

# The Capitol Chemist

ACS Sacramento Section

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## California Chrome's Co-Owner Denise Martin

By Bill Miller, ACS Sacramento Chair-Elect



Denise Martin, one of the owners of the 2014 Kentucky Derby champion California Chrome, has been a member of the ACS Sacramento Section since 2007. With her husband, Perry Martin, they own Martin Testing Laboratories (MTL), a division of Materials Technology Laboratories, Inc. Denise is the senior chemist at MTL.

California Chrome won the Kentucky Derby by 1 $\frac{3}{4}$  lengths even though his rider eased him up for the last 70 yards. He has been undefeated in his last six races. This is impressive enough on its own, but then consider that this is the first time that the Martins and their partners, the Coburns, have bred a racing horse and that California Chrome's parents were very inexpensive by Kentucky Derby standards. Love the Chase, California Chrome's dam, was purchased for \$8,000 and bred to Lucky Pulpit for only

\$2,500. When they purchased Love the Chase, they overheard someone say that they must be "dumb asses" to buy her, so they named their racing operation Dumb Ass Partners, or DAP.

"The best part of breeding and raising California Chrome," said Denise, "has been watching him develop, mature and come into his own as a stallion. He was one of the sweetest and smartest little foal's that I have had the pleasure of knowing. He always liked to initiate play...and play we did!"

"The most difficult part of this experience," continued Denise, "was moving the horse from central California to southern California for training and racing. I missed our weekends together."

While the cost of breeding California Chrome was small compared to other Kentucky Derby contenders, it costs about \$3,000 per month to pay for his training. The entry fees for the Kentucky derby are over \$50,000. Denise noted, "Performance horses, just like

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### ACS Sacramento Local Section FB Group



[Click](#) to join the group

# Silicon Valley Startup – Anti-Aging Machine

By Handeep Kaur

Google mad science lab, Google X, believes it can defy aging and illnesses. In 2013, Google established an independent research and development venture, California Life Company, or also known as Calico. The biotechnology company will be led by biotechnology mogul Arthur D. Levinson, chairman of both Apple and Genentech—the perfect background fusion of both medicine and technology empires.

The 64 year old received his Ph.D. in Biochemistry from Princeton University in 1977 followed by a postdoctoral position at UC San Francisco. After his graduate studies, he was hired at Genentech in 1980 and moved his way up. In 2004 he served as a director of Google. He has received multiple awards and prestigious recognitions both as a scientist and as a CEO. He serves as an ideal example for graduating Ph.D.'s in carving a diverse path of their choosing. He is also an inventor of 11 U.S. patents

Calico plans on using the massive amounts of data and computer power to dig up solutions to our most prevalent health care concerns including aging, cancer and mental health. With the sequencing of the human genome and fast-growing genomic databases becoming more available, this feat doesn't sound completely insane. Calico will be looking at the fusion of sciences predominantly involving chemistry, biochemistry and genetics to



Arthur D. Levinson – CEO of Calico

increase our life spans. With the enormous power Google has, the average humans may start living 200 years.

The impact of this on humans on carrying out their lives would be enormous! We would potentially marry older and wiser, reproduce later, travel further, spend additional time learning, explore more possibilities, etc. With all the other seemingly impossible feats Google has accomplished already, this new venture appears to be farfetched to some, and to others the perfect evolutionary union of science and technology to serve humanity.

Levinson has recruited some expert scientists from top research companies and even out of retirement. This includes medical officer Hal Barron from Roche, oncologist Robert Cohen from Genentech, molecular biologist Cynthia Kenyon and genomics expert David Botstein. Calico is currently hunting for talent, relevant research, and unique mutations or cases that have defied aging. Reports have indicated that much of the recruits will be from Genetech.

Public postings for positions have are not yet available. However, the work will take place in the Bay Area, which is great news for Sacramento-Davis scientists. It appears that both strong knowledge of computers and physical science is a must. This is great news for those doctoral students majoring in a computational science. However, for synthetic or lab focused physical scientists out there, gaining programming knowledge seems to be a potential key to increasing our lifespan.

## References:

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## Interview a Chemist: Bill Bromps

By Caitlin Ellis, President of the ACS Sacramento City College Student Chapter

Bill Bromps is a senior product development chemist for Restek West in Shingle Springs, California. Restek West has been open since 2005 and is the west coast branch of Restek Corporation based in Pennsylvania. Restek focuses on innovative chromatography solutions.

