October 2018 Newsletter

American Chemical Society

Volume 40 No. 10

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#### Connect with Chemists

An early morning chat with fellow chemists Thursday, October 18, 2018, 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**

Melody Esfandiari



Fall is officially here even if the iPhone calendar doesn't mark the change of the season. But we don't need a calendar to know it's Fall as Starbucks

drinks tend to mark the seasons for us pretty well. When I walked into Starbucks a few days ago, I was offered to try a pumpkin spice latte; that is when I knew summer was

**ROSALYN YALOW** Elizabeth Blackburn Gerty Cori Linda Buck

GERTRUDE Alice Hamilton FRANÇOISE BARRÉ-SINOUSSI

Ada Yonath Carol Greider

Jane Wright MARIA GOEPPERT-MAYER Barbara McClintock Christiane Nüsslein-Volhard RITA LEVI-MONTALCINI ROSALIND FRANKLIN Rachel Carson Dorothy Irène Joliot-Curie LISE MEITNER Crowfoot Hodgkin

# Legends of women in science

A performance celebrating remarkable women who overcame barriers to make groundbreaking scientific contributions



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#### SILICON VALLEY PERFORMANCES

Santa Clara University, Sunday, October 14, 2 PM https://www.brownpapertickets.com/event/3608759

Stanford University, Monday, October 15, 4:30 PM https://www.brownpapertickets.com/event/3612197

San Jose State University, October 17, 7:30 PM https://www.brownpapertickets.com/event/3612199

#### MONTEREY BAY PERFORMANCE

UC Santa Cruz, Tuesday, October 16, 7:00 PM https://www.brownpapertickets.com/event/3612206

Performances are followed by a talk-back session and reception with the cast to foster discussion of the issues illuminated in the play.

Admission is free. Tickets are required.

To register, click on your choice of performance above

Silicon Valley American Chemical Society (ACS) brings you performances of "No Belles" by Portal Theatre and hosted by local university campuses.

For inquiries, to donate, to volunteer, contact svacsnobelles@gmail.com

See the September SVACS newsletter article for the story behind the "No Belles" performances by Oregon's Portal Theatre Company in the San Francisco and Monterey Bay area. Dates and tickets to the Marin and Alameda County performances of "No Belles", hosted by the California

officially over. Fall is my favorite time of the year; it is full of magnificent colors and packed with holidays that are centered

around family. This is a season to be thank-

ACS local section.

ful, and I am very grateful to be surrounded by the amazing people at our local ACS. Our local section has been working tirelessly to

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#### Chair's Message, continued from front page

organize and host outreach events and workshops. I would like to highlight one particular project that our section has been working on, the No Belles performances.

I am so excited to share this with you. We are bringing the No Belles performance to four campuses: Santa Clara University, UC Santa Cruz, Stanford, and San Jose State. Our organizers have been successful in raising funds, so there will be no charge for admission. Please let us know if you would like to donate or volunteer to this wonderful cause. The show will help to raise awareness about gender bias in the sciences and shed light on the fact that of the 581 people who have been awarded the Noble Prize in sciences, only 18 have been women. The Portal Theatre group presented this unique event at the American Chemical Society national meeting in Washington last year, and it was very well received. Our organization has worked hard to bring this event to our local campuses (free of charge to students and attendees), which will allow our local students and the bay area residents, who might not otherwise have an opportunity, to see this production. The registration for the No Belles Performances is live now. Here is a link to the registration website:

#### http://scvacs.org/?page\_id=1924

Please share this generously!

As you are changing up your decorations, perhaps adding more orange and yellow to your house and taking out your pumpkin scented candles, we hope you find some time to come and see the No Belles show. There are four chances to see them. If you happen to come to the San Jose State one, please come and introduce yourself. I will be at the ACS table. I look forward to meeting you!



# Carol Mosher, Research Chemist, Breaks Ground in Science and Leads the Way for Women

By Coleman Cornelius (Colorado State University with permission)

At their home in Palo Alto, Calif., on the Stanford University campus, the Mosher family had a small blackboard by the back door and used it to jot down grocery lists, reminders about doctors' appointments, and prompts to feed the dog. But those daily minutiae often were replaced by structural formulas of chemical

compounds – chalk-drawn diagrams reflecting big scientific questions and ideas.

