

# Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

Volume 35 No. 3

## MARCH 2013 NEWSLETTER TOPICS

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## April Dinner Meeting Industrial Nanoparticles in the Food Chain Tracing Nanoparticle Transformations in Soybean Plants



Dr. Joy C. Andrews

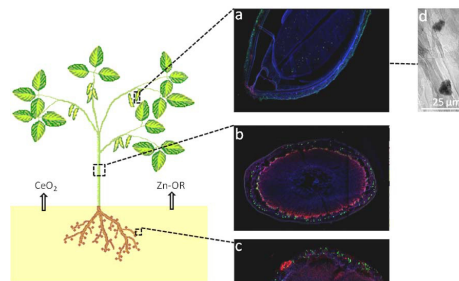
**Abstract:** The global production of engineered nanoparticles (ENPs) is currently a trillion-dollar industry, with nanoparticles now found in products ranging from sunscreen, gas sensors and pigments (ZnO ENPs), to catalysts for internal combustion and oil cracking processes (cerium-based ENPs). While their benefits in such products are known, much is yet to be determined regarding their fate, transport, and toxicity in the environment, including the implications of the potential storage of these ENPs or their biotransformed products in the edible and reproductive organs of crop plants.

Scientists from the University of Texas

### Abstract:

The global production of engineered nanoparticles (ENPs) is currently a trillion-dollar industry, with nanoparticles now found in products ranging from sunscreen, gas sensors and pigments (ZnO ENPs), to catalysts for internal combustion and oil cracking processes (cerium-based ENPs). While their benefits in such products are known, much is yet to be determined regarding their fate, transport, and toxicity in the environment, including the implications of the potential storage of these ENPs or their biotransformed products in the edible and reproductive organs of crop plants.

El Paso, UC Santa Barbara, ESRF and SSRL studied ENP uptake in soybean plants (Glycine max). The team used X-ray imaging and spectroscopy to study the transformation



Tricolor micro X-ray fluorescence maps (red = Zn, green = Ca, blue = K) of soybean a) pod, b) stem and c) nodule. d) Full-field transmission X-ray microscopy image depicts Zn precipitates in the soybean pod. Figure from: Hernandez-Viezcas et al. 2013, ACS Nano, 10.1021/nn305196q

continued on next page

### Chair's Message

## Tell Us What You Think

In March, this newsletter and other means will remind you that a survey is coming your way. With the help of some professionals at ACS headquarters, the Executive Committee has prepared a survey to help us help you. That's right; help us help you. We have over 3,000 members in the Santa Clara Valley (SCV) local section. You're one of them, and you can tell us things we don't know.

Many volunteers work on the many projects, awards, and meetings that are scheduled throughout the year. From the survey, you will see all of them if you don't know about them already. Which ones can you help with by volunteering? One of the nice things



about SCV activities is the number of people who volunteer and how well their work is received. You can do it and find how rewarding and grateful people can be.

Back to the survey... It is designed to take 5 to 7 minutes. That's all; seven minutes, tops.

Sure, there are some questions, and we even have one of those 1 to 5 rankings for one of the questions. The rest you will breeze through.

Don't forget, you're welcome at any or all of these events and the Executive Committee meeting.

The SCV local section needs your help by taking the time tell us what you think.

## April Dinner Meeting

**Date:** Thursday, April 18, 2013

**Time:** 6:00 p.m. Social Hour  
7:00 p.m. Dinner  
8:00 p.m. Presentation

**Presentation:** Joy C. Andrews, PhD  
Staff Scientist, Stanford Synchrotron Radiation Lightsource; Professor Emerita of Chemistry, California State University, East Bay

**Location:** Biltmore Hotel & Suites  
2151 Laurelwood Road  
Santa Clara, CA

**Cost:** TBD, Menu TBD

**Reservations:** [www.scvacv.org](http://www.scvacv.org)  
Lois Durham, 650-322-3507

Reservations should be made by April 15th stating your name, address, company/school affiliation, and dinner selection. If you are unable to honor your reservation, please cancel by April 16th.

*Industrial Nanoparticles, continued from front page*  
of ZnO nanoparticles within soybeans, finding that they are transformed into a chemical form bound to organic acids within the plants. CeO<sub>2</sub> nanoparticles within these plants were found to persist in the nanoparticle form even within the edible soybean, and therefore may persist into future plant generations, with potential health implications.