Bill graduated with a Bachelors of Science in Chemistry from Oregon State University. During his studies he developed an interest in inorganic and physical chemistry, specifically. At Restek, Bill's work centers around Porous Layer Open Tubular (PLOT) columns, which are capillary columns where the inner surface is coated with a layer of solid porous material. His research focuses on new types of porous materials for different types of columns. The Restek West team develops processes that can be optimized for production in



the main lab in Pennsylvania. They develop new chromatography technologies, write standard operating procedures and develop ways that these technologies can be scaled up for larger labs.

Restek West only employs four chemists. They work well as a team and everyone gets along, which makes Bill's job enjoyable and productive. When asked what he likes best about his job, Bill says that there is a great satisfaction in creating something and then seeing it produced. He enjoys "seeing a product in a catalog

that [I] created." One of the difficulties he encounters in his job is that there is a lot of meticulous paperwork that takes away from the actual research. Also, because Restek West is 2500 miles away from the main research facility, it means that there can be a lack of communication and things must be documented extremely well so that experiments can be easily reproduced in the main lab.

Bill's advice for a student interested in a career in a chemistry related field is to "find something that really holds your interest." His suggestion is to find something that you really like doing so that when you get a job in that field you get paid to do something that you enjoy. For Bill, he is really interested in the research he is able to do at Restek so he has a career that he loves.

*(continued from page 1)*

## Denise Martin

child athletes, need someone to look after their welfare as well as someone to pay the bills. As majority owners my husband and I manage all of the business end, which is extensive and [we have] worked more hours as costs rose."

The next race for California Chrome is The

Preakness on May 17<sup>th</sup>.

Martin Testing Laboratories was started in 2000 at McClellan Air Force Base. Capturing much of the equipment used for testing materials that was there when McClellan closed, they started with only four employees. Since then, they have grown

considerably. They have a wide variety of capabilities including mechanical, metallurgical, electrical, and cryogenic testing using liquid nitrogen, helium, and oxygen.

Before working at MTL, Denise worked for Martin Engineering based outside of Chicago.

## ACS Sacramento Celebrates Earth Day at the Cal EPA

By Cindy Castronovo, ACS Sacramento Secretary

The ACS Sacramento Section participated in the annual Cal-EPA Earth Day/Take Your Kids to Work Day event on April 22, 2014.

ACS members from several State of California environmental agencies showed many children (and their parents) how to find the recycle code on various types of plastic containers. Kids who found examples of all 7 recycle codes won cool prizes, including the famous Earth Day moles, and the [Celebrating Chemistry booklet](#)



Suzanne Davis and Lindsay Martien

with this year's theme: the Wonders of Water.

Thanks to Mariela Carpio-Obeso and Lindsay Martien from the Water

Resources Control Board, Suzanne Davis from the Department of Toxic Substances Control, and Miglena Stefanova-Wilbur from the Department of Pesticide Regulation for volunteering to staff the ACS table.

If you'd like some of the Celebrating Chemistry booklets, available both in English and Spanish, contact Cindy Castronovo at [ccastron@arb.ca.gov](mailto:ccastron@arb.ca.gov).

## SCC Chemistry Club Celebrates Earth Day

By Bill Miller, ACS Sacramento Chair-Elect



Jasmine Hakim-Elahi smashes one of the peeled lemons frozen in liquid nitrogen.

The American Chemical Society (ACS) Student Chapter at Sacramento City College (SCC) took a two-pronged approach to their two-day Earth Day Celebration March 22<sup>nd</sup> and 23<sup>rd</sup>.

The first prong was to do something fun: smash things after having placed them in liquid nitrogen donated by the SCC Chemistry Department. While some learning did occur about the properties of materials at very low temperatures, most

of the comments from SCC students, faculty, and staff were more like "Oooooooh" and "Cool!" (no pun intended).

Things that were frozen and smashed include flowers, bananas, and lemons. Balloons were also inflated and deflated many times as chapter members discussed Charles Law (without ever mentioning Charles Law) with people.

"People seemed to really enjoy the liquid nitrogen demo.

They had lots of questions and got to see that science is fun!," commented Caitlin Ellis, President of the chapter.

The second prong was to show how a simple battery could be made from a lemon, a zinc-coated nail, and a penny. The battery was connected at various times to a liquid crystal display (LCD) clock and a multimeter. As people would come up,

*(continued on page 7)*

## Local High School Students Compete in National Chemistry Olympiad

By Michael Flores

On April 26, 2014, Sacramento City College (SCC) hosted the US National Chemistry Olympiad (USNCO) Competition for the top scoring Local Chemistry Olympiad competitors. Out of approximately 10,000 U.S. high school students that entered the Local Competition, only 1,000 were invited to compete in the USNCO Competition.

