

Silicon Valley Chemist

Silicon Valley Section

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JANUARY 2019 NEWSLETTER TOPICS

- SVACS Harry and Carol Mosher Award
- Connect with Chemists
- Chair's Message
- New Section Bylaws are Approved
- Younger Chemists Update: What We've Been Up To in 2018
- Local Science Fairs in 2019
- SVACS ExComm 2019!
- Chemistry Quiz
- New SVACS Members
- Nominations Needed for Shirley B. Radding Award
- Chememployment Abstracts
- Sidney Harris' Cartoon

Connect with Chemists

An early morning chat with fellow chemists

Thursday, January 17, 2019, at 7 a.m.

Coupa Café, 538 Ramona Street, Palo Alto
 Contact Ean Warren (ewarren@scvacs.org)
 for more information or ask for ACS at Coupa.

Chair's Message

Grace Baysinger



I look forward to serving as Chair of the ACS Silicon Valley Section. My academic background includes an A.S. from Kalamazoo Valley Community College in Michigan, and a B.S. in Botany as well as a M.S. in Library Science from the University of Michigan in Ann Arbor. I decided to combine several interests when choosing a career path as a librarian: science, research, and working directly with researchers and

Abstract

The central theme of my group's research is the development of new synthetic methods and their application to the synthesis of organic molecules. One of our objectives is to expand and improve the installation of boron into organic substructures through the development of reagents such as bis-boronic acid, and to expand Suzuki coupling reactions of organoboron compounds. In this regard, robust, air- and water-stable potassium organotrifluoroborates, are employed to carry out couplings under relatively mild conditions using non-toxic components. The group has recently developed an alternative mechanistic paradigm for cross-coupling using a double metal-catalyzed photoredox process, and we are also employing organotrifluoroborates as precursors to a variety of novel borazines.

students. My professional work experience includes working five years at Michigan's Natural Sciences Library followed by five years as Head of Michigan's Chemistry Library. For the past 29 years, I have been the Chemistry and Chemical Engineering Librarian at Stanford, and for five of those years I was also the Head of the Science and Engineering Libraries Resource Group. Currently, I am serving on advisory boards for several publishers: *Journal of Chemical Education*, *CRC Handbook of Chemistry and Physics*, and *Science of Synthesis*. I am one of four co-editors working on a 4th edition of the *ACS Style Guide* which is scheduled for publication late in 2019. Most of my ACS contributions were at the national level as Chair of the Chemical

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SVACS Harry and Carol Mosher Award

Single Electron Processes Enabling Organic Synthesis

Professor Gary Molander



Unique polyfluorinated organoborons are being developed.

In traditional cross-coupling reactions, a three-step catalytic cycle mechanistically based on 2-electron processes is employed: oxidative addition of a halide at Pd⁰ or Ni⁰, transmetalation of an organometallic nucleophile with

the oxidative addition intermediate, and reductive elimination, which releases the coupled product and regenerates the Pd⁰ or Ni⁰ catalyst. Although such methods are highly effective for C_{sp2}-C_{sp2} coupling, extension to 2° and 3° C_{sp3}-hybridized organoboron reagents in particular has proven challenging owing primarily to lower rates of transmetalation, which is rate limiting in many alkyl metallic cross-coupling protocols operating under the traditional mechanistic manifold. To date, strategies aimed at facilitating the transmetalation of C_{sp3} cross-coupling reactions with functional group-tolerant organo-

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Mosher Award Dinner Seminar

Date: Thursday, January 24, 2019

Time: 6:00-9:00 pm

Speaker: Dr. Gary Molander
 Hirschmann Makineni
 Professor and Chair,
 Department of Chemistry,
 University of Pennsylvania

Location: MacArthur Park Restaurant
 27 University Avenue
 Palo Alto, CA

Reservation: visit our website at
www.svacs.org

Mosher Award, continued from front page

boron or organosilicon reagents employ harsh reaction conditions. Described is a novel, single electron mechanistic paradigm for cross-coupling that avoids this problem. Dual catalytic cycles are established: a photoredox catalytic cycle, generating radicals from appropriate precursors, and a cross-coupling catalytic cycle that funnels these radicals into a base metal catalytic cycle that effects the cross-coupling. The nature of the cross-coupling cycle, in which high-energy radical intermediates engage the cross-coupling catalyst, insures a cascade of low energy events leading to product, avoiding the high energy of activation associated with previous cross-coupling protocols.

