

# Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

Volume 37 No. 5

## MAY 2015 NEWSLETTER TOPICS

- A Presentation on Green Chemistry
- May Dinner Meeting
- Connect with Chemists
- Chair's Message
- Volunteer Opportunity! Enhance STEM Education!
- Councilor's Report – From the 249th ACS National Meeting
- More Meetings
- Lawrencium
- New Members for April
- Chemistry Quiz

## The Green Chemistry Movement

### Abstract

The May dinner meeting will take place on May 14th at the Biltmore. The presentation on Green Chemistry will be made by Neelam Vaidya who works at a startup company called ViridisChem. It is a software company based in San Jose, California with the mission to help scientists practice green chemistry by providing needed information throughout product development life-cycle.

### Connect with Chemists

Meet fellow local Chemists for an early morning coffee.

Look for Ean at a table with molecular models.

**Thursday, May 14 at 7:00 am**

Le Boulange, 151 University Avenue, Palo Alto

They are working on two products. Green Pocketbook full chemical, toxicological, and regulatory information of over 60 million compounds. Green Analyzer: uses a database of over 20 million pre-analyzed pharma-centric reactions, to assign technical and economical scores on alternate synthetic routes being considered. It also points out greener alternatives where possible. Following the talk, there will be a brief product demonstration.

### May Dinner Meeting

Date: **Thursday, May 14, 2015**  
 Time: 6:00 p.m. Social Hour  
 7:00 p.m. Dinner  
 8:00 p.m. Presentation  
 Speaker: Neelam Vaidya, ViridisChem  
 The Green Chemistry Movement  
 Location: Biltmore Hotel & Suites  
 2151 Laurelwood Boulevard  
 Santa Clara, CA  
 Cost: \$26.00, Teriyaki Beef or  
 Pasta Primavera  
 Reservations: [www.scvacs.org](http://www.scvacs.org)  
 Dr. Ashley Piekarski  
 Ashley@scvacs.org  
 Reservations should be made by May 11th stating your name, address, company/school affiliation, number of people in party. Watch the web site for more information. If you are unable to honor your reservation please cancel by Tuesday, May 12th.

## Chair's Message

Ashley Piekarski



So it is finally May, where in academia, the school year is generally wrapping up. As a faculty member, April is typically a difficult month to motivate students to keep moving forward especially after spring break. We call it "mid-semester depression" where it is difficult to see the light at the end of the tunnel so at times it may seem easier for students to just give up. It is this time that I reach out to my students and do my best to inspire and mentor them to keep persevering through the rest of the semester.

I teach an online organic chemistry course where my students watch my lectures online and see me twice a week in the laboratory. It is especially difficult to keep these students disciplined and motivated to keep up with the material and master it. Many of my students want to be doctors and engineers, it is rare that my students are taking organic

chemistry because it is their major. Therefore I periodically find motivational videos so they can be inspired to look at their overall educational goals. I found a TED talk by Angela Duckworth called "The key to success? Grit." You should look it up! I found it quite inspirational myself and a gentle reminder to think about how my students feel at this time. The overall message of her video basically states that it isn't about your IQ or talent that makes you successful in life and your career, it is your "grit". "Grit" as it states on Angela's website is: "the tendency to sustain interest in and effort toward very long-term goals". After watching the video and giving my students a self-evaluation assignment, many of my students had an eye-opening experience when it came to viewing their short-term goals and long-term goals. Many of them thought they were not smart enough to do well in my organic chemistry

class. They were only focused on their short-term goal: making an 'A' in my class. When they weren't making A's in my class, they got discouraged and saw their grades slipping. After showing them this video and giving them a talk about my own personal experience, many of my students have put more

*continued on next page*

*Chair's Message, continued from front page*  
effort into my class and I have seen a huge difference in their attitude and success in my course!

I feel this message is universal for all of us. Many of us in our own careers still hit bumps in the road. Whether you are starting up your own company, working at a larger company, writing research grants to get money, etc., we all know it is "grit" that gets us to achieve those goals.