Among those top competitors were local high school students Karthik Raju (Mira Loma High School), Emily Wang (Mira Loma High School), Jiayu Xue (Franklin High School), David Nguyen (Sheldon High School), Insu Jung (Sheldon High School), and Brandon Lin (Davis Senior High School).

These students exemplify what it takes to become a great scientist. They worked hard to earn a place in the USNCO and showed passion in preparation for the exam. Preparation involved educating themselves outside of the classroom and learning material that their peers will not learn until they reach college. Their dedication to chemistry and education is inspiring.

They endured a three-part, 4.5-hour exam consisting of a multiple choice section, a written problem solving section,



Students work on the lab practical portion of the USNCO Exam.

and a lab practical section.

Twenty of the nation's top scoring students will be invited to a two-week intensive study camp held in June at the US Air Force Academy in Colorado Springs, CO and only four students will move on to participate in the 46<sup>th</sup> International Chemistry Olympiad (ICO) in Hanoi, Vietnam. Those four students will represent the US team and compete among 60 other countries.

The Sacramento Chemistry Olympiad Coordinator, Dr. Makato

Masuno, mentions, "It's a great opportunity to see students so excited about science, especially at their age." Events such as this are a great reminder of the future of chemistry and Sacramento's contribution.

Varnell Crankfield (SCC) prepared the lab section of the exam and was more than glad to contribute to the cause.

We commend our Sacramento National competitors on their commitment to science and excellence and wish the best for them as they work towards becoming competitors in the 46<sup>th</sup> ICO.

## Food and Fanfare at UOP

By Bill Miller, ACS Sacramento Chair-Elect



Cao



Follmer



Watson



Lipshutz

The 65th Annual Meeting and Steak Barbecue at The University of the Pacific (UOP) continues to be a well attended event. After a chance to meet old and new friends over coffee and pastries, there were four awards presented to outstanding chemistry students at UOP.

Angelique Cao was the winner of the Fred and Marguerite Early Award for Undergraduate Research based on her research on "Structural Modification of a Macrocyclic Polyamine Ligand Cyclam" with Professor Qinliang Zhao. The awards for Outstanding Graduating Senior in Chemistry and Outstanding Graduating Senior in Biochemistry went to Alec Follmer and Amelia Watson, respectively. Noah Lipshutz received the Paul Gross Award for Achievement in Organic Chemistry. With it, Lipshutz received what might be the biggest book of organic chemistry reactions ever.

Overall, there were 18 American Chemical Society (ACS) certified Bachelor of Science students in Chemistry and Biochemistry graduating from UOP this year.

Ryan Moffet's talk entitled "A Chemist's View of Climate Change" was accessible to a general audience, presenting a general discussion of the data used to demonstrate the effects of humans on global climate. Then Moffet introduced his contributions to the topic of climate change related to the

atmosphere can actually cool the earth by reflecting sunlight back out of the atmosphere.

After Moffet's talk everyone enjoyed a delicious steak lunch outside in the courtyard of the Chemistry Building at UOP.

The sponsors of this event are the Sacramento Section



Attendees enjoy the steak BBQ at UOP.

measurement of aerosol particles. Moffet's work has identified the source of aerosol particles based on their chemical composition. In addition, Moffet discussed how particulate matter in the

of the ACS, the Chemistry Department of University of the Pacific, and the San Joaquin Valley Chapter of Sigma Xi, the Research Society.

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**SCC Earth Day**

members of the Chem Club would talk about the reactions involved and allow people to measure the voltage and current of the battery.

"It was a lot of fun to demonstrate that, by using just a lemon and some household products, you can provide enough energy to power something like a simple watch. That is something that



SCC Chem Club members (from left behind table) Matt Owen, Micah Bongo, and Nick Lawrence talk with students about Chemistry

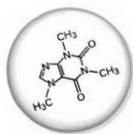
resonates with everyone, unless you never use electricity!", said chapter member Dan Gruber.

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## Contest Extended for A Month!

### Contest

ACS Sacramento Section  
Pin Design Contest  
Best Design wins \$100!



This competition is open to all members of the ACS Sacramento Section. The winning design will become the official pin for the ACS Sacramento Section.

All designs must be posted to the ACS Sacramento Local Section Facebook page (<https://www.facebook.com/groups/ACSSacLS/>) by 5:00pm on June 2nd.

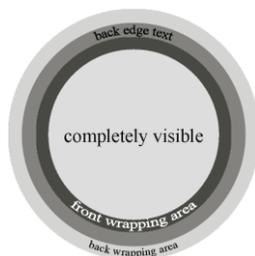
The text "ACS Sac" or "ACS Sacramento" must appear as part of the image.