Not surprising. The heads of this house-hold were Harry and Carol Mosher, well-known chemists in the Stanford and Silicon Valley scientific communities who together established the thriving Santa Clara Valley Section of the American Chemical Society, as well as an enduring annual award given by the group to a scientist successfully working to advance the field of chemistry.

Carol Mosher, who is 97 years old and resides in an assisted-living center, earned a bachelor's degree in chemistry from Colorado State University in 1942. After her wartime graduate work, Mosher built a career researching the formation and activity of complex chemical compounds, including anti-cancer agents; she was a forerunner in the field of medicinal chemistry.

When asked by one of her daughters why she became a chemist, Mosher explained, "Back in those days, women either became secretaries or nurses, and I didn't want to be either."

Harry and Carol Mosher met as doctoral students at Pennsylvania State University and moved to Palo Alto in 1947, when Harry joined the Stanford chemistry faculty. The years after World War II were heady times for science and technology in the United States, as research funding blossomed and Cold War political hostilities drove competition and remarkable innovations. The Moshers were in the thick of it.

Harry Mosher, who died in 2001, became the better-known of the two: He was a professor of organic chemistry; conducted and published research in natural-products chemistry and stereochemistry; and invented the "Mosher Reagent," which has been widely used to measure the left- or right-handedness in organic molecules, according to a Stanford news release.



Yet Carol Mosher – who had three children, hosted faculty parties, and welcomed her husband's graduate students to many Thanksgiving dinners – was, by definition, a groundbreaking scientist. Also an organic chemist, she was among the first research scientists hired by the fledgling Stanford Research

Institute International. Her employee badge number was "007," her son, Stephen Mosher, said.

In 1947, when Mosher started work at SRI International, she conducted bench science on the Silicon Valley campus in what her son recalled as Quonset hut-style buildings. Since then, SRI International has grown into a scientific leader, with 20 locations that in the past decade have completed more than \$4 billion in sponsored research and development for government agencies and corporate clients, according to the company website.

From the scientific ground floor, Mosher rose to become a senior organic chemist in the bio-organic chemistry section of the institute's life sciences division. Her investigations centered on the synthesis of a wide variety of organic compounds, including detergents and plasticizers, and a number of anticancer agents. She also studied the interactions of those compounds with DNA. Such research provides a basis for understanding compounds that might enhance or endanger human health and quality of life.

In 2000, Mosher was invited to present an overview of her career, including her study of anticancer agents, to a national meeting of the American Chemical Society. She authored or co-authored 28 scientific papers and patents, many published in the Journal of Medicinal Chemistry, and she served as an officer for the American Chemical Society's Santa Clara Valley Section, which she helped to found.

Her son recently scanned one of those papers, published in 1978 in the journal of Nucleic Acids Research, titled "Synthesis, DNA-binding, and biological activity of a double intercalating analog of ethidium bromide."

"You lost me at 'synthesis," he said, laughing.

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Mosher grew up near Loveland, Colo., with two brothers who also attended CSU. She was a straight-A student – except for physical education – and, in the words of her brothers, "She's the one who had the brains." After receiving her bachelor's degree from CSU, Mosher attended Penn State, earning a master's degree in textile chemistry and a Ph.D. in organic chemistry, remarkable achievements for a woman in the '40s. She

received an Honor Alumna Award from CSU's College of Natural Sciences in 1989.

Mosher's three children, all in their 60s, remember their parents discussing chemistry and research challenges at the family dinner table beginning in the 1950s. It seemed like a normal part of living in an academic community, they said, and their mother never talked about the rarity of her role as a woman in scientific research.

Now, however, it's clear her career was

unusual. In recent years, respected journals and news media have published a steady stream of critiques about the comparatively few women working in scientific research, noting the ramifications seen in stymied careers and innovations.

Against that backdrop, Stephen Mosher and his sisters have gained new respect for their modest mother and her career.

