March Dinner Meeting

Carbon for Water

A film by Evan Abramson and Carmen Elsa Lopez

More than one-sixth of the world's population lacks access to safe drinking water and 3900 children die from water-borne diseases daily. In recognition of this, the American Chemical Society launched Pennies for PUR Water for the International Year of Chemistry 2011. This program provided funding for a 3.5-cents sachet that can safely treat 2.5 gallons of water. The movie “Carbon for Water” presents a similar program found in Kenya where a for-profit company aims to provide 900,000 water filters to villagers to reduce the practice of boiling water via burning wood. These filters will decrease the deforestation and the time women and girls walk every day to collect wood. The reduction in wood burning will reduce CO₂ emissions. The company can sell this CO₂ credit on the voluntary open market. “Carbon for Water” is a 22-minute film that describes how the company distributes the filters and the effect on the local community. The film is directed and produced by Evan Abramson and Carmen Elsa Lopez (www.carbonforwaterfilm.com).

This documentary was shown at the last ACS National Meeting in Philadelphia as part of the Committee on Environmental Chemistry project. Bring a bag of popcorn, watch the movie, and join in the discussion.

March 21st Dinner Meeting

Date: Thursday March 21, 2013
Time: 6:00 p.m. Social Hour
      7:00 p.m. Dinner
      8:00 p.m. Movie Presentation
Presentation: “Carbon for Water”
              A film by Evan Abramson and Carmen Elsa Lopez
Location: Biltmore Hotel & Suites
          2151 Laurelwood Road
          Santa Clara, CA
Cost: $26.00
      Teriyaki Steak or Vegetarian Crepes
Reservations: www.scvacs.org
             Lois Durham, 650-322-3507
              Reservations should be made by March 18th stating your name, address, company/school affiliation, and dinner selection. If you are unable to honor your reservation, please cancel by March 20th.

Chair's Message

Where We Cluster

Among my goals for this year is to bring meetings to the membership. This is possible, even easy, when you look at the membership by work address. To be sure, only about half of our members provide a “work address,” but still, that's enough to get some really useful results.

Thanks to the efforts of Ean Warren (2013 Chair-elect) we can view our membership clustered by work address. It's really interesting! Take a look at the map at right. If you think about it, there are no big surprises here. Look at the large circles (clusters)
members working in South San Francisco. Look at the peninsula. See where you work? We have dozens of members working in many different locations.

Like all chemists we make decisions best if we have data. Now we have data and it’s time for decisions. Find your work place. Volunteer to help our local section meet there or very nearby. We can even combine clusters to get bigger meetings. You can coordinate the local site arrangements. Contact me with your ideas. Why travel to a distant location for a meeting? It could be just a short walk from your office or lab.

This month is the presentation of the annual Harry and Carol Mosher Award. This is one of the SCV awards that recognize achievement. The recipients typically give a presentation on their research work as the main part of the program. Join us on February 28, 2103 (the fourth Thursday), for dinner, networking and a chance to meet and honor Martha and Charles Casey from the University of Wisconsin, Madison.

Happy Valentine’s Day

GREET (Global Research Experiences, Exchanges and Training Program) aims to provide intensive, high impact international research experience and collaboration opportunities to U.S. early- to mid-career researcher mentor and mentee teams. Research teams are asked to establish new international collaborations with a host academic, industrial, or institutional partner of their choosing and travel to their site for a research, training, outreach, or educational experience. Teams are asked to consider how to engage the community at their home institution upon their return and also consider how to continue their new collaboration with their host institution/laboratory.

Mentees are to spend 4-8 weeks engaged in the project at the foreign laboratory, with their mentor participating for a concurrent 2-3 week period. The GREET program is intended to foster scientific networking, increase scientific skills, increase global scientific and collaborative experience, and provide a wonderful mentoring experience.

Up to $11,000 will be awarded to at least 5 teams in 2013 to provide for: international travel expenses, a stipend for living expenses while abroad, pre-departure language training, medical and accident insurance, visa costs, and additional travel expenses to present the results at the 247th ACS National Meeting & Exposition in Dallas, TX from March 16-20, 2014.

The deadline to apply for the 2013 GREET Program is 23:59:59 EDT on March 6, 2013. Applications are now being accepted.

For more information about how to apply, please visit: www.acs.org/greet.

CALL for NOMINATIONS
Shirley B. Radding Award

The Santa Clara Valley Section of the American Chemical Society (ACS) announces the call for nominations for the 2013 Shirley B. Radding Award.

