

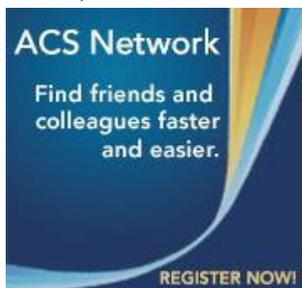
CALPACS Election Results

Votes are in! We sent out 650 ballots and received 65 votes. Please welcome your new CALPACS Officers and Executive Committee members.

Curtis Musser of Viewpoint School in Calabasas will take over as section Chair from Richard Hurst who will remain on the committee as Immediate Past Chair. Nanine Van Draanen of Cal Poly San Luis Obispo is the 2012 Chair-Elect. James Pavlovich and Ata Shirazi were re-elected as section Secretary and Treasurer respectively. Lara Baxley of Cal Poly San Luis Obispo, Payam Minoofar of Teledyne Scientific Company in Thousand Oaks, Jean Osterman of Promega Biosciences in San Luis Obispo, and Justin Russak of UCSB have been elected to serve as new Executive Committee members. Al Censullo and David Marten continue to serve as Councilor and Alternate Councilor. Returning members of the Executive Committee are Stephen Contakes, Jaime Dwight, Ivan Lorkovic, Allan Nishimura, and Jerry Skarnulis.

Our next Executive Committee meeting is Saturday, March 3, 2012 at 10:00am at Promega Biosciences in San Luis Obispo.

If you have ideas for CALPACS events, outreach, speakers or want to get involved, send us an email at calpacs@chem.ucsb.edu. We have opportunities on various committees such as membership and hospitality, education, election nominations, industry relations, and more.



Hot Off the Interwebs!

Jerry Skarnulis has been working hard on a **new and improved CALPACS website** which will launch on February 1, 2012. The new web address is www.lospadresacs.org. Here you will find committee email addresses, an event calendar, newsletter archives, meeting minutes, and more. Also be on the lookout for a new online event registration and web payment option. The committee is also considering using our new website for e-voting to simplify the process and get more voices heard.

You can always stay connected with CALPACS by visiting our Facebook page at "[California Los Padres ACS](#)".

Event Calendar

SPEAKER EVENT AT CAL POLY

February 11th, 1:00pm - FREE

Cal Poly, SLO, Building 52, E26

Rebecca Anderson - "Finding New Drugs: The Path from Test Tube to the Pharmacy".

WINE SOCIAL AT KUNIN VINEYARDS

Spring TBA

28 Anacapa Street, Santa Barbara

\$10 at the door, light refreshments served

CALIFORNIA OIL MUSEUM TOUR

March 17th, noon

[Santa Paula Oil Museum](#) tour with optional lunch with Museum Director at Glen Tavern Inn

SPRING STUDENT EVENT

April 14th, noon

Westmont College, Santa Barbara

Eric Scerri - "The Periodic Table: Its Story and Its Significance".

GILLS ONIONS TOUR

Spring TBA

A tour of [Gills Onions](#) of Oxnard

Digestion of onion waste to make biogas

Finding New Drugs: The Path from Test Tube to the Pharmacy A CALPACS speaker event

Current industry statistics estimate that it takes fifteen years and nearly \$1 billion to bring a new drug to market, but most consumers are unaware – and even skeptical – of the extensive efforts involved in finding and successfully developing these products. This presentation looks inside the black box, sharing an insider’s view of pharmaceutical research and development and answering several commonly asked questions: Where does a chemist get ideas for synthesizing and innovative drug? Why are animals still used in drug research? Why can’t scientists and clinicians work faster? And why can’t they do their job better and cheaper? In the course of describing the drug development activities, this presentation will highlight the range of chemistry subspecialties employed in moving a drug from the lab bench to the pharmacy shelf.

Rebecca Anderson has worked in the biopharmaceutical industry from more than 25 years in jobs spanning pharmaceuticals, biotechnology, medical devices, and contract research organizations. She holds a BA degree in chemistry from Coe College and a Ph.D. in pharmacology from Georgetown University. Following postdoctoral training at the University of Toronto, she held academic appointments at the George Washington University Medical Center and the University of Michigan School of Public Health. She subsequently held positions of increasing responsibility in pharmaceutical R&D at Parke-Davis & Company, Boehringer Ingelheim Pharmaceuticals, Miravant Pharmaceuticals, and Amgen. Dr. Anderson currently works as a freelance technical writer and is the author of [*Career Opportunities in Clinical Drug Research.*](#)

On February 11th, Rebecca Anderson will be giving a free lecture at Cal Poly State University in San Luis Obispo. There will also be a book signing with books for sale after the talk and light refreshments will be served.