#### **Biography:**

Joy C. Andrews earned a PhD in Physical Chemistry from UC Berkeley, where she researched photosynthesis with Prof. Ken Sauer. After a postdoctoral fellowship at the Lawrence Berkeley National Laboratory, she became Professor of Chemistry at CSU East Bay in Hayward CA, where she continues currently as Professor Emerita. In 2008 she joined the staff at SSRL and leads the transmission X-ray microscopy program. She uses many synchrotron X-ray techniques to study nanoparticle uptake and transformation in plants, and chemical transformations in energy materials including batteries, fuel cells and catalysts.

## **Reminder**

## **March 21st Dinner Meeting Carbon for Water**

## **Reminder**

**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-cent sachet that can safely treat 2.5 gallons of water. The movie "Carbon for Water" pres-



ents 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 CO<sub>2</sub> emissions. The company can sell this CO<sub>2</sub> 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](http://www.carbonforwaterfilm.com)).

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

## **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 February**

Jim Aldridge  
Charles B. Chisom  
Dr. Hai Deng  
Dr. Andrew W. Drake  
Dr. Alexander Edens  
Professor Ronald K. Hanson  
Sarah C. Heilshorn  
Dr. Meng Heng  
Eric C. Hilario  
Dr. Ann E. Jain  
Dr. Noemie Janot  
Kanchi Kejriwal  
Wanmei Kuang

Robert George Kuimelis  
Lindsey Rae Lawrence  
Professor Michael Z. Lin  
Chong Liu  
Yuelie Lu  
Brian McDonald  
Marya Melkie  
Dr. Richard Alan Miller  
Sanjay K. Mohanty  
Rao Morusupalli  
Dr. Claudia E. Mueller  
Alexia Nicole Perryman  
Olivier Rene

Joseph Roan  
Kimberly M. Sogi  
Casandra Mae Sowash  
Richard Stephenson  
Zachary Kevin Sweeney  
Dr. Janet Tamada  
Binh Thai  
Corazon T. Victa  
Dr. Leiming Wang  
Dale Waters  
Brian Wong  
Dr. Bin Yang  
Calvin W. Yee

## **March 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

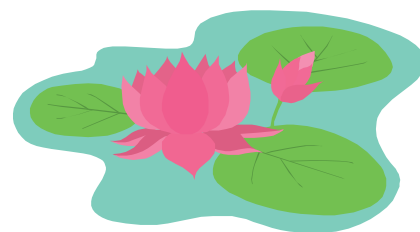
**Presentation:** "Carbon for Water"  
A film by Evan Abramson  
and Carmen Elsa Lopez

**Location:** Biltmore Hotel & Suites  
2151 Laurelwood Road  
Santa Clara, CA

**Cost:** \$26.00  
Teriyaki Steak or Vegetarian Crepes

**Reservations:** [www.scvacs.org](http://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.



## Chemistry and Chocolate Ambassador Report for 2012

# Public Outreach for ACS Santa Clara Valley Local Section: Bring chocolate...and they will come

### Howard and Sally Peters

In March and August of 2012, we had our usual posters, chocolate sampling, and chocolate raffle for the ACS Division of Chemistry and the Law (CHAL) at the ACS national meeting SCIMIX event in San Diego and Philadelphia.

In April, we were invited by Dr. Marinda Wu to talk "chocolate" at a Science Cafe event at the public library in Lafayette, CA.

In April and November, Howard was a speaker on chocolate at the SPLASH program at Stanford University. SPLASH is a volunteer program where grad students (and old alums,

etc.) get to teach at a special weekend event in Stanford classrooms to local 7-12th grade students. Over 2,000 students showed up for that weekend event.

In July, Howard was the "comic relief" for talented junior and high school students at the COSMOS program at University of California, Santa Cruz campus. COSMOS supports about 800 talented CA students enjoy an immersion in science and technology for a month on a UC campus.

In September, Howard was the "comic relief" talking chocolate at the Santa Clara

University Law Alumni weekend gala.

Howard's contract law professor from over 40 years ago, Father Paul Goda, won the chocolate T-shirt giveaway.

In October, we were at the ACS Virginia Local Section in Bridgewater, Virginia talking about chocolate after a special committee meeting at ACS HQ in DC.

<http://veritas.bridgewater.edu/blog/2012/10/25/death-by-chocolate/>

In November, Howard presented his fun talk on chocolate in western Pennsylvania to the ACS Erie, Penn-Ohio Border, and Western PA Local Sections on a self-assembled ACS Speakers tour.