"It was pretty remarkable that she was in the sciences at that time," he said. "Now we realize it was unusual."

#### REMINDER

#### **SVACS November 14th Dinner Seminar**

#### REMINDER Chain

# Disrupting the Energy Value Chain Distributed Scale Olefins

Erik C. Scher, Ph.D., COO of Siluria Technologies Inc.

#### Abstract:

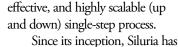
Long term global trends are contributing to sustained downward pressure on the value of natural gas and, more generally on any fuel gas streams whose value is directly linked to their intrinsic energy content rather than their potential to act as carbon feedstock for manufacturing.

As a result, resource owners around the world are now faced with the considerable challenge of identifying attractive options to monetize their natural gas resources and provide sufficient net-back to justify the capital investments required for new upstream capacity.

At the same time the remarkable ubiquity, abundance and affordability of gas resources provide a unique opportunity for non-integrated downstream producers to obtain access to lower cost carbon feedstock, to expand capacity in traditionally feedstock-constrained areas and/or to re-optimize their operations via back-integration into base chemicals production.

Siluria's unique process technologies (based on Oxidative Coupling of Methane or OCM) represent the ideal solution to this upstream challenge and are an enabler of this new downstream opportunity by converting short-chain alkanes (methane, ethane and propane) into olefins (ethylene and/or propylene) via a carbon-efficient, cost





Since its inception, Siluria has taken the core competencies it built in order to develop its OCM technology and applied it to develop multiple process technologies. Siluria is currently commercializing its Gemini

(methane to ethylene), Modus (refinery waste gas upgrading) and Orion (natural gas to propylene) technologies with its EPC partners; Linde Engineering, Wood (formerly AmecFosterWheeler), and Maire Tecnimont respectively.

#### Biography:

With a background in chemistry and engineering, Dr. Erik Scher is a technology executive who is commercializing solutions to long-standing challenges in the chemical industry. At Siluria Technologies, he has been both an innovator and a leader, taking the company from a two-person concept to a 70-person operation that has proven its proprietary natural gas conversion processes at pilot and demonstration plants in California and Texas. Dr. Scher has led efforts to develop and commercialize novel technologies at three venture-backed energy/chemicals companies over the last 16 years. He has built and managed technology organizations, including R&D, catalyst scale-up, pilot engineering, plant operations, and process engineering, as well as led commercial teams spanning intellectual property, business development, licensing, project development, and strategic partnerships. He is currently the COO at Siluria where he manages the; R&D, Development/

Scale-up, Technology, Operations, and Intellectual Property groups amongst others.

Dr. Scher earned his PhD in Materials Chemistry from the University of California, Berkeley. Prior to his PhD, Dr. Scher received his Bachelors degree in Chemistry from Rice University in Houston. He is an inventor on over 80 issued patents, over 100 pending patent applications, and was recognized as a MIT Technology Review Top 100 Innovator under 35 in 2004.

### SVACS November Dinner Seminar

Date: Wednesday, November 14, 2018

**Time:** 6:00-9:00 pm **Speaker:** Dr. Erik Scher

Siluria Technologies **Location:** Basque Cultural Center

599 Railroad Avenue South San Francisco, CA

Costs: \$30 regular \$15 student

#### Registration:

https://www.brownpapertickets.com/event/3584710

Or Sally Peters 650-447-3027





**American Chemical Society** 

# ACHIEVE YOUR CAREER GOALS IN BERKELEY!

Attend the upcoming ACS Career Day Northern California where you can attend panel discussions and table talks and network with other chemists. ACS members get access to even more resources like personalized career consulting including resume reviews, mock interviews, and more.

#### Saturday, October 20, 2018 8 AM - 5 PM

International House - Berkeley Campus 2299 Piedmont Ave Berkeley, CA 94720

Register for free at www.acs.org/careerdaycalifornia



# Teach the Teachers Workshop

Attention Teachers!