California Oil Museum

A CALPACS tour event

The California Oil Museum in Santa Paula is an historic building in that it was the birthplace, in the 1890s, of the Union Oil Company (UNOCAL). Prior to UNOCAL's deeding the building over to the City of Santa Paula, the oil company invested millions of dollars to refurbish the second floor of the building. The purpose of the remodeling was to resurrect the appearance and facilities of the oil company as it was in the 1890s. Visitors to the museum can view geologic and petroleum-related exhibits on the first floor that includes a full-scale model of a 19th Century oil rig, as well as rotating exhibits that range from art to scientific innovation. From the standpoint of our discipline, chemistry, the area is also unique in that it was one of the first areas where petroleum was not only discovered in California, but also refined to produce many of the numerous hydrocarbon products derived from crude oil. Although off the beaten track, the museum is well worth a visit given its significance to the petroleum and chemical engineering industries in California.

CALPACS will be hosting a tour of the Oil Museum on March 17th after an optional lunch with the Director at nearby Glen Tavern Inn. Please stay tuned for the event flier for details.

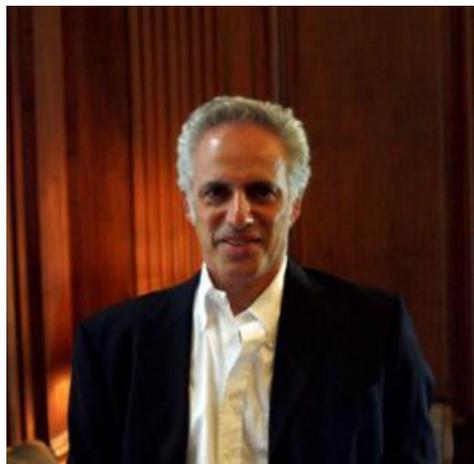


The Periodic Table: Its Story and Its Significance

A CALPACS student event

Eric Scerri received all of his education in the UK at the universities of Cambridge, Southampton and King's College, London. He has been a Lecturer in Chemistry and History & Philosophy of Science at the University of California at Los Angeles (UCLA) for the past twelve years. He is the author of the definitive book on the periodic table, [*The Periodic Table: Its Story and Its Significance*](#), Oxford University Press, 2007 as well as of [*Collected Papers in Philosophy of Chemistry*](#), and [*Selected Papers on the Periodic Table*](#), published by Imperial College Press in 2008 and 2009 respectively. Scerri has written over 150 articles in journals and edited collections in chemistry, chemical education and history and philosophy of science.

His most recent book is called [*A Very Short Introduction to the Periodic Table*](#), has just been published by Oxford University Press.



Eric Scerri will be speaking on the periodic table at our spring student event which will be held at Westmont College on Saturday, April 14th.

Stay tuned for details.

Chemistry Olympiad 2012

An invitation to participate in the 2012 US National Chemistry Olympiad (USNCO) was sent to 70 High School chemistry teachers and administrators. The USNCO program seeks to stimulate interest in chemistry among high school students and recognize outstanding young chemistry students, teachers, and schools. US citizens competing in the USNCO are eligible to be selected as members of the US team for the International Chemistry Olympiad. For the past 27 years, the United States has sent a team of four students to compete with nations around the world. The students participate in both theoretical and laboratory examinations over several days and gold, silver, and bronze medals are awarded to the best performers.

This year, the international event will be held in Washington, DC, on July 21-30. To identify potential candidates for the four-member US team, CALPACS is conducting a preliminary screening through a local exam that will be administered to students at their local High School. The top 10 scoring students on the local exam will be invited to take the national exam at Westmont College in April where they will have a chance to qualify for one of 20 spots at the USNCO study camp where

they will compete for one of four spots on the U.S. team.

As part of our support for the 2011 USNCO, CALPACS will provide participating High School teachers with an award in the form of a 1-year subscription to Chem13News or a 1-year extension to their current subscription to Chem13News. The magazine subscription has the advantage of promoting professional excellence in High School Chemistry teaching throughout our section.

Earth Day 2012

CALPACS is planning to hold a table at the Santa Barbara Earth Day Festival again this year. Last year, fellow ACS members and the Westmont College Chemistry Club discussed green chemistry with members of the public and handed out promotional materials, including coasters made from recycled PET and denim, and environmentally-friendly thermochromic pens.

