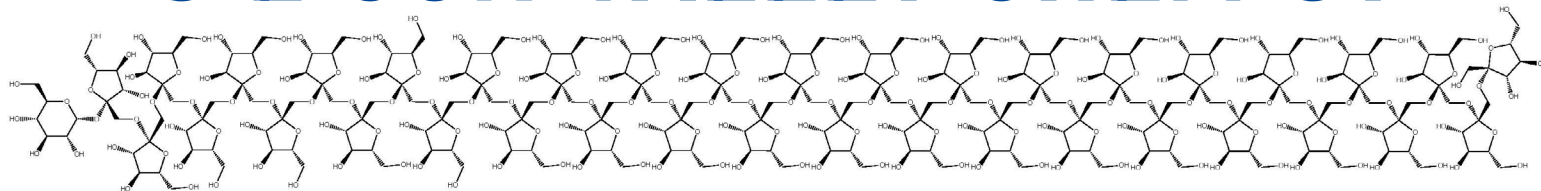


# SILICON VALLEY CHEMIST



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## Chair's Message

Stephanie Benight, Ph.D.

Happy New Year! I'm thrilled to be serving as your Chair for the upcoming year and look forward to the many exciting events we have in the works for 2022. I hope everyone's holidays were merry and filled with time with family.



We rounded out the year with the 2nd Bay Area Chemistry Symposium (BACS) in November. Judging by the high attendance, BACS is here to stay! Our final monthly seminar was on December 7th with an informative talk by Dr. Charles Rand of Checkerspot. Checkerspot is a company using big data to discover novel materials. Early in 2022

*continued on next page*

## THE YEAR IN CHEMISTRY

### 2021'S BIGGEST CHEMISTRY STORIES

#### DEVELOPMENT OF ANTIVIRALS FOR COVID-19



Development and trials of antivirals against COVID-19 continued in 2021. As of December 2021, two oral antiviral drugs, molnupiravir and paxlovid, had been approved in the UK and the US.

#### FIRST MALARIA VACCINE APPROVED



The first malaria vaccine, approved for widespread use in children, has modest efficacy but showed positive results in pilot programs. It's also the first vaccine developed for any parasitic disease.

#### HIGHLY FLUORINATED COMPOUND RESTRICTIONS



Highly fluorinated per- and polyfluoroalkyl substances, used in textile coatings, food packaging, and cookware applications, saw mounting pressure to restrict their use due to concerns about environmental persistence.

#### RESEARCHERS CREATE METALLIC WATER



By dripping a liquid sodium-potassium alloy into a vacuum chamber containing water vapour, researchers were able to observe metallic water, formed as electrons from the alloy were drawn into the water.

#### ASYMMETRIC ORGANOCATALYSIS WINS NOBEL



The Nobel Prize in Chemistry was awarded to Benjamin List and David MacMillan for developing asymmetric organocatalysis, which uses organic compounds to catalyse the creation of mirror image molecules.

#### MAKING JET FUEL FROM CAPTURED CO<sub>2</sub>



A rooftop refinery extracts carbon dioxide and water from the air and uses a solar-powered redox reactor to reduce them to carbon monoxide and hydrogen - from which hydrocarbon fuels can be made.

#### USE OF LEADED FUEL FINALLY PHASED OUT



Leaded petrol has been linked to numerous health problems. In July, Algeria became the final country in the world to stop selling leaded petrol, almost 20 years after the UN started a campaign to eliminate its use.

#### CONTROVERSIAL ALZHEIMER'S DRUG APPROVED



A drug which reduces amyloid- $\beta$  plaques in the brain was approved for Alzheimer's patients in the USA in June. It's the first new approved Alzheimer's drug in 20 years, but there are doubts about its effectiveness.

#### AMINE CATALYSIS CLAIM DEBUNKED



A claim that an amine compound could replace palladium as a catalyst in a carbon-carbon bond forming reaction was shown to be erroneous. Palladium impurities were responsible for the observed catalysis.

#### SKIN OIL CHANGES IDENTIFY PARKINSON'S



Skin oil compounds secreted by people with Parkinson's disease differ from those secreted by people without the disease. This could aid diagnostics for Parkinson's and help with monitoring disease progression.

