Newsletter

November 2014

Silicon Valley Chemist

Santa Clara Valley Section — American Chemical Society

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NOVEMBER 2014 NEWSLETTER TOPICS

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November Seminar Meeting

Come to a Celebration of the Periodic Table!

The periodic table has been a mainstay in chemistry classrooms for over 100 years. Students are taught about the way the elements are presented and how their positions predict their properties. But what about the history of the table? Was Dmitri Mendeleev really the first person to propose this idea? The format of the table enabled scientists to predict the properties of as yet undiscovered elements. The tales of the periodic table fill books. Come to Foothill College on November 13 to hear some of these stories and celebrate the periodic table's history and significance.

The Santa Clara Valley Section has elected to sponsor the elements scandium (Sc) and vanadium (V). With 95 total votes, these elements garnered the most votes, with the most likely reason being that the symbols comprise the abbreviation for our local section: Santa Clara (Sc) Valley (V). After a talk on the periodic table, students will give presentations on Sc and V. Come hear what they have to say about these two transition metal elements. In addition, over 40 students from local colleges will exhibit posters on elements. See what they have to say about their favorite element!

Chair's Message

The Nobel Prize ***www.nobel.se*** in chemistry was announced in October. Eric Betzig (Howard Hughes Medical Institute), Stefan W. Hell (Max Plank Institute for Biophysical Chemistry), and William E. Moerner (Stanford University) won the prize for "the development of super-resolved fluorescence microscopy". I always look forward to the announcement by the Nobel committee since it gives me an opportunity to learn about seminal, albeit historical, developments in different fields of chemistry. As with many Nobel research projects, this one

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RESERVATION FORM

Foothill College Periodic Table Dinner and Poster Session

Foothill College Physical Sciences, Mathematics and Engineering Building, November 13

Deadline for reservations: Thursday, November 6

Name(s): _____

Please list all names so we can make a name tag for every member of your family.

_____ Telephone No.: (_____) _____

Number of Adults at $16.00 ..... _____ x $16.00 = $_____

Number of of Students Not Doing a Poster at $5.00 ..... _____ x $5.00 = $_____

Total Amount Enclosed ..... $_____

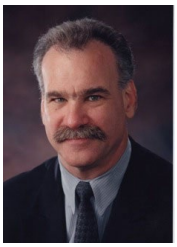
Make check payable to: Santa Clara Valley Section – ACS

Mail check and reservation form to: Karl Marhenke, 1710 Wilshire Drive, Aptos, CA 95003-2836

Note: our usual dinner meeting discounts (students, job-seekers, 50+ members, members attending first section meeting) apply to this meeting just as they do to our regular dinner meetings.

Professor Scott E. Denmark

Recipient of the 2014 the Harry and Carol Mosher Award



Scott E. Denmark was born in New York on 17 June 1953. He obtained an S. B. degree from M.I.T. in 1975 and his graduate studies were carried out at the ETH-Zürich under the direction of Professor Albert Eschenmoser, culminating in a D. Sc. Tech degree in 1980. That same year he began his career as assistant professor at the University of Illinois. He was promoted to associate professor in 1986, full professor in 1987 and then in 1991 named the Reynold C. Fuson Professor of Chemistry.

Professor Denmark is primarily interested in the invention of new synthetic reactions and elucidating the origins of stereocontrol in novel, asymmetric reactions. The current emphasis in his laboratories focuses on the relationship between structure, reactivity and stereoselectivity in a variety of organoelement processes. He has pioneered the concept of chiral Lewis base activation of Lewis acids for catalysis in main group synthetic organic chemistry. His group has also developed palladium-catalyzed cross-couplings with organofunctional silicon compounds. In addition, his research program encompasses the development and application of tandem heterodiene cycloadditions for the synthesis of complex natural (alkaloids) and unnatural (fenestranes, phase transfer catalysts) nitrogen containing compounds. In recent years, his group has investigated the use of chemoinformatics to identify and optimize catalysts for a variety of organic and organometallic reactions.

