Connect with Chemists
An early morning chat with fellow chemists

Thursday, May 16, 2019, at 7-8 am
Coupa Café, 538 Ramona Street, Palo Alto
Contact Ean Warren (ewarren@scvacs.org) for more information or ask for ACS at Coupa.

Greetings! I hope that you are having an interesting, productive, and enjoyable year. This month, I would like to highlight upcoming Silicon Valley events, ACS information from the National Meeting, resources to periodic tables, resources focusing on sustainability, and an invitation to become more active in the Silicon Valley Section.

Upcoming SV Events: No events are scheduled for May. On June 27th, there will be a joint meeting with the Golden Gate Polymer Forum where Zhenan Bao, Stanford Chemical Engineering Professor, will talk about Skin-Inspired Electronics.

Chair’s Message
Grace Baysinger

SVACS and Golden Gate Polymer Forum 2019 Joint Event
Skin-Inspired Electronics
Professor Zhenan Bao of Stanford University

Abstract
Skin is the body’s largest organ, and is responsible for the transduction of a vast amount of information. This conformable, stretchable, self-healable and biodegradable material simultaneously collects signals from external stimuli that translate into information such as pressure, pain, and temperature. The development of electronic materials, inspired by the complexity of this organ is a tremendous, unrealized materials challenge. However, the advent of organic-based electronic materials may offer a potential solution to this longstanding problem. In this talk, I will describe the design of organic electronic materials to mimic skin functionalities. These new materials and new devices enabled new applications in medical devices, robotics and wearable electronics.

Biography
Zhenan Bao is a K.K. Lee Professor of Chemical Engineering, and by courtesy, a Professor of Chemistry and a Professor of Materials Science and Engineering, at Stanford University. She received her Ph.D. in Polymer Science and Engineering from the University of Massachusetts, Amherst in 1993.

Images of stretchable organic transistors. Image credit: Amir Foudeh, Jie Xu, Sihong Liu of Bao Group, Stanford University
Material Science and Engineering at Stanford University. Prior to joining Stanford in 2004, she was a Distinguished Member of Technical Staff in Bell Labs and at Lucent Technologies from 1995-2004. She received her Ph.D in Chemistry from the University of Chicago in 1995. She has over 450 refereed publications and over 60 US patents. She pioneered a number of design concepts for organic electronic materials. Her work has enabled flexible electronic circuits and displays. In her recent work, she has developed skin-inspired organic electronic circuits and displays. In her recent work, she has developed skin-inspired organic electronic circuits and displays.

Bao is a member of the National Academy of Engineering and the National Academy of Inventors.

Bao was selected as one of Nature’s Ten people who mattered in 2015 as a “Master of Materials” for her work on artificial electronic skin. She was awarded the ACS Award on Applied Polymer Science 2017 and The L’Oréal-UNESCO For Women in Science Award in the Physical Sciences 2017.

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Bao is a co-founder and on the Board of Directors for C3 Nano and PyrAmes; both are Silicon Valley venture-funded start-ups.

**Chemistry Quiz**

Who discovered oxygen in 1774?

The answer will appear in next month’s newsletter.

**Last Month’s Chemistry Quiz**

This widespread food coloring comes from the seed coat of the achiote tree (Bixa orellana). The yellow-to-orange color comes from the carotenoid pigments bixin and norbixin. What is the name of this colorant, and in what foods is it commonly used?

**Annatto** is commonly used to color cheeses, butter, margarine and many other foods.

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**Chair’s Message, continued from front page**

**2018** is available. It includes the Executive Director’s Message, Financials (Financial Highlights, Allocation of Dues, and Award Sponsors), and the Board of Directors. Even for people who attended the ACS Spring 2019 Meeting in Orlando, there was so much going on it was impossible to attend more than a small slice of events. During the meeting there were a number of **news releases** and **live press conferences** (on YouTube) that are worth checking out. The **ACS Press Room** includes Press Pac resources, new releases, and resources on great global challenges.