Our efforts to develop a suite of radical precursors for cross-coupling with a variety of electrophiles will be described, emphasizing the tolerability of the developed conditions to an unprecedented array of functional groups. The value of generating radicals in a process that is synchronized and catalytic will be emphasized, both in dual catalyzed processes and in radical/polar crossover processes where a subsequent catalytic transformation is not utilized. Finally, applications to DNA-encoded library synthesis will be presented.

Biography

Gary Molander is Hirschmann Makineni Professor and Chair, Department of Chemistry, University of Pennsylvania.

Professor Molander received his B.S. degree in chemistry from Iowa State University under the tutelage of Richard C. Larock and his Ph.D. with Herbert C. Brown at Purdue University. After a postdoctoral stint at the University of Wisconsin, Madison, with Barry M. Trost, he began his independent career as an assistant professor at the University of Colorado, Boulder, rising through the ranks to professor before moving to the University of Pennsylvania, where he served as Chair from 2009 to 2018. His research interests are in the development of new synthetic methods for organic synthesis, particularly in the invention of transition metal-catalyzed protocols for the construction of carbon-carbon bonds.

He has won numerous awards for his research, including the American Chemical Society Herbert C. Brown Award for Creative Research in Synthetic Methods. He currently serves in editorial roles at *Organic Letters*, *Organic Reactions*, and at Thieme with *Science of Synthesis*. He has been an active member of the Division of Organic

Chemistry of the American Chemical Society, serving as Member-at-Large of the Executive Committee, Secretary-Treasurer, and Chair of the Division. He was also the Executive Officer of the National Organic Symposium, and currently serves as one of the co-chairs of the Division of Organic Chemistry Graduate Research Symposium, and was elected a Fellow of the American Chemical Society.

Chair's Message, continued from front page

Information Division, the ACS Publications Committee, and the ACS Chemical Abstracts Service Committee. For the past two years, I have been active in the SV Section, serving on the Program Committee. As Chair of the SV Section, I will bring a love of science, especially chemistry; a strong interest in access and discovery of information; and a desire to help share information about services and activities offered by ACS to SV Members.

The Silicon Valley Section is a vibrant hub of activities. This past year, dinner meetings and outreach events offered an array of choices for local ACS members. No Belles theatre performance was held at four campuses in the SV Section. In November, a 2nd home beer brewing contest was organized by SV Young and Senior Chemists. The first beer brewing contest was recognized with an **ACS ChemLuminary Award in 2018**. Internal SV Section work included revising the mission statement, revising the By-Laws, officially changing the name of the Section from Santa Clara Valley to Silicon Valley, migrating and

updating the website, revising the operations manual, and producing monthly newsletters. These accomplishments were possible due to the dedication, knowledge, and efforts of many members, especially those on the Executive Committee. However, we need more volunteers for Local Section activities. Please contact me if you are interested in becoming more active.

As you may know, 2019 marks the 150th anniversary of the publication of Mendeleev's Periodic Table of the Elements. In celebration of this important milestone, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), officially proclaimed 2019 as "The United Nations International Year of the Periodic Table of Elements" or "IYPT 2019." ACS and chemical societies around the world will be celebrating throughout the year. IYPT celebrations will include contests, technical programming, themed gifts and giveaways, public engagement campaigns, and more. See: <https://www.iypt2019.org/>

Stay tuned for more information about IYPT 2019 and for information resources about the Periodic Table on the **SVACS website**, **SVACS Facebook page**, the **SVACS twitter account**, and in the **SV Section's Newsletter**.

Best wishes and Happy New Year!