Professor Denmark has won a number of honors for both research and teaching. These include: A. P. Sloan Foundation Fellowship, NSF Presidential Young Investigator Award, Stuart Pharmaceuticals Award, A. C. Cope Scholar Award (ACS), Alexander Von Humboldt Senior Scientist Award, Pedler Lecture and Medal (RSC), the ACS Award for Creative Work in Synthetic Organic Chemistry, the Yamada-Koga Prize, the Prelog Medal (ETH-Zürich), the H. C. Brown Award for Creative Research in Synthetic Methods (ACS), Robert Robinson Lecture and Medal (RSC), the ISHC Senior Award in Heterocyclic Chemistry, Paul Karrer Lectureship (Uni Zürich), the Frederic Stanley Kipping Award for Research in Silicon Chemistry (ACS), and the Harry and Carol Mosher Award (Santa Clara Section, ACS). He is a Fellow of the Royal Society of Chemistry and the American Chemical Society. He has received numerous honorary lectureships and visiting professorships and has served on many editorial advisory boards. He edited Volume 85 of Organic Syntheses, was Editor of Volumes 22-25 of Topics in Stereochemistry and was a founding Associate Editor of Organic Letters (1999-2004). In 2008 he became Editor in Chief and President of Organic Reactions, Inc.

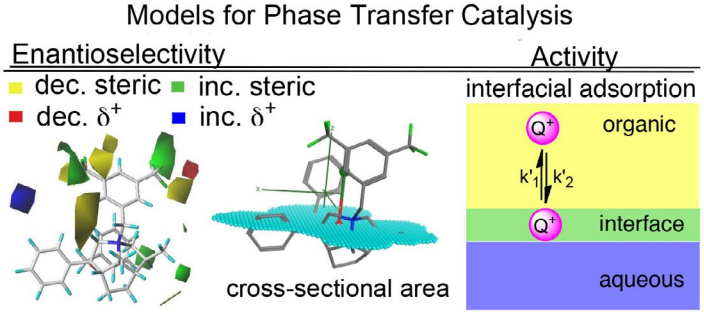
Representative Publications

(out of over 340)

1. The Interplay of Invention, Discovery, Development and Application in Organic Synthetic Methodology: A Case Study J. Org. Chem. (Perspective) 2009, 74, 2915-2927.
2. Mechanistic Duality in Palladium-Catalyzed Cross-Coupling Reactions of Aryldimethylsilanolates. Intermediacy of an 8-Si-4 Arylpalladium(II) Silanolate (with R. C. Smith) J. Am. Chem. Soc. 2010, 132, 1243-1245.
3. Silicon-Based Cross-Coupling Reactions in the Total Synthesis of Natural Products (with J. H.-C. Liu) Angew. Chem. Int. Ed. 2010, 49, 2978-2986.

Understanding Asymmetric Phase Transfer Catalysis Through Chemoinformatics

Although asymmetric phase transfer catalysis has been known and practiced for over 25 years, the fundamental issues of what constitutes reactive and selective phase transfer catalysts are still unknown. This lecture will describe a multifaceted program designed to learn the "rules" that govern rate and enantioselectivity for simple phase transfer catalyzed alkylation reactions. The approach involves the creation of different chiral scaffolds for quaternary ammonium salts that are embellished with a variety of different functional substituents in a convergent region of space using parallel synthesis methods to generate large libraries of ammonium ions. The chiral ammonium salts are evaluated for their catalytic potential by standard kinetic and analytical methods. A Quantitative Structure-Selectivity Profile is developed to explain the roles of the different substituents so that the most important controlling features can be systematically identified and their properties incorporated in designs for more reactive and selective catalysts.



November Seminar Meeting

Date: Thursday, November 13, 2014

Time: 6:00 p.m. Social Hour and Poster Display
7:00 p.m. Dinner
8:00 p.m. Presentation

Location: Foothill College
Physical Science and Engineering Center
(PSEC 4212)
12345 El Monte Road
Los Altos Hills, CA

Cost: $16.00

Reservations: ***www.scvacs.org***
or Dr. Ashley Piekarski
ashley@scvacs.org

Deadline for reservations is Thursday, November 6th. If you are unable to honor your reservation please cancel by Wednesday, November 12th.

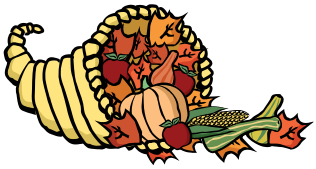
Chair's Message, continued from front page

combines chemistry and physics. Interestingly, the application of this breakthrough has been in biology. As I have mentioned in the past (i.e., my Chair's message from November 2000), the remarkable thing about the Nobel Prizes is that they not only capture the attention of scientists, but the imagination of the public as well. Even those people who are not familiar with science and scientific research know that winning a Nobel Prize means something big. The prizes are a fantastic opportunity to educate the public on the contributions of chemistry and science to society. And in reviewing news articles, they have done just that: the articles present a description of the scientific breakthrough and why it is important.