**Periodic Tables**: In celebration of the International Year of the Periodic Table 2019 (IYPT2019), here are a few more periodic table resources for your viewing and learning pleasure. The International Union of Pure and Applied Chemistry has created a **Periodic Table of Younger Chemists** to highlight the diversity of careers, creativity, and dedication of the young chemists leading us into the next century.

**ACS**’s page celebrating IYPT2019 includes educational resources, a gallery of periodic tables, interviews with ACS Editors about their favorite elements, and a chemical elements history timeline. An updated version of the **Periodic Table of Moles** is available from the **ACS Store**. ACS Division of Chemical Health and Safety has developed a “**Periodic Table of the Elements of Safety**” to share with the chemistry community.

The Royal Society of Chemistry (RSC) has **infographics about groups of elements** that were created for classroom use. RSC has also a project with Compound Chemistry to create a **graphic for all 118 elements** in the periodic table. RSC also has an **IYPT promotional pack** that has some ready-made digital items to download and use on different platforms (e.g., websites, social media). Compound elements has also created a poster on **Essential Elements for Humans**.

**Sustainability**: Inspired by Bonnie Carpentier’s presentation to members of the Silicon Valley and California Sections in April, I thought I would share a few resources about sustainability (thinking globally, acting locally). Bonnie’s talk included **UN Sustainability Development Goals** that includes 17 goals for helping the world plan to build a better world for people and our planet by 2030. Adopted by all UN Member states in 2015, the sustainable development goals are designed to promote prosperity while protecting the environment.

**ACS and You: Working Together for a Sustainable Future** web page contains collections of resources on sustainability topics to help you better understand and communicate about them. Topics covered include **Sustainable Food, Sustainable Water, Climate Science, and Sustainable Energy**. Aided by the ACS Committee on Environmental Improvement (CEI), ACS has issued public policy statements to **Advance Sustainability and the Environment** that include: **Chemical Risk Assessment and Regulatory Decision Making**, **Climate, Hydraulic Fracturing, Inherently Safer Technology (IST)**, **Regulation of Laboratory Waste**, **Sustainability of the Chemistry Enterprise**, and **Water Treatment and Conservation**. CEI has also created a number of **Fact Sheets**: **Biomonitoring**, **Chemical Alternatives Assessment**, **Designing Safer Alternatives through Green Chemistry and Sustainable Molecular Design**, **Endocrine Disruption**, **Exposure Science**, **Nanotechnology**, **Risk Assessment and Risk Management**, and **Understanding Sustainable Chemistry**.

“ACS believes that chemistry’s contributions toward global concerns, such as education, environment, and health and safety, should be extensive. In order to make significant progress on these issues, ACS partners with organizations around the globe to leverage our resources and capabilities along with those of our partners.” For more details, please see **ACS Global Strategic Alliances**.

To learn more about sustainability as well as many other topics, see the **National Academies Press (Science, Engineering, and Medicine)** website that has nearly 10,000 books that you can download and read for free.

Please contact us: Let us know how we are doing or if you would like to become more involved in the ACS Silicon Valley Section activities. A volunteer organization, we have jobs that are large and small. Please fill out this **contact us** form or send me an email message.

Many thanks for reading this long message and for being a member of ACS!

Grace Baysinger
ACS Fellow
graceb@stanford.edu
https://profiles.stanford.edu/grace-baysinger

[36x384]Directors for C3 Nano and PyrAmes; both Award in the Physical Sciences 2017.

L'Oréal-UNESCO For Women in Science

Applied Polymer Science 2017 and The skin. She was awarded the ACS Award on applications.

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**Annatto** is commonly used to color cheeses, butter, margarine and many other foods.
Committee on Nomenclature, Terminology & Symbols.

A recommendation to establish the ACS Pakistan International Chemical Sciences Chapter.