If you would like to help with the Earth Day event this year, please contact Stephen Contakes at scontakes@westmont.edu.

Fall Luncheon 2011

Honoring our Fifty Year Members – by David Marten

This year, our 50 year member luncheon was held at Stella Mare Restaurant near the Bird Refuge in Santa Barbara on Saturday, October 22nd. One of our new 50 year members, Dr. J. Thomas Gerig from U.C. Santa Barbara, gave an inspiring talk on his research entitled: “**Understanding Peptide-Solvent Interactions through NMR and MD**”. There were about 33 who attended and we enjoyed a wonderful lunch of either roasted chicken breast or Penne pasta with artichoke hearts, mushrooms and tomatoes. Several others with more than 50 years in the ACS were there plus a couple with 60 years as a member.

The talk focused on using molecular dynamics calculations to model what is being observed in the NMR spectrum of a small protein, [val5]-angiotensin, in a solvent mixture of methanol and water. Scientists often study proteins in these mixed solvent systems and the intent is to be able to use NMR nuclear Overhauser measurements on proteins to determine solvent-protein interactions. Due to the complexity of the systems, molecular dynamics calculations are required to help understand the experiment data. Dr. Gerig reported his recent findings and gave details of the peptide-solvent interactions that he has observed and interpreted.



Chair-Elect Curtis Musser, Dr. Gerig and David Marten

Gills Onions

A CALPACS tour event

Located in Oxnard, Gills Onions is one of the largest fresh-cut onion processing plants in the world. But Gills doesn't just process onions, they utilize an Advanced Energy Recovery System (AERS) on the property that turns the onion waste into biogas, which feeds into fuel cells to produce ultra-clean heat and power. In 2010, Prudent Energy announced the installation of a 600-kilowatt Vanadium Redox Battery Energy Storage System (VRB-ESS) at Gills Onions to enhance their existing AERS. The VRB-ESS will provide the facility with emergency backup power and reduce the company's need to draw electricity from the grid when rates are highest. Gills expects to save hundreds of thousands of dollars each year in operating expenses.

Keep your ears open for a weekday tour date in May or June!

ACS National Meeting

[Chemistry of Life](#)

San Diego, CA March 25-29

- *Chemical Networks in Biology*
- *Epigenetics: From Basic Principles to Drug Development*
- *Materials as Medicines*
- *Drug Polypharmacology Prediction and Design*
- *Protein Conjugates: From Basic Principles to Clinically Active Drugs*

The Kavli Foundation Innovations in Chemistry Lecture

Monday, March 26, 5:30-6:30

Speaker: [Carolyn Bertozzi](#) of University of California, Berkeley & San Francisco Howard Hughes Medical Institute

[REGISTER ONLINE](#)

Annual CALPACS Wine Tasting Event 2011

Mosby Winery and Vineyards – by Payam Minoofar

Chemistry is the science of transformation, and oenology is one of its earliest forms. As chemists we may wonder which transformation is more profound: the transformation from squashed grapes to an alcoholic elixir, or the one from a sad mood to a state of ecstasy.



No one really pondered that deep philosophical question at Mosby Winery and Vineyards on December, 10, 2011. We celebrated the fabulous elixirs fermented by Bill Mosby. The full contingent of chemists who descended upon Buellton on a sunny, cool autumn day were treated to a wonderful tasting of many Italian varieties of wine, an assortment of delicious cheeses and hearty soups prepared by members from San Luis Obispo.



The winemaker and owner, Bill Mosby, showed up and entertained numerous questions about his career as a periodontist, his early career as a brewer in his college dormitory, his retirement to a new career as a winemaker and, of course, the way he makes his wines. Unfortunately, legal restrictions proscribed the pouring of brandies that he had begun to distill on the property, but that had no negative impact on the mood of the attendees.



Full attendance made the event a fantastic opportunity to meet chapter members from the extreme regions of the chapter's vast territory: from Thousand Oaks to San Luis Obispo. It was, therefore, just as fabulous a networking opportunity as it was a way to spend a beautiful day.



No ACS chapter can claim these amazing privileges that CALPACS members often take for granted. So, don't miss the next opportunity to celebrate your profession by drinking one of its earliest successes. Keep your eye out for the next CALPACS event, and make your reservations early.



Special thanks are extended to Nanine Van Draanen for organizing the event, and to James and Cathy Pavlovich, David and Ramona Marten, Jaime Dwight, and John Hagen for providing the delicious spread.