This year, three awardees are from the US, three from Japan, two from Norway, and one from each of Romania, France, India, and Pakistan. (As of this writing, the awardees of the Economics Prizes have not been announced.) The Bay Area usually has a prizewinner or two and this year, one of the awardees, William Moerner of Stanford University shared the prize for Chemistry. To recognize top-notch researchers in the Bay Area, including Monterey Bay, I would like to hear your nominations for Nobel-quality research. If you were to nominate a person or people for a prize, who would it be, what is their research topic and why is it important? Who do you think will get a Nobel Prize in the future? Who do you think deserves a Nobel, but may not get one? Send in your nominations and I will print the best ones next month.

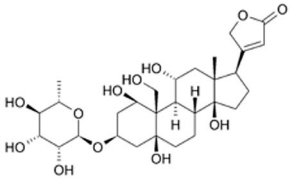
Remember to vote in the ACS National Elections by November 14.

Happy Thanksgiving



Chemistry Quiz

Somali tribesmen and other groups have used this molecule to poison hunting arrows. A dart tipped with this molecule can bring down a Hippopotamus as the result of respiratory and/or cardiac arrest. What is the common name of this molecule?



Last Month's Quiz

Answer: Technetium

The existence of this element was confirmed in 1936 by Carlo Perrier and Emilio Segrè examining discarded radioactive parts from Ernest Lawrence's cyclotron. It is the lightest element with no stable isotopes.

Welcome to the Santa Clara Valley Section of ACS

Each month the section receives a spreadsheet from national ACS with the names of members new to our section. The members are either new to ACS, have transferred in from other areas, or are the newest members -- students. To welcome you to the section and get to know you, the Executive Committee offers new members a free dinner! To encourage you to attend a monthly section seminar meeting, we would like you to be our guest. When you register, make certain to mention that you are a new member and you and a spouse (or friend) will be our guests. The seminar meetings are often the 3rd Thursday of the month at a local spot, somewhat convenient to the entire section. If you are unable to attend in the evening, perhaps you would join us for an outreach event, like judging a science fair, participating in the Chemistry Olympiad, or a National Chemistry Week event in October. Then, there is our annual wine tasting and awards picnic in July. The local section is a volunteer organization. Please attend an event, volunteer to help, and get to know your local fellow chemists. Welcome!

❖ ❖ ❖

New Members for October

Dr. Deeba Ansari
Raymond Francis Berkeley
Tao Chen
Zhi Cheng
Christian Lyns Etienne
Marc Fasnacht
Jia Gao
Brad Anthony Haubrich
Dr. Maija Iris Heller
Steven A. Henck
Chao-I Hung
Amandeep Kaur
Sujit S. Mahajan
James Thomas Masters
Yasuo Miyazawa
Andrea Morris
Priera Panescu
Soheil Pourshahian
Dr. Jonathan S. Steckel
Dr. Benjamin Stokes
Mihai Ioan Truica
Bryan G. Vo
Katherine Leigh Walker
Sarah Weaver
Dr. Todd A. Wenderski
Steven Akira Yamada

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http://www.scvacs.org

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http://www.scvacs.org/newsletter/

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Newsletter

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ChemPloyment Abstracts

Director:		Liang Cao	liang.cao@aol.com

FUTURE MEETINGS

Nov 13 Celebration of the Foothill College Periodic Table
Buffet Dinner and
Student Poster Session

Nov 15/Dec 6 Hayward Fault Walking Tour: Tule Ponds at Tyson Lagoon
Fremont Community Center
http://msnucleus.org/haywardfault/hayward.html

Nov 29 Science Saturday: Monarch Magic
Pacific Grove Museum of Natural History
www.pgmuseum.org/museum-events/2014/11/29/science-saturday-monarch-magic

Dec 3 Imaging the Universe: Dr. Mae Jemison
CEMEX Auditorium, Stanford, CA
http://events.stanford.edu/events/450/45087

Feb 5 Mosher Awardee: Dr. Scott Denmark
Understanding Asymmetric Phase Transfer Catalysis Through Chemoinformatics
Biltmore Hotel & Suites
Santa Clara, CA

Feb 19 Teacher Scholar Award Presentation
Mission College campus