School
Carol Lund	Masconomet High School
Lexi Thompson	Brookline High School
Yuko Hori	formerly of Phillips Academy-Andover

Theodore William Richards Award for Excellence in Teaching Secondary School Chemistry

Parul Kumar, Ph.D.	Lexington High School

PROJECT SEED

Justin Silva	Brockton High School
Liban Mohamed	Brockton High School

NEWELL GRANTS (NEACT)

Jennifer Walker	Wilmington High School (MA)
Mary Jac Reed	Fairfield Ludlowe High School (CT)
Andrew Angle	Watkinson School (CT)
Maureen Clark	Phoenix Central Schools (NY)

COLLEGE AND UNIVERSITY AWARDS

2009 UNDERGRADUATE RESEARCH SCHOLARS JAMES FLACK NORRIS AND THEODORE WILLIAM RICHARDS SCHOLARS

Wellesley College

Shoshana Bachman — Professor David Haines, Advisor

"Synthesis of a Potential Inhibitor of Chlamydial Immunoresistance"

Boston College

Ka (Dennis) Chang — Kian L. Tan, Ph.D., Advisor

"Asymmetric Hydroformylation of Homoallylic Alcohols via Enantioenriched Scaffolding Ligands"

Tufts University

Allister McGuire — Charles Sykes, Ph.D., Advisor

"Molecular Rotors"

University of New Hampshire

Matthew P. Mower — Charles K. Zercher, Ph.D., Advisor

"Novel Peptidomimetics for the Inhibition of Aspartyl Proteases"

NESACS UNDERGRADUATE GRANTS-IN-AID

Simmons College

Jennifer Bento — Richard Gurney, Ph.D., Advisor

"Synthesis, characterization and greening of vinylbenzyl thymine monomer, vinylbenzyl thymine, and vinylpyridine copolymer "

DR. PHYLLIS A. BRAUNER MEMORIAL BOOK AWARD

Boston University

Jiazuo "Henry" Feng — Mark W. Grinstaff, Advisor

"Functionalized Nanoparticles: Old Drugs, New Tricks" ◇

Panel discussion on "Towards a Sustainable Energy Future": (l-r) Deyang Qu (University of Massachusetts Boston), Jonathan Rochford (University of Massachusetts Boston), Michael Berger (Simmons College)