## Volunteer Opportunity! Enhance STEM Education!

Teaching Opportunities for Partners in Science (TOPS) of Santa Clara Valley is looking for scientists and engineers who are willing to partner with science teachers to enhance the science curriculums of grades K-8 in the Santa Clara Valley. It's a program that promotes in-depth relationships of a volunteer with a science teacher in his/her class to amplify labs, present experiments and demonstrations, and assist students. The program provides students with an opportunity to learn from scientists' real-world experience. It offers a chance to stimulate the student's interest in pursuing a career in science or engineering. To find out more, go to the TOPS website: [www.topsofscv.org](http://www.topsofscv.org)

## Councilor's Report – From the 249th ACS National Meeting

Denver, Colorado – March, 2015, by George Lechner

Our councilors attended the Division VI Caucus on Sunday and gave reports on the various committees they participated on: George Lechner – Com. on Chemical Health and Safety, Ean Warren – Women Chemists Com., Herb Silber – Com. on Membership Affairs, Howard Peters – Com. On Patents and Related Matters, Sally Peters – Com. On Community Activities, Peter Rusch – Com. On Nomenclature, Technology and Symbols.

There was much concern among many of the attendees about the weather in March in Colorado. But the concern was unfounded. It was absolutely beautiful until Wednesday at 10:00 a.m. when it snowed furiously for an hour! An ACS Board of Directors' member from Boston promised a councilor that the snow currently in Boston will be gone in time for the August 250th ACS Meeting scheduled for there!

At the ACS Denver meeting in March, I attended sub-committee and committee meetings of the Council Committee on Chemical Safety (CCS), along with some duty time at the CHAS/CCS booth in the exhibit hall. I also attended the Western Caucus and ACS Council meetings as well as the evening reception hosted by the Division of Chemistry and the Law and the Division of Chemical Health and Safety.

During a weekend retreat in September, 2014, the CCS developed a new mission statement and reorganized its sub-committee structure. The committee's focus continues, of course, to be placed on the safety of students,

faculty and facilities in the development of safe practices, safety culture, etc., in the chemistry enterprise.

**CCS Mission Statement – October, 2014 – To promote and advance a positive safety culture by providing authoritative resources.**

**CCS Vision Statement – October, 2014 – A culture that results in all chemical practitioners working safely.**

During the Denver meetings, CCS meeting attendees discussed the results of the September retreat and the sub-committees spent much time in developing and refining their individual mission and vision statements that will further the mission and vision of the committee at large and the ACS.

### ACS Council

- The ACS Council selected two candidates for ACS President-Elect from a group of four who had been nominated by the Committee on Nominations and Elections. They are Bryan Balazs from the California Section and Allison Campbell from the Richland (Washington) Section.
- The Council voted to set the member dues for 2016 at the fully escalated rate of \$162.
- The Council approved the establishment of two international ACS chapters: India International Chemical Sciences Chapter and Taiwan International Sciences Chapter.
- The Council announced the attendance (Total 13,940) at the Denver meeting: Attendees-7,307; Students- 5,141; Exhibitors-847; Expo Only-360; Guests-285.

- Additional information about the Council can be found in the March 2015 edition of the Councilor Bulletin: [www.acs.org/content/dam/acsorg/about/governance/councilors/councilor-bulletin-march2015.pdf](http://www.acs.org/content/dam/acsorg/about/governance/councilors/councilor-bulletin-march2015.pdf)

Below is a listing of a variety of resources accessible on the ACS-CCS website:

[www.acs.org/safety](http://www.acs.org/safety)

### White Papers and Policy Statements

- Labpack Land Disposal Restriction comments to USEPA, 2014
- Regulation of Laboratory Waste
- Letter to NIOSH from CCS regarding contact lens policy

### Workplace Safety

- Chemical Safety Manual for Small Businesses
- Safety Audit/Inspection Manual

### Laboratory Safety

- Creating Safety Cultures in Academic Institutions
- Identifying and Evaluating Hazards in Research Laboratories
- Less Is Better



### From the Onsite Career Fair at the 2015 ACS National Meeting

Job Seekers: 715

Employers: 27

Available Positions: 85

Mock interviews conducted: 218

Résumé reviews conducted: 368

Career workshops conducted: 23

## Future Meetings

The 19th annual **Green Chemistry and Engineering Conference** takes place in North Bethesda, Maryland on July 14th–16th, 2015. The largest convergence of science, business, government, and students seeking sustainable alternatives through green chemistry and engineering comes together every year at the Green Chemistry and Engineering conference. [www.gcande.org](http://www.gcande.org)

The 250th **ACS National Meeting and Exposition** will take place in Boston, MA, August 16 - 20, 2015. The theme of the meeting will be Innovation from Discovery to Application. Registration and accommodations open in mid-May. [www.acs.org/content/acs/en/meetings/fall-2015.html](http://www.acs.org/content/acs/en/meetings/fall-2015.html)