Grace Baysinger
ACS Fellow 2017

graceb@stanford.edu
<https://profiles.stanford.edu/grace-baysinger>

New Section Bylaws are Approved

George Lechner, Councilor, Chair of Bylaws Committee

Our amended Silicon Valley Section bylaws were approved during the election in November by a 94.6% approval of the voting members. The ACS Committee on Constitution and Bylaws (C&B) certified the vote on December 11, 2018.

The amendments are summarized as follows:

- The terms of Secretary and Treasurer were changed from one year to two years. Each position will be voted on alternately starting with the next election in November, 2019, i.e., one position for one year and the other for two years (flip a coin for who goes first), then alternating each year for two-year terms thereafter.
- Streamlined the process for nominating a candidate for office by petition.
- Established five Standing Committees: Nomination, Bylaws and Policies, Budget and Finance, Program, and Awards.
- Clarified language in filling vacancies on the Executive Committee.
- Adopted various changes recommended by ACS C&B that included rearranging and changing the numbers of the bylaws' sections, formatting, fonts, spacing and clarification of language in several bylaws.

If you want to see and review the new bylaws, go to the Section's website, <http://svacs.org>, and select "Bylaws" near the bottom of the column on the right side of the opening page.

Younger Chemists Update: What We've Been Up To in 2018

As the year comes to an end, it is a good time to review and report on the Younger Chemist Committee (YCC) events held in 2018. The Silicon Valley YCC hosted two well-attended speed-networking events at San Jose State University and Santa Clara University as well as our second annual home brew competition.

Local professionals volunteered to attend our speed networking events where undergraduates from the two universities were able to network and learn about career opportunities after college. A variety of companies were represented by the participating professionals ranging from local startups like AscuelaTech and Natron Energy to large global companies like Applied Materials, Apple, IBM, and Roche. The round-robin format was especially popular with the participants since it allowed everyone to interact with one another for at least five minutes. We received very positive feedback regarding these initial YCC networking events, and we plan to host another round in 2019. Any students or professionals interested in participating are encouraged to con-

tact [Matt Greaney \(YCC Chair\)](#) or any other member of the SVACS Executive Committee.

Our 2018 efforts were not entirely focused



Students and professional volunteers engaged in career-related discussions at the YCC speed-networking events held at Santa Clara University (top) and San Jose University (bottom).

on career-related events. The joint Senior Chemists-Younger Chemists Home Brew Competition held in 2017 was so popular that we brought it back in 2018. This year's event was very well-attended with over 75 participants enjoying 16 home brews from 10 home brewers. Our generous hosts at Golden State Brewery in Santa Clara again agreed to support the scale-up of the Judges' Choice and People's Choice winners. Joel Bruegger took home the Judges' Choice Award with his Snowy Haze New England IPA while David Wilson received the People's Choice Award with his Mango Weisse Catharina Sour Ale. Both winners have already been working with the brewery owners on the logistics for 800-gallon batch scale – ups slated for February 2019. We will hold another release party for these brews in Spring 2019. Stay tuned for updates and announcements in our newsletter and website.

All and all, 2018 was a busy and rewarding year. We have several YCC events in planning for 2019 including chemistry-related escape rooms, additional speed-networking events, the home brew release party, and more. Anyone interested in participating in the SVACS YCC is encouraged to reach out to [Matt Greaney](#) or anyone else on the Executive Committee. Our local section YCC offers a great platform for expanding your professional and social network as well as engaging with like-minded scientists in the Bay Area. There is no requirement for participating in the YCC other than an interest in seeing what we're about. We hope to see you in 2019!

Matt Greaney is the Chair of the SVACS YCC and a Councilor (2017-2019) on the Executive Committee. He is also the 2019 SVACS Chair-Elect. Please contact him at greaney19@gmail.com with any questions, requests, or general comments.



Matt Greaney (YCC Chair) and Grace Baysinger (SVACS Chair, 2019) pose with at the judges table with judges George Lechner (Councilor), Terry, and Jim.