Images should be 1 5/16 inch by 1 5/16 inch and full color. Of this space, a circle of 7/8 inch diameter will be visible on the button. A template is shown below.

Five finalists will be determined based on the highest number of likes for each design. From among the finalists, a winner will be chosen by the ACS Sacramento Executive Board.

The winner will be announced on the Facebook page and in a future edition of the newsletter. If you have any questions, email Bill Miller: [millerw@scc.losrios.edu](mailto:millerw@scc.losrios.edu).

Template:



## *Internships and Job Opportunities*

### **Apply Now for an NWRI Graduate Fellowship**

For the 2014-2015 academic year, NWRI is offering four different fellowship funding opportunities to graduate students at U.S. universities conducting research in the areas of water resources, treatment, and policy. The deadline for fellowship applications is **June 1, 2014**.

The available fellowships include:

**NWRI Fellowship** (two fellowships of \$7,500 a year for 2 years). Research must pertain to the following areas of interest in the water and wastewater fields: recycled water, treatment technologies, water and energy nexus, sustainability, exploratory research, desalination, and policy and regulation.

**Ronald B. Linsky Fellowship for Outstanding Water Research** (one fellowship of \$15,000 a year for 2 years). Research must pertain to interdisciplinary issues in water resources and public policy, planning, or economics. Research topics include, but are not limited to, water and energy nexus, public health and risk assessment, water policy and economics, and water resources management.

**NWRI-AMTA Fellowships for Membrane Technology** (two fellowships of \$10,000 a year for 2 years). Research must pertain to the advancement of membrane technologies in the water, wastewater, or water reuse industries. Funding is provided by the American Membrane Technology Association ([www.amtaorg.com](http://www.amtaorg.com)).

**NWRI-Southern California Salinity Coalition Fellowship** (one fellowship of \$10,000 a year for 2 years). Research must address the critical need to remove or reduce salts from water supplies and to preserve water resources in Southern California. This fellowship, which is funded by the Southern California Salinity Coalition ([www.socalsalinity.org](http://www.socalsalinity.org)), is limited to students at Southern California universities or colleges.

A total of 6 fellowships will be awarded. For more information, including the application process, please visit [www.nwri-usa.org/fellowship.htm](http://www.nwri-usa.org/fellowship.htm).

## *ACS National Meetings*

### **248th ACS National Meeting & Exposition**

**August 10-14, 2014 | San Francisco, CA • Chemistry & Global Stewardship**



[Check out the ACS Sacramento Facebook page for the latest events!](#)

**Sacramento Local Section of the American Chemical Society  
Travel Grant Application - ACS National Meeting (Fall 2014, San Francisco,  
CA)**

All materials due: July 18th, 2014 - 5:00PM to mafaust@sacacs.com

<b>Name</b>	
<b>College or University</b>	
<b>Graduate or Undergraduate</b>	
<b>Are you an ACS member? (yes or no)</b>	
<b>Are you an active member of a chemistry club? (yes or no)</b>	
<b>Have you submitted an abstract and been accepted to present at the ACS National Meeting (Fall 2014)</b>	

**Requirements:**

1. Must be currently enrolled as a graduate or undergraduate student.
2. Must have submitted an abstract **AND** been accepted to present at the 2014 Fall National meeting.
3. Must be a current ACS member **OR** an active member of a chemistry club.
4. Must be within the Sacramento Local Section (<http://webapps.acs.org/lslookup/>) region.

**Instructions:**

1. Complete this form and save it in .pdf format.
2. Include the three required additional materials\* listed below.
3. Send an e-mail to mafaust@sacacs.com (Subject: ACS Travel Grant - Fall 2014) with all attachments in .pdf format.

**\*Additional Materials:**

1. Current CV or resume
2. Letter of recommendation from your advisor/principal investigator
3. Submitted abstract
  1. Login to [abstracts.acs.org](http://abstracts.acs.org) and click "248th ACS National Meeting, San Francisco, CA". Next, click "Edit my abstract" then "Preview document". Save/export your submitted abstract as a .pdf and attach it in your completed application e-mail.

**Award Information:**

Two awards will be given in the amount of \$250 each (one to a graduate student and one to an undergraduate). These awards are sponsored by the **ACS Sacramento Local Section**. Checks will be handed out on site at the national meeting in San Francisco. You must be present to receive your award.

## 2014 Executive Committee and Members-at-Large

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Note: You do not have to be a current member of the American Chemical Society to subscribe to this list.