

Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

Volume 36 No. 4

APRIL 2014 NEWSLETTER TOPICS

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Connect with Chemists

Meet fellow, local chemists for an early morning coffee
Look for Ean at a table with an ACS card

Tuesday, April 22nd at 7 a.m.

Specialty's Café and Bakery
3399 Bowers Avenue, Santa Clara

Thursday, April 24th at 7 a.m.

La Boulange
151 University Avenue, Palo Alto

Our Monthly Seminar Meeting

April 17, 2014

Our April meeting will be a movie night. We will be showing Supercar: Building the Car of the Future, which is part of the Chemistry and the Environment film series.

In this documentary from Daniel Zuckerbrot, the latest automobile technologies, from fuel development to car design, are explored. In his journey across the world, Brian Fleck meets the scientists who are trying to make the car of the future a reality.

We have come a long way since the first horseless carriages began to transform not only how we get from one place to another, but also our thinking about transportation, urbanization, city-planning and personal mobility. Rising fuel prices and growing environmental concerns have increased the urgency of incorporating new technologies into new car models. All over the world scientists and engineers are trying to figure out how to build an environmentally and socially responsible version of the

automobile.

Hosted by engineering professor Brian Fleck, this movie introduces us to the engineers, designers and students working on new technologies to make this possible. From hydrogen-powered family sedans to high-end fully electric powered sports cars, and even cars that drive themselves, you'll find plenty of surprises. Perhaps the future is not so far off as we might think. The technology that will transform our societies tomorrow is being developed today. The question is, are we ready?

The film will be followed by a discussion with Stanford University and San Jose State University students working on these new, exciting technologies.

~~Likely (but not yet definite)~~ date and place will be April 17 at the Biltmore. Watch this page (www.scvacs.org/Local_Folder/din_mtg.html); details will appear here as soon as we have them.



Chair's Message

Ean Warren



Last week, I wanted to sell my 2006 Mitsubishi Outlander. I had had it for almost four years and didn't have a need for a "mini-SUV" anymore. I wanted a smaller car with better gas mileage. So I put an ad on Craigslist on a Friday night. By Saturday morning, I had five email inquiries. I couldn't meet with these people on Saturday. Some were in a rush to buy a car; some were not serious buyers. So by Sunday, I really only had one interested party. She came over

with her uncle and a friend. After looking under the hood and taking it for a test drive, her uncle (the negotiator of the group) was ready to deal. After going back and forth a couple of times, we were within a couple of hundred dollars and largely at an impasse. A bit frustrated, I turned to the buyer and asked where she went to college. She said she was in the nursing program at San Jose City College. I asked if she was taking any chemistry classes or maybe was involved with SACNAS (Society for Advancement of Chicanos and Native Americans in Science) since I know one of their student members. To my surprise, she told me that she had taken some chemistry classes, knew about

SACNAS, but was more involved with ACS and had done some work with the local section's Homeless Shelter Project!

Despite being a member for over 20 years, I am still surprised and impressed by the breadth of ACS and its local sections' programs. During a simple transaction, I bumped into another volunteer: someone who cares about homeless children enough to perform chemistry experiments with them. When I encounter chemists outside the expected environment, having that mutual background, we are instantly family, however distant. It's a nice feeling to have.

And yes, of course, I sold her the car for the price her uncle offered.

Highlights from the 247th ACS National Meeting and Exposition in Dallas, TX

David A. Vicic of Lehigh University reported that his group has taken a step toward using metallacyclobutanes to make new types of fluorinated small molecules and polymers. The approach relies on metallacyclic zinc reagents bearing fluoroalkyl groups. The ability to incorporate C₃F₆ and longer fluoroalkyl units avoids some of the operational and environmental concerns associated with the traditional approach using tetrafluoroethylene gas.

Phil S. Baran spoke about taking cues from nature for the synthesis of new paclitaxel analogs. Synthetic routes to paclitaxel have been able to produce only small amounts of the compound. Current supplies come from

a plant cell fermentation process that can produce metric tons of the drug. This situation makes the large scale preparation of new analogs a formidable task. By mimicking the early steps of paclitaxel's biosynthesis, the team at the Scripps Research Institute in La Jolla may have identified a way to create new analogs that are not available through bioengineering routes.

Postdoc Cho Zhang of the Chinese University of Hong Kong (CUHK) reported on food-quality indicators based on nanotechnology. The researchers have developed an inexpensive gelatinlike material that evolves from red to orange to green when exposed to temperatures that encourage bacteria growth.

The gels could be attached to food packaging material. Once the gel takes on a deep-green hue, consumers will know that the product should be thrown away. The rate of the gels' color change is tuned to match the rate at which milk grows *Escherichia coli* by the addition of molecules such as ascorbic acid. The additive affects how fast silver ions deposit onto the nanorods. Similarly, the team added other molecules, such as lactic acid, so that the gels' color changes tracked temperature changes to milk. For instance, if a product is exposed to a temperature high enough to encourage rapid *E. coli* growth, these molecules speed up the gels' red-to-green transition.



Local ACS Fellows

The American Chemical Society (ACS) Fellows Program was created by the ACS Board of Directors in December 2008 to recognize members of ACS for outstanding achievements in and contributions to science, the profession, and the Society. The purpose of the ACS Fellows Program, one component of the broader ACS Awards Program, is to recognize and honor members of the American Chemical Society for their outstanding achievements. The body of Fellows is expected to reach a steady state of 1 to 2% of our membership and to reflect not only excellence, but also the diverse contributions made by ACS members.