If you are interested in seeing our fun chocolate talk, then visit <http://tiny-url.org/chocolate> for a recording by ACS national from August of 2009, when it was presented to about 300 undergraduates at the ACS annual meeting in Washington DC.

## 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. Eiss
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](mailto: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



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## In Memory of M. Floyd Hobbs

1924-2013



The Santa Clara Valley Section is sad to announce the passing of one our long-term members, M. Floyd Hobbs. He was 88. Floyd helped the section in a number of ways, and he was a tireless recruiter for candidates to serve on the Executive Committee.

Floyd was a major player in the recent revision of our by-laws, and actively served from the early years of our Section's existence. During his time with the Section, Floyd chaired the Nominating Committee for many years, and he was Chair of the Section in both 1968 and 1989. Floyd also received the SCV-ACS Ottenberg Award in 1976.

Floyd was a truly good friend to many of us and will be sadly missed.

## Call for Volunteers: Teach the Teachers Workshop

Saturday, March 16th, Resource Area for Teaching, Redwood City

The Santa Clara Valley Section's popular workshop for teachers needs some volunteers to help prepare materials (prior to the workshop), and to help the day of the workshop (8 am set up, 3 pm clean up, and assist during the day). If you would like to be part of this great event, even for just a couple of hours, please contact Bonnie Charpentier at: [b.charpentier@acs.org](mailto:b.charpentier@acs.org) for more information.

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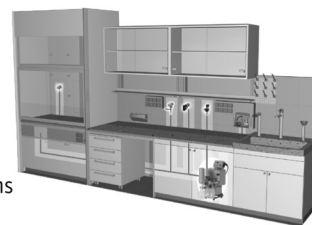
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## CHEMEMPLOYMENT ABSTRACTS MARCH 2013

For a complete list of current abstracts, please visit: [www.scvacs.org/Local\\_Folder/abstract.htm](http://www.scvacs.org/Local_Folder/abstract.htm)

### CHEMEMPLOYMENT ABSTRACT 3982

**Position Title:** Associate Scientist, Small Molecule Analytical Chemistry

**Job Description:** This laboratory-based position focuses on analytical characterization, method development and GMP release of formulated drug product, drug substance, intermediates, starting materials and functional excipients to support clinical and pre-commercial CMC drug development. The Associate Scientist will be a key team member working within an analytical project group.

#### QUALIFICATIONS DESIRED:

**Education:** A PhD degree in a relevant scientific discipline and 0-3 years in the pharmaceutical industry are required.

**Experience:** For more than 30 years, Genentech has been at the forefront of the biotechnology industry, using innovative science to develop breakthrough medicines that improve the lives of people with serious or life-threatening diseases.

#### LOCATION, SALARY, EMPLOYER:

**Job Location:** South San Francisco

**Salary:** DOE

**Employer:** For more than 30 years, Genentech has been at the forefront of the biotechnology industry, using innovative science to develop breakthrough medicines that improve the lives of people with serious or life-threatening diseases

**Application Instructions:** Please visit our website at <https://roche.taleo.net/career-section/10002/jobapply.ftl?lang=en&job=00408544&src=JB-11480> or submit your resume to [mackenzie.perino@ckrinteractive.com](mailto:mackenzie.perino@ckrinteractive.com)



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## Chemists Celebrate Earth Day

### 2013 Illustrated Poem Contest:

# “Our Earth: Handle with Care!”

The Santa Clara Valley Section of the American Chemical Society (SCVACS) is sponsoring an illustrated poem contest for students in Kindergarten - 12th grade. Winners of the Santa Clara Valley Section illustrated poem contest will advance to the ACS National Illustrated Poem Contest!