We are holding a second Teach the Teachers Workshop this year. The workshop will be held on Saturday, October 13, 2018, and will follow the 2018 National Chemistry Week theme, Chemistry is Out of this World. The workshop is designed for elementary and middle school educators, where several chemistry-related activities will be demonstrated in regard to this year's theme. Resources including a curriculum binder and all the materials needed to recreate the activities in the classroom will be provided free of charge to each educator that participates. This workshop is sponsored by Silicon Valley Section ACS with generous support from Gilead Sciences, Inc. If you are a 4th through 8th grade educator, and would like to attend, please visit us at <a href="http://scvacs.org/?page\_id=1867">http://scvacs.org/?page\_id=1867</a> or email us at <a href="mailto:TeachTheTeachersACS@gmail.com">TeachTheTeachersACS@gmail.com</a>.

Additionally, we are looking for volunteers to help with this event. The opportunities and times are varied – come early (8:00 a.m.) and help set up; help with registration (9:00 a.m.); help with lunch set up and/or takedown (12:30-2:00 p.m.); or help with the end of day clean up (3:00-4:00 p.m.). If you would like to volunteer for this fun and worthwhile event, or you have any questions, please email us at *TeachTheTeachersACS@gmail.com*.

# 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 inthe 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**

A'Lester Allen Christoph Bannwarth Daniel Braunworth Dr. Katherine Ferrara Wakuna Galega Dr. Helen G. Hansma Dr. Justin Haskins Alexander Hoffnagle Samantha Janisse Gokce Kafali Dr. Rao V. Kalla Keren Kanarik Dr. Mohan Khare Jing Lin Jovan Lopez Jennifer K. Mattler Matthew McClosk

Matthew McClosky
Dr. Rosario Mollo
Winston Nilumol
Dr. Abigail Emery Noble

Dr. Margot G. Paulick
Dr. Filip Petronijevic
Dr. Michael Pulkoski-Gross
Dr. Jing Qiu
Dr. David A. Schooley
Dr. Parag K. Shah
Dr. Samuel Welch Teitelbuam

Jane Wang
Dr. Jason C. Wong

Zuhui Zhang

# **Chemistry Quiz**

According to the NSF Survey of Earned Doctorates, what percentage of doctoral recipients in the Physical or Earth sciences reported a definite commitment of employment upon graduation for 2016?

The answer will appear in next month's newsletter.

#### **Last Month's Chemistry Quiz**

Generic versions of the high blood pressure medication valsartan were recalled in July of 2018 due to contamination with which human carcinogen?

The drug products being recalled contain an impurity, N-nitrosodimethylamine (NDMA) in the active pharmaceutical ingredient (API) valsartan manufactured by Zhejiang Huahai Pharmaceuticals of Linhai, China.

### **Elections for 2019 Silicon Valley ACS Leadership**

Madalyn Radlauer (Nominations Committee) and Jigisha Shah (Secretary)

In November you will have the opportunity to elect members of our section to the 2019 Silicon Valley ACS Executive Committee! The Silicon Valley Section of the American Chemical Society is conducting its annual election electronically. The election begins on November 1, 2018 and concludes on November 25, 2018 at 11:59 pm (U.S. Pacific time).

The official online ballot will be sent in October by email to all section members. It is also available for viewing on our webpage, <a href="http://scvacs.org/?page\_id=1911">http://scvacs.org/?page\_id=1911</a>. We have ten (!) open positions this year, which made us wonder if we would find enough people to run. We were excited to see so many SVACS members willing to run and be involved at the leadership level of our section. Positions

on the slate include Chair-Elect, Secretary, Treasurer, Councilors, and Alternate Councilors. Descriptions of these positions are available on our website (<a href="http://scvacs.org/?page\_id=4">http://scvacs.org/?page\_id=4</a>). The slate of candidates, their biographies and their personal statements are available on our webpage (<a href="http://scvacs.org/?page\_id=1911">http://scvacs.org/?page\_id=1911</a>). We also have ballot measures regarding our revised bylaws.

We hope for strong voter turnout. Feel free to reach out to any Executive Committee member with questions about the election process. Our contact information can, as always, be found on the last page of each newsletter.