The ACS Fellows in the SCVACS region are:

<i>Zhenan Bao</i>	<i>Stacey Bent</i>
<i>John Brauman</i>	<i>Robert Miller</i>
<i>Howard Peters</i>	<i>Peter Rusch</i>
<i>Herbert Silber</i>	<i>Edward Solomon</i>
<i>James Swartz</i>	<i>Arnold Thackeray</i>
<i>Barry Trost</i>	<i>Jeff Zablocki</i>
<i>Richard Zare</i>	<i>Jin Zhang</i>

Call for Nominations 2014 Shirley B. Radding Award

The Santa Clara Valley Section of the American Chemical Society (ACS) announces the call for nominations for the 2014 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.

The award consists of an honorarium of \$1,000 and 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, 2014, and may be sent electronically to Radding-Award@scvacs.org or be mailed to: Radding Award Committee, Santa Clara Valley ACS Section, Post Office Box 395, Palo Alto, CA 94302.



Happy Easter!



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2013 Synopsys Championship

The 54th annual Santa Clara Valley Science and Engineering Fair, the Synopsys Championship, was held Wednesday, March 12, at the San Jose Convention Center (<http://sites.google.com/site/synopsyschampionship/>). As our regional competition, it showcased and celebrated over 1050 local 6th-12th grade students who will become our future scientists, engineers, technologists, and mathematicians. While these students were supported by their parents, teachers/mentors, and schools, they performed and presented independent research that exceeded the bounds of their normal classroom studies. So whether or not they were selected for the SCV-ACS awards or to represent Santa Clara County at the Intel International Science and Engineering Fair, they are all winners.



Yvonne Duckett, Dr. Gary Bullard, Susan Oldham-Fritts, Owen Gooding, and Mark Kent.

The SCV-ACS special award team of Dr. Gary Bullard, Yvonne Duckett, Owen Gooding, Susan Oldham-Fritts (chair), and Mark Kent judged 281 incredible projects to select the winners of our two section awards:

\$650 First Place Individual Award: Audrey Caroline Cheng, 10th grade, Gunn High School, for Novel Mechanism for Attachment of Peptides to Functionalized Carbon Nanotubes

\$350 Second Place Individual Award: Avni Pravin Madhani, 8th grade, Challenger School Sunnyvale, for Lye or Lime? Examining the Effect of Sodium Hydroxide and Calcium Hydroxide on the Pretreatment of Corn Husks in Ethanol Production

In addition, our team judged for the Promethium Chapter of Iota Sigma Pi, the national honor society of women in chemistry. We selected Ananya Karthik, 7th grade, Challenger School Sunnyvale, for A Greener Cleaner: Investigating a Potential Biosorbent for the Removal of Heavy Metals from Aqueous Solutions as recipient of their \$50 award.

Susan Oldham-Fritts and Mark Kent will present these awards on Sunday, April 6, at the Synopsys Championship Middle School and High School Award Ceremonies.

In addition to our special award judges, we'd like to thank the category award judges for volunteering their time and expertise. We also extend our thanks to Dr. Art DeGeus, CEO of Synopsys, and Gary Robinson and Heidi Black of the Synopsys Outreach Foundation for their continuing generous support of local science students and their teachers. Science fairs don't happen without these committed students, teachers, judges, and sponsors.

Join us in 2015 as either part of our SCV-ACS judging team or as a category judge at your local fair.

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 March

Diego Amado Torres	Adam Jaffe
Badr Astiphan	Dr. Dmitry Olegovich Koltun
Karen Astorga	Eric Michael Livak Hale
Shannon Barbour	Dr. Maureen McKeague
Philippe Bergeron	Trevor Moore
Wendy Buendia	Dr. Yam Poudel
Matthew Carr	Jennifer Sanderson
Dr. Catherine Ciesla	Pralay K. Santra
Nathan Colby Contino	Robert M. Sherwin
Domanick Contreras	Dr. Brian Charles Smith
Lulu Dai	Emma Helen Southgate
Brian De Borba	Arun Thottumkara
Michael Anthony Doshi	Jay Yamanaga
Kenneth Graham	Yuanpeng Zhang
Courtney Holmes	



SANTA CLARA VALLEY SECTION
AMERICAN CHEMICAL SOCIETY
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SANTA CLARA VALLEY SECTION

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Newsletter

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FUTURE MEETINGS

- Apr 17** Movie Night: "Supercar: Building the Car of the Future"
Biltmore Hotel & Suites
Santa Clara, CA
www.scvacs.org/Local_Folder/din_mtg.html
- Apr 19** Earth Day on the Bay
Discovery Parkway
Redwood City, CA
www.sfbaymsi.org/Baylines.html
- Apr 26** 2014 Chemistry Olympiad
Local Section Exam
Las Positas College
Livermore, CA
- May 17** Monthly meeting – TBD
- May 19-21** John Stauffer Lectures at
Stanford University
https://chemistry.stanford.edu/stauffer_lectures
- Jul 19** Annual Wine Tasting, Picnic and
Awards Ceremony
Stanford Chemistry Department
Stanford, CA
- Aug 10-14** 248th American Chemical Society
National Meeting
San Francisco, CA