**Council and Meeting Highlights:**
- The divisors for allocation of Councilor seats among Local Sections and Divisions will be sent out prior to May 1.
- In 2018, ACS generated a net from operations of $41.1 million, which was $13.3 million higher than 2017. Total revenues were $571.6 million, increasing 6.4% - or $34.2 million - over 2017. Expenses ended the year at $530.5 million, which was $20.8 million or 4.1% higher than the prior year. These results were attributable to strong performance from the Society’s Information Service units (CAS and ACS Publications) and a continued emphasis on expense management across the ACS.
- ACS membership at the end of 2018 was 151,012, up 0.001% from 2018.
- Orlando Meeting Attendance as of Tuesday, April 2:
  - Attendees 7,887
  - Students 6,019
  - Exhibitors 869
  - Expo only 404
  - Guests 426
  - Total 15,605
- President Bonnie Charpentier conducted a Special Discussion on the ACS Relevance to Current and Future Members: Challenges and Opportunities. Councilors provided many recommendations and suggestions including increased support for local sections and industry members, helping student members transition into their professional careers, and implementing a monthly payment tool for ACS dues.

**Call for Nominations 2019 Abraham Ottenberg Service Award**

The Ottenberg Award is presented annually to a member of our local section for outstanding service to the section. Previous recipients are not eligible to receive it again.

Nominations should include the nominee's biography, description of the service(s) for which the member is nominated, and a discussion or evaluation of the service to be recognized by the award. Nominations are not retained for subsequent years but re-nominations are accepted for consideration.

Please send your nomination before June 15, 2019 by fax (650) 961-8120, by e-mail to PFRusch@aol.com, or by postal mail to:
Chair, Ottenberg Award Selection Committee
Silicon Valley Section
American Chemical Society
P.O. Box 395
Palo Alto, CA 94302-0395

George Lechner presented a desk-sized, novel Periodic Table to Bonnie Charpentier, ACS President.
On February 28th, we met at Foothill College to honor Kathleen (Kathy) Armstrong, the 2018 winner of the ACS Silicon Valley’s Teacher-Scholar Award for Community College Chemistry Faculty that includes a $500 check and a plaque. Rosa Liu Nguyen, Chemistry Department Chair, accepted a plaque and check on behalf of her regular classroom responsibilities by conducting workshops for her students, constantly revamping the course curriculum, developing a rigorous and robust laboratory program that provides students rich hands-on experience with sophisticated instruments, maintaining high standards, being a mentor to the other chemists in the department, and numerous other ways.

Kathy also works closely with the students in our program. She serves as the faculty advisor to one of the most active student clubs on campus. She and her students regularly plan and organize various activities to enrich local communities through service leadership projects at area elementary and middle schools.

In my opinion, a true teacher-scholar must not only demonstrate a commitment to good teaching practices and scholarship, but must also actively display a continued passion for their field. Kathy continues to regularly enroll in classes in related fields and also constantly searches for and incorporates new pedagogical approaches in her classes.”

Comments from Melody Esfandiari, Past Chair of the ACS Silicon Valley Section, and Chemistry faculty member at Foothill College and San Jose State University.

“I have known Kathy for over 5 years now. Every time I pass by her office, I tell myself “this is fire code violation.” It’s amazing how she always has so many students in her office. Her dedication and her ability to connect with them is impressive.

I have also had her students work with me at research labs at SJSU. They love Kathy and it’s amazing how she has incorporated current instrumentations into her course work. Her students get hands-on experience with instruments that are only taught by theory at most schools.

She has helped so many students over the years with some of the hardest undergraduate courses and she shows no sign of slowing down.”

After receiving her award, Kathy gave a talk whose title was “Why does it have to be so hard? Evaluating the value of a course in Organic Chemistry.” She noted that the number of facts presented in Organic Chemistry is too large so instead of memorizing content, students need to apply analytic reasoning. Developing analytical reasoning requires explicit application of critical thinking. Kathy noted that careful attention to assessment at Foothill College has proven valuable in developing this important learning outcome. Kathy shared several examples of the types of questions she poses to students. She also had surveyed students who had graduated, asking them about their career pathway ad the extent to which skills developed in their Organic Chemistry course influenced their success.

The student poster session that contained over 20 posters was really great. Students were very engaged, explaining topics covered in their posters to attendees. Everyone enjoyed learning about the topics they covered and the opportunity to interact one-on-one with the students.