**Pacifichem** will occur on December 15th–20th in Honolulu, HI. The theme of Pacifichem 2015 is Chemical Networking: Building Bridges Across the Pacific, emphasizing the collaborative nature of chemistry as a multidisciplinary science and the opportunities to network with Pan-Pacific research groups at the Pacifichem meetings. The conference is sponsored jointly by the American Chemical Society (ACS), the

Canadian Society for Chemistry (CSC), the Chemical Society of Japan (CSJ), the New Zealand Institute of Chemistry (NZIC), the Royal Australian Chemical Institute (RACI), the Korean Chemical Society (KCS), and the Chinese Chemical Society (CCS). The American Chemical Society is the host society for the 2015 Congress. [www.pacifichem.org](http://www.pacifichem.org)

## ❖ ❖ ❖ Lawrencium

Researchers have successfully measured the first ionization energy of lawrencium, the last of the actinides. Lawrencium is named after Ernest Lawrence, inventor of the cyclotron and namesake of Lawrence Berkeley National Laboratory. The element was discovered at Berkeley by the nuclear-physics team of Albert Ghiorso, Torbjørn Sikkeland, Almon Larsh, Robert M. Latimer, and their co-workers on February 14, 1961.

Compared with lighter members of the periodic table, the large nuclear charge for elements in rows six and seven causes their orbiting electrons to move faster. The speeding electrons generate relativistic effects that alter orbital energy levels. Incorporat-

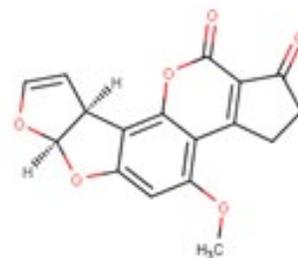
ing relativistic effects led theoreticians to propose an ground-state electronic configuration of  $[\text{Rn}]5f^{14}7s^27p_{1/2}^1$  rather than the  $[\text{Rn}]5f^{14}6d^{17}s^2$  configuration expected from the Aufbau principle and the known configuration of the preceding member of the period, lutetium.

Determining first ionization energies experimentally helps researchers understand relativistic effects theoretically. Unfortunately, the heavy elements with the greatest effects are also the most difficult to study because these elements can only be created through fusion reactions at heavy-ion accelerators and have short half-lives.

Lawrencium is now the heaviest element to have its first ionization energy determined experimentally. An international team led by Tetsuya K. Sato and Yuichiro Nagame of the Japan Atomic Energy Agency fired a  $^{11}\text{B}$  beam at a  $^{249}\text{Cf}$  target to produce  $^{256}\text{Lr}$ , which has a half-life of 27 seconds.

Sato, Nagame, and colleagues found that lawrencium's first ionization energy is 4.96 eV, similar to those for group 1 of the periodic table. The predicted electronic configuration of Lr is  $[\text{Rn}]5f^{14}7s^27p_{1/2}^1$ . The energies of p orbitals are split from relativistic effects. (*Nature* 2015, 520, 209-211, DOI: 10.1038/nature14342).

## ❖ ❖ ❖ Chemistry Quiz



This molecule is arguably the most potent carcinogen known, and is up to twice as carcinogenic as an equitoxic dose of X-rays. It is a natural product produced by *Aspergillus flavus* and *Aspergillus parasiticus* sometimes found on moldy peanuts. What is the name of this molecule?

### Last Month's Question:

This graduate of NYU and Columbia was the first African-American woman to receive a Ph.D. in chemistry in the United States in 1947. Her dissertation addressed "A Study of the Products Formed by the Action of Pancreatic Amylase on Corn Starch." What was her name?

**Answer:** Marie Maynard Daly

## 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 April

John Abdou	Jacob Latone	Adrian Riives
Dr. Steven G. Ballmer	Carmen Lau	Dr. Alberto Salles
Dara Bobb-Semple	Dr. Cheng Xue Li	Barbara Scheer
Dr. Sherwood Chang	Dr. Milana Lisunova	Yoshiaki Tazaki
Po-Wen Chung	Ke Liu	Nathan Wilkie
Scott Fendorf	Ms. Diana Lok	Dr. Bai Xu
Mariana Guillen	Oana Teodora Marisca	Bo Yang
Dr. Ned Hardman	Katherine Rose Matasci	Dr. Vlad Zabruskov
Dr. Michael A. Ischay	Derek Popple	
Gert Kiss	Dante Quilici	



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

Visit our web site at:



<http://www.scvacs.org>

To receive an email when our newsletter  
is published on our web site, sign up at:  
<http://www.scvacs.org/newsletter/>