First awarded in 1994 to its namesake, the Shirley B. Radding Award annually honors someone who has been a member of the ACS for at least 20 years. Nominees must have demonstrated dedicated, unselfish leadership, service and significant contributions over a sustained period of time to industrial, applied or academic chemistry and to the ACS through elected or appointed positions at local, district and national levels.

Award Criteria

• Member of the American Chemical Society for more than twenty (20) years.
• Demonstrated dedicated and unselfish service to ACS and its members over a sustained period of time.
• Provided leadership through elected and appointed ACS positions at local, district and national levels.
• Made significant contributions to industrial, applied or academic chemistry.

Previous Award Recipients

1994 Shirley B. Radding (deceased) 1995 Agnes Ann Green (deceased)
1996 John F. “Jack” Riley (deceased) 1997 Howard M. Peters
1998 Alan C. Nixon (deceased) 1999 Valerie J. Kuck
2000 Halley A. Merrell 2001 Norman A. LeBel (deceased)
2002 Paul H. L. Walter 2003 Jean’ne M. Shreeve
2004 Maureen G. Chan 2005 Glenn Fuller (deceased)
2006 Janan M. Hayes 2007 Merle I. Eis
2008 Dorothy J. Phillips 2009 Bryan Balazs
2010 Herbert B. Silber 2011 Carol A. Duane
2012 Bonnie Charpentier

The award consists of an honorarium of $1,000 and a suitably inscribed memento. Nominations must consist of at least one letter of nomination stating how the nominee’s work relates to all aspects of the award. It is strongly recommended that seconding letters accompany the nomination.

Nominations are due on or before May 1, 2013, and may be sent electronically to Radding-Award@scvacs.org or be mailed to:

Radding Award Committee
Santa Clara Valley Section ACS
Post Office Box 395
Palo Alto, CA 94302-0395

Deadline to Apply for the 2013 ACS GREET Program is March 6th
Abstract

Martha and Chuck Casey will describe how their chemistry experiences had common origins in undergraduate research and in joining the research groups of beginning professors in graduate school at MIT. Chuck’s career followed a traditional path as a Professor at the University of Wisconsin. He will describe his research career in organometallic chemistry and his experiences in teaching both graduate and undergraduate students. Martha switched to university administration, and will describe some of the ways her chemistry background helped her as an Assistant Vice Chancellor in charge of academic planning and institutional research.

Chuck and Martha have shared a strong interest in ACS activities. Martha became active first, was elected secretary-treasurer of the Wisconsin Section in 1975, Chair in 1980, and a Councillor in 1982. She has served on national committees ranging from the Committee on Budget and Finance to the Women Chemists Committee. Chuck was Chair of the Wisconsin Section in 1985, and later served as chair of the Organometallic Chemistry Subsection and the Inorganic Division of ACS. With Martha acting as a savvy campaign manager, he successfully ran for 2004 ACS President. He is proud of starting the Academic Employment Initiative and for efforts that led to open disclosure of ACS Executive Compensation.

Since retirement, Martha and Chuck’s activities have re-converged and now center on service to scientific, civic and university organizations. Chuck chaired the National Research Council Committee that wrote the 2007 report “The Future of U.S. Chemistry Research: Benchmarks and Challenges.” He is a member of the National Academy of Sciences (1993) and has received ACS Awards in Organometallic Chemistry (1991) and for Distinguished Service to Inorganic Chemistry (2011).

Martha Casey received her A.B. degree from Bryn Mawr College and her Ph.D. in organic chemistry from the Massachusetts Institute of Technology. She did postdoctoral work at the University of Wisconsin-Madison. After six years as a research chemist at UW-Madison, she switched to a career in university administration. She completed her service as an Assistant Vice Chancellor and head of the Academic Planning and Analysis Office, an arm of the Provost’s Office. This office developed academic planning and institutional research at the University of Wisconsin-Madison. In particular, she pioneered developing truly comparable comparisons with peer universities.

Martha was elected a Fellow of the American Chemical Society in 2012. She currently serves on the ACS national Committee on Nominations and Elections. As Councillor for the Wisconsin Section of the ACS for 28 years, she previously served on the Council Policy Committee, the Budget and Finance Committee, the Committee on Economic and Professional Affairs, and the Women Chemists Committee. At the local level, she has served as chair of the Wisconsin Section and secretary-treasurer. She is particularly proud of helping to transform the mission of the Wisconsin Section toward student-oriented activities. She also serves on a number of boards in Madison related to supporting classical music and opera in the community and to supporting the university.