**Contest Deadline:** Friday March 22<sup>nd</sup>

**Contact:** Jeanette Medina – [medinaj@smccd.edu](mailto:medinaj@smccd.edu)

**Mail poems and entry form (found at [scvacs.org](http://scvacs.org)) to:**

Jeanette Medina

Cañada College/ Science and Technology Division

4200 Farm Hill Boulevard

Redwood City, CA 94061

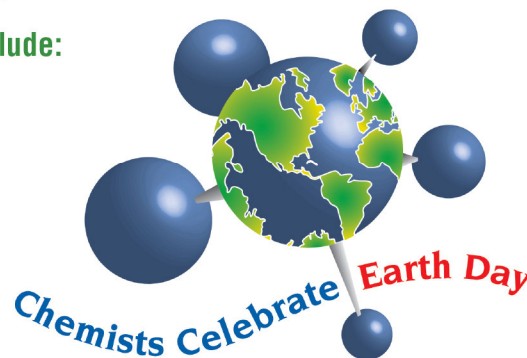


Write and illustrate a poem using the CCED theme, “**Our Earth: Handle with Care!**” Your poem must be **no more** than 40 words, and in the following styles to be considered:

HAIKU • LIMERICK • ODE • ABC POEM • FREE VERSE • END RHYME • BLANK VERSE

**Possible topics related to Chemists Celebrate Earth Day include:**

- Green chemistry and sustainability
- Recycling aluminum, glass, paper, and plastic
- Clean air, carbon footprint, and fuel emissions
- Plant, photosynthesis, and composting
- Water conservation and purification
- Any other relevant topics



**Entries will be judged based upon:**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Relevance to and incorporation of the theme</li> <li>• Word choice and imagery</li> <li>• Colorful artwork</li> </ul> | <ul style="list-style-type: none"> <li>• Adherence to poem style</li> <li>• Originality and creativity</li> <li>• Overall presentation</li> </ul> |
|--|---|

**Contest Rules:**

- Poems must conform to a particular style. No poem may be longer than 40 words.
- The topic of the poem and the illustration must be related to the CCED 2013 theme, “**Our Earth: Handle with Care!**”
- All entries must be original works without aid from others.
- Each poem must be submitted and illustrated on an unlined sheet of paper (of any type) not larger than 11” x 14”. The illustration must be created by hand using crayons, watercolors, other types of paint,

colored pencils or markers. The text of the poem should be easy to read and may be printed with a computer, before the hand-drawn illustration is added, or the poem may be written on lined paper which is cut out and pasted onto the unlined paper with the illustration.

- Only one entry per student will be accepted.
- All entries must include an entry form.
- All illustrated poems and/or digital representations of the poems become the property of the American Chemical Society.
- Acceptance of prizes constitutes consent to use winners’ names, likenesses and entries for editorial, advertising and publicity purposes.



SANTA CLARA VALLEY SECTION  
AMERICAN CHEMICAL SOCIETY  
P.O. Box 395, Palo Alto, CA 94302

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

## SANTA CLARA VALLEY SECTION

### 2013 Section Officers

Chair	Peter Rusch	650-961-8120	pfrusch@aol.com
Chair Elect	Ean Warren	650-329-4554	ewarren@scvacs.org
Past Chair	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com
Secretary	Karl Marhenke	831-688-4959	karlmar@armory.com
Treasurer	Ihab Darwish	650-594-1654	darwishis@yahoo.com

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2013-2015	Sally Peters	650-812-4994	sallybrownpeters@gmail.com
2013-2015	Peter Rusch	650-961-8120	pfrusch@aol.com

### Alternate Councilors

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2013-2015	Stephanie Bachmann	408-429-9681	s_gehling@hotmail.com
2013-2015	Lois Durham	650-322-3507	ldurham9398@sbcglobal.net
2013-2015	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com

### Newsletter

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### ChemPloyment Abstracts

Director	Liang Cao	liang.cao@aol.com
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## FUTURE MEETINGS

- Mar 1-29** Chemistry Olympiad Local Exam  
Participating SCV High Schools
- Mar 21** Santa Clara Valley Section Meeting  
Biltmore Hotel & Suites  
Santa Clara, CA
- Mar 17-21** Pittcon  
Philadelphia, PA  
<http://pittcon.org>
- Apr 1, 3** 18th Annual John Stauffer Lectures  
Department of Chemistry  
Stanford University  
[http://chemistry.stanford.edu/stauffer\\_lectures/](http://chemistry.stanford.edu/stauffer_lectures/)
- Apr 7-11** 145th National ACS Meeting  
New Orleans, LA  
[www.acs.org/neworleans2013](http://www.acs.org/neworleans2013)
- Apr 9** DeNardo Lectureship  
Santa Clara University  
[www.scu.edu/cas/enrichment/denardo/](http://www.scu.edu/cas/enrichment/denardo/)
- Apr 13** Chemistry Olympiad National Exam  
Santa Clara University
- Jul 13** Annual Family Picnic and  
Awards Ceremony  
Department of Chemistry  
Stanford University