Many thanks to Sally Peters, George Lechner, and Peter Rusch for their help with checking in attendees, setting up AV

continued on next page
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

Roberto Battiston
Sarah Jane Blair
Michael Butterfield
Ian Carter-O’Connell
Dr. Shuang Chen
Jong Suk Choi
Justin Clubb
Dr. Haixia Dai
Jennifer Dionne
Serra Elliott
Wendy Fan
Evan Feinberg
Sergio Rocha Fernandez
Ryan J. Flannery
Dianne Whittier Foote
Christopher Henry
Patrik Kjell Johansson
Kalli Kappel
Dr. Michael Kappler
Bryan Kelleher
Cameron Donald Kellough
Cheryl Lenz
Hyeongtaek Lim
Qi Liu
Alandra M. Lopez
Sushant Malhotra
Bridget Mancillas
John Mancini
Vincent Hisashi Martinetto
Dr. Timothy C. Mauldin
Paul McIntyre
Chris Moon
Vyvyan Nguyen
Akash Patel
Disha Patel
Naomi Ray
Dr. Damoder Reddy
Dr. Albi Romero
Anish Raj Roy
Laura Schaefer
Matt Schutz
Ted George Theodore
Shanwen Wang
Tongtong Wang
Dr. Nathan Wright
Dr. Xiao Zhang

Sidney Harris Cartoon

“Polymers are fundamental to every part of our society, and they have all kinds of amazing properties. This cartoon depicts a merger of chemicals being discussed by two businessmen (at least they look like businessmen since there are vests and ties; no lab coats) to create a polymer. The timing for this cartoon couldn’t be more appropriate given the recent merger of Dow and DuPont, two of the oldest and largest polymer companies in the world. Hopefully, in business as well as in chemistry, the whole will be greater than the sum of its parts. Polymers are a great example of this — given all they have done for the world.” — Robert Langer, MIT

Also noteworthy and worth a fieldtrip to Foothill College is a large Periodic Table of the Elements that was mounted on the outside wall of a building. The Silicon Valley Section donated funds to help create this Periodic Table. In summary, it was a special event that everyone really enjoyed.

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About the ACS Silicon Valley Teacher Scholar Award

The American Chemical Society (ACS) gives awards at local, regional and national levels, for excellent teaching at the high school, college and university levels. Established in 2008, this award is the first in the nation to recognize the contributions of community college chemistry teachers to science education.

Each year it will honor an outstanding faculty member from one of the 13 community colleges in our local area which includes five counties around San José, California. The award currently consists of a plaque and a check for $500 for the winner, with another plaque plus a $500 check donated to the winner’s school.
FUTURE EVENTS

May 23  Why Animals Eat Plastic
      Dr. Matt Savoca
      Pacific Grove Museum of Natura History
      https://www.pgmuseum.org/

Jun 27  SVACS and Golden Gate Polymer Forum 2019 Joint Meeting
      Professor Zhenan Bao
      Stanford University
      Skin Inspired Electronics
      Michael's at Shoreline Mountain View, CA
      www.ggpf.org

Jul 13  Annual SVACS Wine Tasting and Awards Picnic
      Stanford Chemistry Dept.
      Stanford, CA

Sep 7   Save the date
      Joint event with the Sacramento and California local ACS sections
      Flavors of Chemistry: almonds and wine
      UC Davis
      Click on links for more information or see this newsletter at http://svacs.org

SILICON VALLEY SECTION

2019 Section Officers

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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  jsheth@uvr.edu
Treasurer  Ilah Darwish  650-624-1389  darwishis@yahoo.com

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2018-2020  Natalie McClure  650-906-7831  nmclure@drugregulatoryaffairs.com
2019-2021  Linda Brunauer  408-554-6947  lbrunauer@sjsu.edu
2019-2021  Jane Frommer  408-927-2225  jane@collabra.net
2019-2021  Sally Peters  650-447-3027  sallybrownpeters@gmail.com

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2019-2019  Todd Eberspacher  650-723-2505  eberspacher@stanford.edu
2019-2021  Laura Yeager  626-826-3145  laura.yeager123@gmail.com
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2019-2021  John Goeltz  831-582-4661  jgoeltz@csumb.edu

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