Newsletter

January 2015

Silicon Valley Chemist

Santa Clara Valley Section — American Chemical Society

Volume 37 No. 1

JANUARY 2015 NEWSLETTER TOPICS

Chair's Message

Ashley Piekarski

Happy New Year! I am Ashley Piekarski, the new Chair of the Santa Clara Valley ACS Section. I am very excited to lead the section this year! We have some great seminars and events lined up this year. The seminars are open to everyone so please feel free to invite your family, friends, or colleagues. We do not have an event in January; however, we will have two events in February. On February 5th, Dr. Scott Denmark from University of Illinois at Urbana-Champaign will be giving the Mosher Award presentation. Reservations should be made by January 27th if you plan to attend the dinner. On February 19th, the Teacher Scholar Award will be presented at Mission College. More details to come about this exciting event in the February newsletter!

I would like tell you all a little about myself. I graduated

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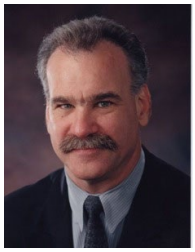
2014 Harry and Carol Mosher Award

Understanding Asymmetric Phase Transfer Catalysis Through Chemoinformatics

Professor Scott E. Denmark

Abstract:

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.



Biography:

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

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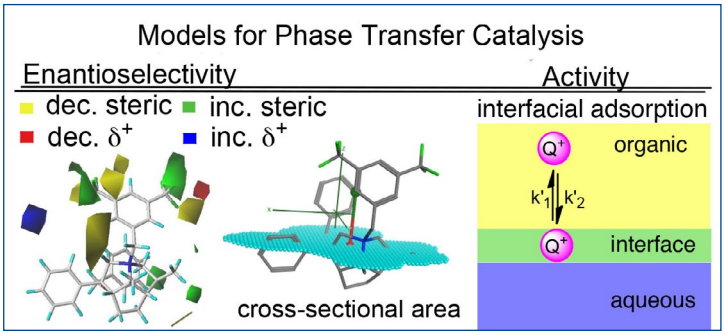

February Dinner Meeting

The Harry and Carol Mosher Award

Date: Thursday, February 5
Time: 6:00 Social Hour
7:00 Dinner
8:00 Presentation
Speaker: Dr. Scott Denmark
University of Illinois
at Urbana-Champaign
Understanding Asymmetric
Phase Transfer Catalysis
Through Chemoinfformatics
Location: Biltmore Hotel & Suites
2151 Laurelwood Blvd.
Santa Clara, CA
Cost: $26.00. Grilled Salmon or
Vegetarian Crepes
Reservations: ***www.scvacs.org***
Sally Peters 650-854-4614

Reservations should be made by Monday, Feburary 2nd stating your name, address, company/school affiliation, number of people in party. Watch the web site for more information. If you are unable to honor your reservation please cancel by Tuesday, Feburary 3rd.

Mosher Award, continued from front page

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.

Chair's Message, continued from front page

from Trinity University in 2006 with my Bachelor of Science in Chemistry. While at Trinity University, I worked under the supervision of Dr. Nancy Mills, my mentor and research advisor. Since I was a first-generation college student, Dr. Mills gave me insight to the career opportunities that are available for a student passionate about science. I was unaware about graduate school, and that I could get paid to attend. She guided me through the process, and I got into the school of my dreams, UC Santa Barbara. More importantly, Dr. Mills introduced me to the ACS. I presented a poster as a sophomore in college at the 227th National ACS Meeting in Anaheim, CA on the preparation of 10,10-disubstituted diphenylmethylidene-9,9-dihydroanthracenes as model compounds for antiaromatic dications. After attending this conference, I knew that chemistry research was my passion, and that I wanted to be actively involved in the ACS, a great organization to network and meet other people with similar interests.

Afterwards, I obtained my Ph.D. in Materials Chemistry at UC Santa Barbara in 2011 under the supervision of Professor Craig Hawker. The focus of my dissertation was investigating the use of inorganic nanoparticles incorporated into well-defined polymeric materials for drug-delivery and electronic applications. While at UCSB, I was awarded the NSF Graduate Research Fellowship. I knew early on I truly wanted to be in chemical education so I was actively involved in an Outreach program lead by Dr. Petra Van Koppen. While writing my dissertation, I applied for a full-time faculty position at Mission College and got the job in August 2011!

Throughout my education, I have participated in several ACS conferences by presenting posters and presentations. In fact, I met my Ph.D. advisor at an ACS conference as an undergraduate. In addition, I was awarded the ACS Women's Chemist Committee/Eli Lilly Travel award in 2010. ACS has played such an integral role in my education and getting me where I want to be. I knew once I became a professional, I wanted to give back to the ACS by being involved in my local section. I feel very honored to serve as your leader of the section in 2015. It is one of my goals this year to spread the word about the ACS to students in the Bay area. We have some great programs that involve outreach to young adults. If you are interested in volunteering and giving back to the community, please contact us!

Local Science Fairs in 2015

by Susan Oldham-Fritts

Haven't decided on a New Year's resolution yet? How about encouraging middle and high school students' participation into the world of STEM (science, technology, engineering, and mathematics)? The cost is minimal –a day of your time judging at your local science fair. The following area science fairs need category awards judges (especially in the areas of botany, biology, biochemistry, chemistry, microbiology, and the behavioral/social sciences). In addition, we need interested section members for our SCV-ACS sponsored special award judging team at the Santa Clara County ISEF (International Science and Engineering Fair) qualifier, the Synopsys Championship (please contact me at sofritts@garlic.com) for inclusion in the latter).