National Chemistry Week 2011

We celebrated last year's National Chemistry Week by holding a slime-making activity at the Paseo Nuevo mall on October 29th. ACS member Kristi Lazar, an Assistant Professor of Chemistry at Westmont College, led this event. She was assisted by Westmont Chemistry students.

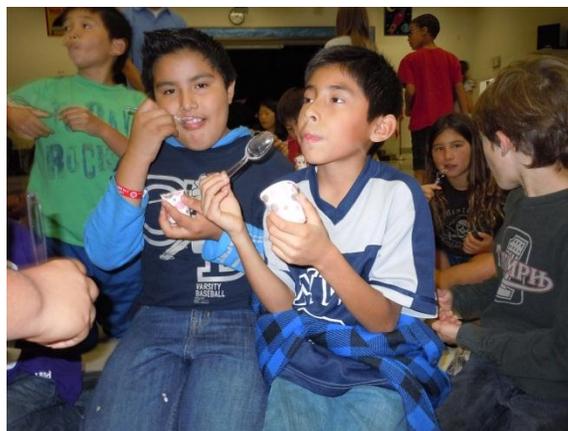


Pictured from left: Nicole Grabe, Elizabeth Grossman, Kristi Lazar, Kylie Miller and Ryan Morgan.

Kristi reported: "The students have told me how thankful that they were to be a part of this fun day. We had a steady stream of kids visit our table to make slime and it was a beautiful day!"



We also held a liquid nitrogen ice cream demo event at Hope Elementary school in Santa Barbara. Caleb Bos, Westmont College Chemistry Club president, and Ellen Brudi, a Westmont Chemistry student, visited Hope Elementary and made liquid nitrogen ice cream for approximately eighty 5th and 6th grade students. The kids enjoyed the demonstration and had many good questions about phases of matter and nitrogen.



New Faculty Hires

CAL POLY



Alan L. Kiste completed a B.S. in Chemistry at Calvin College in Grand Rapids, Michigan in 1993. He earned an M.S. in Macromolecular Science and Engineering and an M.A. in Education, both from the University of Michigan in Ann Arbor.

After teaching high school chemistry for several years, he returned to the University of Michigan where he earned a combined doctorate in Chemistry and Education while working with Brian Coppola and Joseph Krajcik. His research interests include the development of new methods for analyzing chemistry students' learning and production of chemistry symbolism and representations, and the analysis of student

representations using these new methods, the examination of how students utilize learning resources in large lecture classes, and the development, assessment, and evaluation of new pedagogical interventions. He joined the faculty in the Department of Chemistry and Biochemistry at Cal Poly in September 2011.

Greg Scott is a native of eastern Kentucky and earned his B.S. in chemistry from Davidson College in North Carolina in 2004. Subsequently, he joined the corps of Teach For America where he taught high school chemistry and physics in



Brownsville, TX for two years before pursuing graduate studies in physical chemistry at the University of Illinois at Urbana-Champaign. At Illinois, Greg earned his Ph.D. under Martin Gruebele, where he performed experimental studies of single-molecule optical absorption

detected by scanning tunneling microscopy and theoretical studies of protein folding potential energy surfaces.

Greg joined the faculty of Cal Poly in the fall of 2011 as an assistant professor in the Department of Chemistry and Biochemistry where he is teaching in the General Chemistry sequence. He is passionate about chemical education, both in improving learning outcomes for Cal Poly students, but also in working toward achieving educational equity through K-12 outreach. Greg has continued research interests in the optoelectronic properties of local single-molecule chemistry as well as in the application of diffusional dynamics for low-barrier kinetics.

Shanju Zhang is currently an assistant professor of Polymers and Coatings program in the Department of Chemistry and Biochemistry at California Polytechnic State University San Luis Obispo. He received his B.Sc. in chemistry from Jilin University in 1993 and his Ph.D. in polymers from the same university in 1998. In 1998-2000 he was an assistant professor at Changchun Institute of Applied Chemistry at the Chinese Academy of Sciences. He received an Alexander von Humboldt fellowship at Technical University of Berlin in 2000-2002. He did his postdoctoral research at University of Cambridge in 2002-2006.



Before he joined the faculty of Cal Poly in 2011, he was a research scientist at Georgia Institute of Technology (2006-2009) and Yale University (2009-2011). Dr. Zhang has published around 60 papers in the peer-reviewed journals in the areas of synthesis, structure, processing and properties of polymers and liquid crystals. His current research is focused on polymers and coatings with applications in energy conversions, covering conjugated polymers, semiconducting nanotubes/nanowires, and polymer nanocomposites.