## 2nd Annual YCC and Senior Chemists Home Brew Competition

A Tasting, Judging, and Networking Event

Date: Saturday, November 10, 2018

Time: Noon - 3 pm

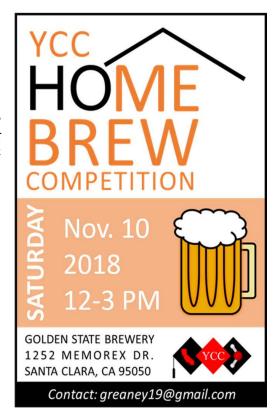
**Location:** Golden State Brewery, 1252 Memorex Drive, Santa Clara, CA 95050

**Lead Contact:** Matt Greaney (SVACS

Councilor and YCC Lead) greaney19@gmail.com

**Registration:** www.scvacs.org **Registration Cost:** \$20 regular, \$10 students & 50-yr members

**Description:** Come join the Silicon Valley ACS section for the 2nd Annual Younger Chemists-Senior Chemists Home Brew Competition. Back by popular demand, this event will be held on Saturday, November 10, from noon to 3 pm at Golden State Brewery. Meet your YCC and SVACS members, and network with like-minded, beer-appreciating chemists & friends. All are welcome. The event will begin with unlimited beer tastings of any and all of the home brews entered, followed by judging and announcement of awards. Registration includes lunch from a local food truck, unlimited home brew sampling, and a pint or flight of beers from the Golden State Brewery lineup. Anyone interested in entering a home brew (or more than one) is encouraged to contact Matt Greaney at greaney19@gmail.com. All home brewers entering a beer will be given a visa gift card as partial compensation for materials. The People's Choice and the Judge's Choice winners will be awarded an apparel package from the brewery's gift shop. As a special bonus, the Judges Choice winner will be invited back to brew a commercial-scale batch of their beer with head brewer Seth Hendrickson. This is a great opportunity for networking and exploring your homebrewing know-how. Don't miss out!



## Silicon Valley Younger Chemists Committee Speed Networking

**Date:** Tuesday, October 23, 2018; 6-8 pm **Location:** Santa Clara University (specific details will be listed on our website)

**Description:** Kick off the semester on the right foot by joining us for a night of speed networking with professionals from industry, academia, and national labs. This is an excellent opportunity to practice and receive feedback about your professional networking skills. The event will consist of 2-3 minute sessions introducing and presenting yourself to each professional volunteer in a round robin fashion. All are welcome. Students and post-docs are encouraged to participate. Additional details about the event including the list of professional volunteers will be available on our website soon. Please contact Dr. Matt Greaney (YCC Chair) at greaney19@gmail.com with additional questions.

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### SILICON VALLEY SECTION

#### **2018 Section Officers**

Director:

Liang Cao

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Past Chair	Todd Eberspacher	650-723-2505	eberspacher@stanford.edu
Secretary	Jigisha Shah	315-289-5115	jssheth@syr.edu
Treasurer	Ihab Darwish	650-624-1389	darwishis@yahoo.com
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2016-2018	Sally Peters	650-447-3027	sallybrownpeters@gmail.com
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2018-2020	Ean Warren	650-329-4554	ewarren@scvacs.org
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#### **FUTURE EVENTS** SVACS Teach the Teachers Workshop Oct 13 San Jose City College Science Complex www.scvacs.org/?page1867 www.brownpapertickets.com/event/3605413s Oct 14-17 No Belles live performances coming to the Silicon Valley section! FREE www.scvacs.org/?page\_1924 for registration Western Regional ACS meeting Oct 20 California Institute of Technology www.acswrm.org/wrm2018/index.html National Chemistry Week Oct 22-28 "Chemistry is Out of this World!" akennedycali2007@yahoo.com for more info Oct 23 SVACS Younger Chemists Committee (YCC) Speed Networking Event Santa Clara University greaney19@gmail.com for more info SVACS 2nd Annual YCC Home Brew **Nov 10** Competition Golden State Brewery, Santa Clara, CA www.scvacs.org Click on links for more information or see this newsletter at <a href="http://scvacs.org/?page\_id=99">http://scvacs.org/?page\_id=99</a>