So, no matter which fair includes your home town, please volunteer now!

Sciencepalooza* Santa Clara County Fair Grounds, San Jose
February 7 ***www.outreach-foundation.org/judges.html***

San Mateo County Science, Math and Technology Fair Hiller Aviation Museum
March 3 ***http://www.stemfair.net***

Santa Cruz Science Fair Santa Cruz County Fairgrounds, Santa Cruz
March 7 ***http://www.science.santacruz.k12.ca.us***

Synopsys Championship San Jose Convention Center, San Jose
March 11 ***www.outreach-foundation.org/judges.html***

Monterey County Science and Engineering Fair
California State University, Monterey Bay – University Center, Bldg 29
March 14 ***www.montereycountysciencefair.com/***

San Francisco Bay Area Science Fair San Francisco County Fair Building - Golden Gate Park
March 25 ***http://www.sfbasf.org/***

**Many students at this East Side Union High School District fair are first time science fair participants.*

EPA Monitoring Contamination in Sunnyvale

by Kevin Greenman

The semiconductor industry has created a profound and lasting impact on the region we now call the Silicon Valley. The once sleepy farming region has evolved into the global center of technology. We have witnessed world-changing technologies that would be impossible to imagine a century ago. Yet, this transformation has not been without costs. Among those costs, environmental contamination resulting from the improper storage and disposal of chemicals is a legacy we continue to deal with.

In 2014, the San Francisco Bay Regional Water Quality Control Board transferred lead agency responsibilities to the EPA for three sites in Sunnyvale, collectively known as the Triple Site. This site encompasses: three contaminated groundwater sites at the Advanced Micro Devices location at 901 and 902 Thompson Place, the Philips (formerly Signetics) site at 811 E. Arques Avenue and 444 N. Wolfe Road, and the TRW Microwave Superfund Site at 825 Stewart Drive. Collectively these sites have created a groundwater plume composed of volatile organic compounds (VOCs) which extend north, past Highway 101. The immediate concern of drinking water contamination is avoided by the nature of the water supply: drinking water in this area comes from the Hetch Hetchy Reservoir in the Sierra Nevada Mountains, and is tested regularly to ensure that it meets state and federal drinking water standards. The potential for this plume to continue migrating northward and contaminate the San Francisco Bay is being addressed by the ongoing remediation efforts. However, concerns about vapor intrusion – or vapors from groundwater contamination that may have migrated into the indoor air – have prompted additional action by the EPA.

The EPA is requesting permission from certain residents in the Duane and San Miguel neighborhood to collect indoor air samples. The EPA must get permission from homeowners and renters to perform the free air sampling as part of a study that will look at the potential for vapor intrusion. Indoor sampling has been conducted annually at the Montessori school buildings on Duane Avenue in the area. Indoor air sampling results from those buildings continue to fall within EPA's health protective range for children. However, the EPA's approach to monitoring vapor intrusion has evolved to incorporate newer more advanced science and sampling strategies. The EPA is asking to place a sampling device in homes and buildings for a 24-hour to two-week period. If the detected levels of contaminants exceed EPA's health-based screening levels, the EPA will present options to each resident as how to proceed. For more information about the indoor air sampling project, contact Melanie Morash at (415) 972-3050 or morash.melanie@epa.gov or visit ***http://epa.gov/region9//triplesite***

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!

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New Members for December

Dr. Christian Adams
Gordana Babic Atallah
Dr. Dagmar Becker
Dr. Fabio Broccatelli
Nathaniel Butlin
Leanne D. Chen
Naomi Clayman
Pauldeen Mikail Davejan
Dr. Ram Prasad Gandhiraman
Pauline Fiona Diderot Germaux
Travis Horst
Dr. Mohammed Inayathullah
Arash Jamilpanah
Irene Jaworski
Stephen Keteltas
Tianyi Kou
Tian Lan
Glenn Lee
Calvin Siu Leung
Wei Lin
Karl Muonio
Dominic Derek Ortega I
Russell Hale Perry
Ronald Anthony Rojeski
Manveer Singh Saini
Andrew Schaefer
Himanshu Sharma
Jimmy Tran
Carolyn Tran-Math
Corazon T. Victa

Chemistry Quiz

Four individuals have won or shared Nobel Prizes twice. Marie Curie and Linus Pauling each won Nobel Prizes in two different fields. Who was the only person to win the Nobel Prize in Chemistry twice? Who was the only person to win the Nobel Prize in Physics twice?

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Last Month's Question:
Approximately how many proteins are encoded in the human proteome?

Answer:
Currently, the human proteome map contains evidence for translation of over 17,000 human genes with 30,057 proteins identified so far.
www.humanproteomemap.org

SANTA CLARA VALLEY SECTION
AMERICAN CHEMICAL SOCIETY
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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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FUTURE MEETINGS

Jan 17
Low Tide Walk
Marine Science Institute
Redwood City, CA
www.sfbaymsi.org/Events.html

Feb 1
Groundhog Day
Free Admission to the Exploratorium
www.exploratorium.edu

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

Feb 19
Community College Teacher Scholar Award Presentation
Dr. Leandra Martin, Vice President of Instruction
Mission College campus

Feb 21
Stanford Women in STEM Symposium
Huang Engineering Center
Stanford University
http://events.stanford.edu/events/474/47491