Local Science Fairs in 2019

by Susan Oldham-Fritts

Haven't decided on a New year's resolution yet? How about encouraging middle and high school students to participate in the world of STEM – science, engineering, math, and science? It takes just one day of your time to judge at your local science fair. The following area science fairs need category awards judges, especially in the areas of botany, biology, chemistry, microbiology, and behavioral science. In addition, we need more chemists March 14, 2019, on our SVACS sponsored special awards judging team at the Santa Clara County science fair, the Synopsys Championship. The latter is a qualifier for the International Science and Engineering Fair, ISEF.

Please contact me at solfritts@gmail.com to join our team of dedicated chemists at the South Valley Science and Engineering Fair on January 17 and the Synopsys Championship on March 14.

No matter which fair is close to home, please volunteer now!

South Valley Science Fair* Britton Middle School, Morgan Hill

January 17 svsefng@gmail.com, www.svsef.net

Sciencepalooza* Santa Clara County Fairgrounds

February 2 www.outreach-foundation.org/judges/

Santa Cruz County Fair Santa Cruz County Fair Grounds

March 2 http://www.science.santacruz.k12.ca.us/judges_registration_new.html

San Mateo County Science, Math, & Technology Fair San Mateo Events Center, Fiesta Pavilion

March 3 <https://www.stemfair.net/app/signup/judges>

Synopsys Championship San Jose Convention Center

March 14 <https://science-fair.org/judges-3/category-judges/judging-registration/>

Monterey County Science & Engineering Fair California State University, Monterey Bay,

University Center, Bldg. 29 March 16 www.montereycountysciencefair.info

Golden Gate STEM Fair San Francisco County Fair Bldg., 9th & Lincoln, Golden Gate Park

March 23 <http://sfbasf.org>

Many students at these competitions are first time science fair participants.

SVACS ExComm 2019!

The 2018 Section elections and ballot were conducted online from November 1 to November 25, 2018 to elect new ExComm members starting in 2019. SVACS members received by e-mail (or postcard, for those without an e-mail address) a log in and a unique password for one-time use, to prevent multiple ballots from a given voter. Voting could be done from any computer with internet access.

The VoteNow election service package we used included electronic reminders to vote and a postcard mailing to members without e-mail addresses. Included on the postcard were directions for obtaining a paper ballot if the member desired, so no one was disenfranchised (one of ACS's strict requirements for an e-election). The voting proceeded without any glitches.

Turnout was around 8.8% of the electorate: 246 members cast votes in 2018 vs. 292 in 2017). The vote tallies were withheld from members during voting, of course, but were

made available after 11:59 pm on the last day of voting. Results were certified by VoteNow and circulated to the ExComm by email.

Those successfully elected/re-elected were notified by email also.

The election results:

Chair-elect: **Matt Greaney**

Secretary: **Jigisha Shah**, elected unopposed

Treasurer: **Ihab Darwish**, elected unopposed

Councilors (3):

Linda Brunauer, Jane Frommer, Sally Peters

(3-year terms, 2019 – 2021)

Alternate Councilors (4):

Laura Yeager, Sogol Teschler, John Goeltz

(3-year terms, 2019 – 2021); and

Dave Parker (1-year term)

Bylaws amendments were approved by 94.6% of the voting membership. The final copies of bylaws were sent to the ByLaws Committee of ACS National and certified on December 11, 2018.

Congratulations to the re-elected and newly-elected Section officers, Councilors, and Alternate Councilors!