Biographies

Charles Casey is Homer B. Adkins Emeritus Professor of Chemistry at the University of Wisconsin-Madison. He received a B.S. in Chem. from St. Louis University and a Ph.D. from MIT. In 1968, he joined the faculty at the University of Wisconsin-Madison where he spent his entire academic career and served as Chair of Chemistry from 1998-2001. He served as President of the American Chemical Society in 2004. His research focused on mechanistic organometallic chemistry and explored mechanisms of important catalytic processes including hydroformylation, hydrogenation, and alkene polymerization. He chaired the National Research Council Panel that wrote the 2007 report: “The Future of U.S. Chemistry Research: Benchmarks and Challenges.” He is a member of the National Academy of Sciences (1993) and has received ACS Awards in Organometallic Chemistry (1991) and for Distinguished Service to Inorganic Chemistry (2011).

Martha Casey received her A.B. degree from Bryn Mawr College and her Ph.D. in organic chemistry from the Massachusetts Institute of Technology. She did postdoctoral work at the University of Wisconsin-Madison. After six years as a research chemist at UW-Madison, she switched to a career in university administration. She completed her service as an Assistant Vice Chancellor and head of the Academic Planning and Analysis Office, an arm of the Provost’s Office. This office developed academic planning and institutional research at the University of Wisconsin-Madison. In particular, she pioneered developing truly comparable comparisons with peer universities.

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Moisture-Triggered Motions Of New Material Harnessed to Generate Electrical Power

Lauren K. Wolf (C&E News Online)

Scientists have long struggled to design sustainable batteries and sensors that power themselves via natural stimuli such as light, heat, and even the motion of walking. Now, researchers have developed a material that harvests energy from tumbling motions triggered by a ubiquitous environmental source: water vapor (Science, DOI: 10.1126/science.1230262).

The polymeric material requires only a tiny amount of water vapor to generate power, says postdoc Mingming Ma, a member of the MIT team led by Robert S. Langer that developed the substance. Even the moisture on your skin is sufficient, Ma says. “You can put it on your hand, and it will work.”

The MIT researchers didn’t initially set out to develop an energy-harvesting substance, Ma tells C&EN. Instead, they were working toward a strong, flexible polymer for use in organic electrodes. “But when we saw how water-responsive it was,” Ma explains, “we switched directions.”

The substance is a composite made of a rigid polypyrrole matrix and a soft polyol-borate gel. When the material absorbs moisture, water molecules disrupt hydrogen bonds between its polypyrrole and polyol components, and the composite swells.

That swelling comes in handy when the material is placed in a water-vapor gradient like the one on a moist surface: A 30-µm-thick sheet of the composite rapidly curls up and then flips over continually like it’s performing a gymnastics routine. When the sheet flips over, it expels water molecules from the side exposed to the ambient air and sucks them in from the side lying against the water-covered surface, repeating the tumbling cycle.

Rather than making a material that responds to time-varying stimuli, as has been done in the past, “Langer’s team has devised a simple and elegant means to harness a constant environmental condition to drive motion,” says polymer scientist Ryan C. Hayward of the University of Massachusetts, Amherst.

To convert the mechanical energy generated by the material’s rapid movements into power, the MIT team stuck a piezoelectric film—which transforms mechanical force into electrical charge—to one side of the polymer sheet. The researchers then attached the whole assembly to an electrical circuit.

A 6- by 3-cm patch of the material generated some 5.6 nW of electrical power on average. That’s orders of magnitude less than the power density created by a cell-phone battery, Ma says.

In a commentary associated with the new report in Science, engineers Hyoki Kim and Sungboon Kwon of Seoul National University say that this paltry power output might limit the material’s usefulness. But, they add, “it should be possible to increase the power output in a straightforward way by stacking multiple devices.”

Ma agrees, adding that he and the MIT team are also now developing a more efficient piezoelectric material to harness the composite’s mechanical energy. The researchers have submitted a patent application for the new substance.

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 dinner 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 dinner 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 List for January

<table>
<thead>
<tr>
<th>Dr. Aziz Aid</th>
<th>Dr. Shishir D. Gadam</th>
<th>Habiba Kausar Naqvi</th>
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<tr>
<td>Dr. David L. Anton</td>
<td>Dr. Nolan Griggs</td>
<td>Brad Andrew Palanski</td>
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<td>Liang Bao</td>
<td>Michelle Huynh</td>
<td>Chong Park</td>
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<td>Dr. Richard J. Black</td>
<td>Dr. Indira Jayaweera</td>
<td>Mia Pulso</td>
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<td>Nick Brockman</td>
<td>Bianca Khishaveh</td>
<td>Hayley Raquerc</td>
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<td>Celia N. Dudley</td>
<td>Pavel Klier</td>
<td>Dr. Longcheng Wang</td>
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<td>Tim Dummer</td>
<td>Nian Liu</td>
<td>Dr. Dahlia Weiss</td>
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<td>Robert John Ely</td>
<td>Dr. Thomas Markland</td>
<td>Elizabeth Wille</td>
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<td>Dr. James Alan Fair</td>
<td>Juliana Moreno</td>
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Local Science Fairs in 2013
Contact: Susan Oldham-Fritts, sofritts@garlic.com, or Mark Kent, marklent@yahoo.com