WESTMONT



Michael Everest has always been fascinated with science. In high school, chemistry was the subject that tapped into this fascination the most. It also helped that, compared to the way physics and biology were taught, he could figure things out on a chemistry exam without having very much information committed to memory. He continued his interest in chemistry by completing the ACS-certified B.S. at Wheaton College (Wheaton, IL). At that time, he decided that teaching chemistry at a primarily undergraduate institution was his intended career goal. He completed a Ph.D. at Stanford studying ion-molecule reaction dynamics under the direction of Richard Zare. (While in graduate school, he finally saw the value of having information committed to memory, though it is an ongoing struggle!)

Michael's Ph.D. work required a large laser system, a large vacuum system, and a large tandem mass spectrometer inside the vacuum system. Being aware of the levels of funding going to undergraduate institutions, he decided to change fields to an area that would require only one of those three components: cavity ring-down spectroscopy. After a post-doctoral stint at Trinity University (San Antonio, TX), he taught chemistry at George Fox University (Portland, OR) from 2001-2011. He also spent 12 months in Greece working to develop a cavity-enhanced variety of ellipsometry. Most of his research has involved the application of optical-cavity-enhanced techniques to the study of processes at interfaces.

Michael is thrilled to be joining the faculty at Westmont College where he plans to continue teaching physical chemistry and overseeing undergraduate research projects.

Kristi Lazar, a 2000 Westmont College alum, has returned as an assistant Professor of Chemistry. Lazar earned a master's degree at Princeton University and a doctorate from the University of Chicago, where she conducted biochemistry research under the direction of Stephen C. Meredith and wrote her dissertation on "Non-amyloid protein aggregates." Lazar returned to Westmont as a visiting professor in January of 2010 and began her tenure-track position last fall. Her area of expertise is in protein aggregation, including deposits of misfolded proteins thought to be responsible for amyloid diseases. Lazar undertook two years of postdoctoral research at Genentech, Inc., a biotech company, before applying to Westmont. Her research at Genentech explored the long-term stability of monoclonal antibody drug products at sub-zero temperatures.



Coke Zero's Secret Formula

Excerpt from C&EN Newsprints [post by Lauren Wolf](#)

I've always thought the reason that I disliked the taste of Diet Coke was that it contains aspartame. However, after reading the label more closely and chatting with some people at [Atlanta's World of Coca-Cola] museum, I noted that Coke Zero, which I think tastes great (and more like Coke Classic), contains aspartame as well. So what gives?

Well, I checked in with some experts to try to find out. "There are people for whom most high-potency [sweeteners](#), such as aspartame and saccharin, taste slightly bitter or metallic," says Kantha Shelke, founder of consumer packaged goods consultancy Corvus Blue. I'm guessing that I'm one of them.

Coke Zero contains aspartame and acesulfame potassium, another high-potency sweetener. "The blend of aspartame and acesulfame-K is very unique," says Ihab E. Bishay, director of business development and application innovation at [Ajinomoto Food Ingredients](#). "There is significant additive synergy between the two sweeteners. Acesulfame-K has a very quick sweetness onset, which is followed by a bitter/metallic aftertaste, and aspartame has a slower onset, with a slightly longer-lasting sweetness. Together, the blend provides the product formulator with a taste profile that is closer to the taste of sugar than either sweetener by itself." So this might explain my preference for Coke Zero.

Neither expert, however, thinks that's the whole story. "When formulating a beverage like a cola, formulators can modify the flavor system, acidulates, sweeteners, and myriad other variables to arrive at the desired flavor and taste profile," Bishay says. Shelke agrees, adding that formulators probably alter other ingredients in the beverages to give them a pH that maximizes sweetness for their particular sweetener system.

While I was at the World of Coca-Cola, I chatted with an employee who told me that Diet Coke uses a different syrup base (the preservatives and natural flavors advertised on the label) than Coke Classic. Coke Zero, the employee said, uses a syrup that is closer to Coke Classic's. That could also be a contributing factor in my dislike of Diet Coke. But because the company isn't about to reveal its secret formula for either beverage, I'm not sure that I'll ever know precisely.

Plenty of sci-curious folks have tried to ascertain Coke's exact ingredients and their proportions. I leave you with [one person's](#) interesting take on it.