If you think you would be interested in becoming a member of Silicon Valley ACS's Executive Committee (ExComm), attend our monthly open meetings and get to know how we operate. We encourage participation by all in our leadership meetings – come join us! For meeting times and place:

http://svacs.org/?page_id=222

Welcome to the Silicon 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 friend will be our guests. The seminar meetings are held at a number of local venues. If you are unable to attend in the evening, perhaps you would join us for an outreach event, like judging a science fair, proctoring the Chemistry Olympiad or participating in 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 SVACS Members

John Abendroth	Dr. Sergei Gulnik	Karen Faith Schmidt
Sputri Umesh Akki	Xuanrong Guo	Laura Schwarz
Roberto Amado Alvelais	Thomas Harrelson	Michael J. Scott
Jianming Bao	Dr. Kevin Hays	Dr. Judy Straub
Carla Becker	Dr. Elizabeth Hegarty	Tyler Takeshita
Sarah Hannah Berger	Edward Hohenstein	Grace Y. Tang
Sean Bolton	Dr. Ian W. Jones	Sylvie Thomas-Droz
Brian Brown	Belinda Lowe-schmahl	Matt Trask
Dr. Alexander J. Burkle	Bryan Machmeier	Dr. Maria-Nefeli Tsaloglou
Liu Qi Chen	Alexander James Maertens	Samuel James Underwood
Hao Chi	Patrick Martin	An Tam Vu
Dr. Catherine Ciesla	Katarzyna Magdalena Maziarz	Mariya Vyushkova
Dr. Kevin Michael Clark	John Morrow	Michael A. Walker
Sean Copley	Erin O'Brien	Zhen Qian Wallis
Jasmine Corbin	Victoria Oswald	Chao Wang
Nathan Dias	David Passmore	Wenyi Wang
Shalini D'Souza	Dr. Ram Rakshpal	Ean Warren
Benjamin Paul Friedman	Jillian Marie Romsdahl	Zongkai Wu
Ana Garcia-Garcia	Dr. Mark D. Rosen	Dr. Jason Robert Zbieg
Sarthak Gaur	Dr. Jeremy Sanborn	Jingyi Zhu
James Huttor Gogovie		

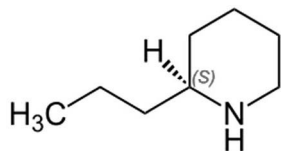
Chemistry Quiz

This mixture of sulfur, carbon, and saltpeter (potassium nitrate) invented in 9th-century China was originally called huoyao (fire medicine). What is this mixture more commonly known as?

The answer will appear in next month's newsletter.

Last Month's Chemistry Quiz

Hemlock (*Conium maculatum*) contains toxic piperidine alkaloids, such as (S)-coniine



What is the molecular target of these alkaloids responsible for toxicity in humans?

Conium alkaloids generally cause muscular paralysis by blocking the nicotinic receptor on the post-synaptic membrane of the neuromuscular junction

The Silicon Valley ACS Awards Committee invites you to Submit Nominations for the:

Shirley B. Radding Award



Since 1994, the award has been given annually to an individual who exemplifies the following:

- Been a member of the ACS \geq 20 years.
- Demonstrated dedicated service & leadership to ACS & members through elected or appointed positions at local, regional and national levels over a sustained period of time.
- Made significant contributions to industrial, applied or academic chemistry.

The award consists of an honorarium of \$1000.00 and an engraved plaque. For each candidate, submit \geq 1 letter of nomination relating the nominee's work to award criteria to Heddie Nichols (nichols@scvacs.org) by May 1.

CHEMPLOYMENT ABSTRACTS

CHEMPLOYMENT ABSTRACT 4005

Position Title: Inclusive Excellence Postdoctoral Fellow

Job Description: Duties include but are not limited to:

A. The postdoc's research project, supported through NIH and NSF grants, will be the development a microfluidic device for the the sorting and analysis of single cells for cancer research in Dr. Paul Abbyad's Lab. The postdoc will teach a quarter-long undergraduate lecture and lab (or equivalent load) in the Chemistry/Biochemistry Department each year and would mentor undergraduates in the research lab.