While you may have missed the wonderful opportunity to judge at the February 9th SCIENCEPALOOZA (see www.outreach-foundation.org/judges.html if you are reading this before February 8), SCV-ACS still needs volunteers for our Synopsys Championship special awards judging team, and the following fairs still need category judges:

**San Mateo County Science, Math and Technology Fair**
*Date:* Tuesday, February 26, 2013  
*Location:* Hiller Aviation Museum, San Carlos  
Contact Janet Shi at jshi@smcoe.k12.ca.us or (650) 802-5355  
For more information, visit www.usc.edu/CSSF/Fairs/400.html

**Monterey County Science and Engineering Fair**
Sixth through twelfth grade Monterey County students  
*Date:* Saturday, March 9, 2013  
*Location:* California State University, Monterey Bay  
For more information, visit www.montearycountysciencefair.com

**Santa Cruz Science Fair**
Sixth through twelfth grade Santa Cruz County students  
*Date:* Saturday, March 9, 2013  
*Location:* Santa Cruz County Fairgrounds, Santa Cruz

For more information, visit www.science.santacruz.k12.ca.us

**Synopsys Championship** (aka Santa Clara Valley Science and Engineering Fair)
*Date:* Wednesday, March 13, 2013  
*Location:* San Jose Convention Center, San Jose  
For information on category award judging, visit www.outreach-foundation.org/judges.html  
For information on participating in the SCV-ACS special awards judging team, contact Susan Oldham-Fritts, sofritts@garlic.com, or Mark Kent, marklent@yahoo.com

**San Francisco Bay Area Science Fair** - ISEF affiliate
While San Mateo County students are eligible, they will not be able to qualify for the California State Science Fair (CSSF).  
*Date:* Wednesday, March 20, 2013  
*Location:* San Francisco County Fair Ground Building - Golden Gate Park  
Contact Robert Fabini at sfbasf@gmail.com  
www.usc.edu/CSSF/Fairs/300.html

So, no matter which is your local science fair, please volunteer. See you at the fair!

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**Highlights of the January Dinner Meeting, January 17th**
Photos Courtesy of Lois Durham
FUTURE MEETINGS

Feb 28  Mosher Award Dinner Meeting
        Doctors Charles and Martha Casey
        University of Wisconsin
        Biltmore Hotel & Suites
        Santa Clara, CA

Mar 1-29  Chemistry Olympiad Local Exam
        Participating SCV High Schools

Mar 17-21  Pittcon
        Philadelphia, PA
        http://pittcon.org

Mar 21  Santa Clara Valley Section Meeting
        Movie Presentation, A film by Evan Abramson and Carmen Elsa Lopez
        Carbon for Water
        Biltmore Hotel & Suites
        Santa Clara, CA

Apr 1, 3  18th Annual John Stauffer Lectures
        Stanford University
        Chemistry Department
        http://chemistry.stanford.edu/stauffer_lectures

Apr 7-11  145th National ACS Meeting
        New Orleans, LA
        www.acs.org/neworleans2013

Apr 13  Chemistry Olympiad National Exam
        Santa Clara University

SANTA CLARA VALLEY SECTION

2013 Section Officers
Chair  Peter Rusch (chair@scvacs.org)
Chair Elect  Ean Warren
Past Chair  Natalie McClure
Secretary  Karl Marhenke
Treasurer  Ihab Darwish

Councilors
2011-2013  George Lechner
2011-2013  Herb Silber
2012-2014  Abby Kennedy
2012-2014  Ean Warren
2013-2015  Linda Brunauer
2013-2015  Sally Peters
2013-2015  Peter Rusch

Alternate Councilors
2011-2013  Mark Kent
2011-2013  Harry Ungar
2012-2014  Lisa Milstein
2012-2014  David Parker
2013-2015  Stephanie Bachmann
2013-2015  Lois Durham
2013-2015  Natalie McClure

Newsletter Editor  Nathaniel Zuckerman
nathanielzuckerman@gmail.com

ChemPloyment Abstracts  Director  Liang Cao

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