## SANTA CLARA VALLEY SECTION

### 2015 Section Officers

Chair	Ashley Piekarski	408-855-5269	<a href="mailto:ashley@scvacs.org">ashley@scvacs.org</a>
Chair Elect	Jane Frommer	408-927-2224	<a href="mailto:frommer@scvacs.org">frommer@scvacs.org</a>
Past Chair	Ean Warren	650-329-4554	<a href="mailto:ewarren@scvacs.org">ewarren@scvacs.org</a>
Secretary	Karl Marhenke	831-688-4959	<a href="mailto:karlmar@armory.com">karlmar@armory.com</a>
Treasurer	Ihab Darwish	650-594-1654	<a href="mailto:darwishis@yahoo.com">darwishis@yahoo.com</a>

### Councilors

2013-2015	Linda Brunauer	408-554-6947	<a href="mailto:lbrunauer@scu.edu">lbrunauer@scu.edu</a>
2013-2015	Sally Peters	650-812-4994	<a href="mailto:sallybrownpeters@gmail.com">sallybrownpeters@gmail.com</a>
2013-2015	Peter Rusch	650-961-8120	<a href="mailto:pfrusch@aol.com">pfrusch@aol.com</a>
2014-2016	George Lechner	408-226-7262	<a href="mailto:glechner@aol.com">glechner@aol.com</a>
2014-2016	Herb Silber	408-924-4954	<a href="mailto:hbsilber@science.sjsu.edu">hbsilber@science.sjsu.edu</a>
2015-2017	Abby Kennedy	209-640-2005	<a href="mailto:akennedycali2007@yahoo.com">akennedycali2007@yahoo.com</a>
2015-2017	Ean Warren	650-329-4554	<a href="mailto:ewarren@scvacs.org">ewarren@scvacs.org</a>

### Alternate Councilors

2013-2015	Stephanie Bachmann	408-429-9681	<a href="mailto:s_gehling@hotmail.com">s_gehling@hotmail.com</a>
2013-2015	Lois Durham	650-322-3507	<a href="mailto:ldurham9398@gmail.com">ldurham9398@gmail.com</a>
2013-2015	Natalie McClure	650-906-7831	<a href="mailto:nmclure@drugregulatoryaffairs.com">nmclure@drugregulatoryaffairs.com</a>
2014-2016	Mark Kent	408-736-0989	<a href="mailto:marklent@yahoo.com">marklent@yahoo.com</a>
2015-2016	Howard Peters	650-854-4614	<a href="mailto:peters4pa@sbcglobal.net">peters4pa@sbcglobal.net</a>
2015-2017	David Parker	408-615-4961	<a href="mailto:drrparker@comcast.net">drrparker@comcast.net</a>
2015-2017	Ashley Piekarski	408-855-5269	<a href="mailto:ashley@scvacs.org">ashley@scvacs.org</a>

### Newsletter

Editor	Kevin Greenman	408-634-2309	<a href="mailto:kevin.greenman@gmail.com">kevin.greenman@gmail.com</a>
Assoc. Editor	Partha P. Bera		<a href="mailto:partha.pb@gmail.com">partha.pb@gmail.com</a>

### ChemPloyment Abstracts

Director:	Liang Cao	<a href="mailto:liang.cao@aol.com">liang.cao@aol.com</a>
-----------	-----------	--

## FUTURE MEETINGS

- May 14** SCVACS Monthly Meeting  
The Green Chemistry Movement  
Biltmore Hotels & Suites  
Santa Clara, CA
- May 16** Maker Faire  
San Mateo County Event Center  
[www.makerfaire.com/#](http://www.makerfaire.com/#)
- May 31** Marsh and Beach Exploration  
Marine Science Institute  
Redwood City, CA  
[www.sfbaymsi.org/events.html](http://www.sfbaymsi.org/events.html)
- Jun 11** June LASER Event  
Stanford University  
[www.scaruffi.com/leonardo/jun2015.html](http://www.scaruffi.com/leonardo/jun2015.html)
- Jun 13** 5th annual, Green Kids Conference  
Microsoft Silicon Valley Campus  
[www.greenkidsconference.org](http://www.greenkidsconference.org)
- Jun 21-24** Northwest Regional Meeting (NORM)  
Pocatello, Idaho
- Jun 22** SCVACS Monthly Meeting  
Michael's at Shoreline  
Mountain View, CA
- Jul 11** Annual Wine Tasting, Family Picnic,  
and Awards Ceremony  
Stanford Chemistry Department