B. Fulfilling all responsibilities associated with assigned course.

Specific responsibilities are posted at <https://jobs.scu.edu/postings/7940/>

C. Starting Date: Early 2019

QUALIFICATIONS DESIRED:

Education: Ph.D. in chemistry and biochemistry or closely allied field

Experience: Experience in microfabrication, microfluidics and microscopy Strong commitment to teaching and undergraduate research

LOCATION, SALARY, EMPLOYER:

Job Location: Santa Clara, CA

Salary: \$57,000 annual salary; benefits eligible; sponsorship for work visa application; housing assistance

Description: Santa Clara University is a comprehensive Jesuit, Catholic university located in California's Silicon Valley with an ACS-approved undergraduate program. It is an EO/AA employer committed to excellence through diversity, and welcomes applications from women, persons of color, and members of historically underrepresented groups.

Application Instructions: Submit your application on <https://jobs.scu.edu/postings/7940>

Sidney Harris' Cartoon



"I'M ATTEMPTING TO TRANSMUTE CALCIUM OXIDE, COPPER GLUCONATE, MANGANESE SULFATE, TYROSINE AND BENZALDEHYDE INTO CONDENSED SOUP."

It's fun to enjoy Sidney Harris' cartoons at their most basic level. But Harris's cartoons typically include several levels of humor that are particularly relished by "insiders." Regarding the chemicals mentioned in this cartoon, Harris "think[s] these actually are from canned soup. Maybe more than one. Generally I make up names that I don't even know exist. Once I had an equation in a cartoon for the New Yorker, and they wanted me to assure them that it was gibberish. If it wasn't, they said they'd get a lot of angry and critical mail."



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



To receive an email when our newsletter
is published on our web site, sign up at:

<http://svacs.org>

SILICON VALLEY SECTION

2019 Section Officers

Chair	Grace Baysinger	650-725-1039	graceb@stanford.edu
Chair-Elect	Matt Greaney	510-410-0195	greaney19@gmail.com
Past Chair	Melody Esfandiari	408-924-4973	melody.esfandiari@sjsu.edu
Secretary	Jigisha Shah	315-289-5115	jssheth@syr.edu
Treasurer	Ihab Darwish	650-624-1389	darwishis@yahoo.com

Councilors

2017-2019	George Lechner	408-226-7262	glechner@aol.com
2017-2019	Matt Greaney	510-410-0195	greaney19@gmail.com
2018-2020	Ean Warren	650-714-5133	ewarren@scvacs.org
2018-2020	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com
2019-2021	Linda Brunauer	408-554-6947	lbrunauer@scu.edu
2019-2021	Jane Frommer	408-927-2225	jane@collabra.net
2019-2021	Sally Peters	650-447-3027	sallybrownpeters@gmail.com

Alternate Councilors

2017-2019	Elizabeth Migicovsky	408-924-5012	elizabeth.migicovsky@sjsu.edu
2018-2020	Madalyn Radlauer	408-924-5482	madalyn.radlauer@sjsu.edu
2019-2019	Dave Parker	408-605-2116	drdparker@gmail.com
2019-2021	Laura Yeager	626-826-3145	lyeager@apple.com
2019-2021	Sogol Teschler	408-896-2367	sgyahyazadeh@gmail.com
2019-2021	John Goeltz	831-582-4661	jgoeltz@csumb.edu

Newsletter

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ChemPloyment Abstracts

Director:	Liang Cao	liang.cao@aol.com
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FUTURE EVENTS 2019

- Jan 24** SVACS Harry and Carol Mosher Award
Single Electron Processes Enabling
Organic Synthesis
Professor Gary Molander
University of Pennsylvania
MacArthur Park Restaurant, Palo Alto, CA
- Feb 28** SVACS Community College Teacher-Scholar
Award ceremony and reception honoring
Dr. Kathleen Armstrong
Foothill College, Los Altos Hills, CA
- Mar 31** ACS National Meeting
– **Apr 4** “Chemistry for New Frontiers”
Orlando, FL
- Apr 18** Dr. Bonnie Charpentier
President of the American Chemical Society
and active member of our local section
Basque Cultural Center, South San Francisco
- Apr 21-27** Chemists Celebrate Earth Week
SVACS outreach events
“Take Note: The Chemistry of Paper”
Location TBD

Click on links for more information or
see this newsletter at <http://svacs.org>