#### AI PREDICTS PROTEIN STRUCTURES



An artificial intelligence tool, AlphaFold, predicted structures for almost every protein made by the human body. The structures may help scientists understand protein functions and design new medicines.

#### HOME WEED-KILLERS PHASE OUT GLYPHOSATE



Glyphosate herbicides won't be sold for home use in the US from 2023. The move follows concern about glyphosate's effects on health, though it's primarily to avoid litigation - agricultural use will continue.

For additional details and links to the articles and studies referenced in this graphic, please visit: [bit.ly/TYIC2021](https://bit.ly/TYIC2021).



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Click to enlarge – see accompanying article for more details as well as links to related articles and studies." (Reprinted from [Compound Chemistry](https://www.compoundchem.com) website.)

*Chair's Message, continued from front page*

we have the Mosher award lecture coming up and in April a panel on the Chemistry of Cannabis is planned.

Your ACS Silicon Valley Executive Committee is hard at work determining a hybrid and in-person structure for future events. Stay tuned for more details.

My goals as your 2022 SVACS Chair include:

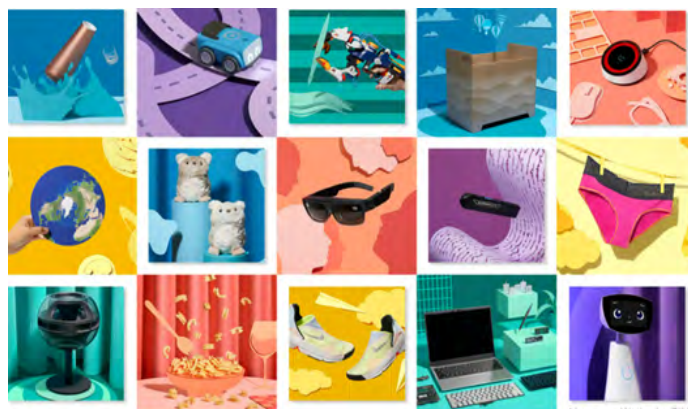
1. Increase presence online through social media platforms to communicate our local section-sponsored news and events, and expand participation. Activities will focus primarily on LinkedIn and potentially Twitter.
2. Foster relationships with other ACS sections to build regional community. One goal will be to host a joint virtual event with the Pacific Northwest ACS local section.
3. Continue with a hybrid of in-person and virtual events to allow easier access to our section's events. A goal will be to continue hosting virtual webinars and panel discussions, expanding invitations to beyond our section.

Lastly, I will be taking a brief leave this quarter adjusting at home with a

new baby. I look forward to coming back in the second quarter. You're in good hands while I'm out with your Chair-Elect, Natalie McClure, a long time ACS Silicon Valley member and organizer.

Should you have any feedback or questions, please don't hesitate to reach out to me at [chair@svacs.org](mailto:chair@svacs.org). If you come across folks who are interested in joining or participating more actively in Silicon Valley ACS, please also send them my way.

## Time Magazine: The Best Inventions of 2021



Margaux Wester for TIME



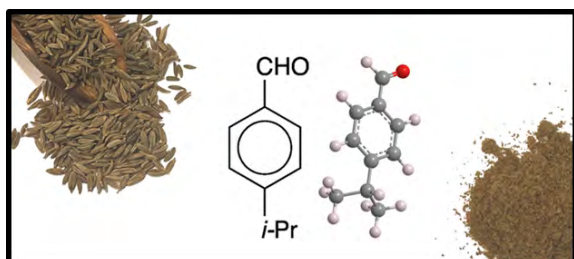
Blue Jeans Go Green  
Huue

100 Innovations with the potential to change how we live. [View the list](#) which includes "Blue Jeans Go Green" by Huue in the category "Sustainability." Huue Chief Scientific Officer, Dr. Tammy Hsu, presented the SVACS August 2021 program on [How One Company is Making Blue Jeans 'Green'](#).

## CHEMISTRY

# Quiz

You know me from Middle Eastern foods—and tacos.  
What molecules are we?



Answer

## UPCOMING EVENTS

- |               |   |               |   |
|---------------|---|---------------|---|
| <b>Jan 13</b> | <b>A Happy Hour Lecture on Cheese Chemistry</b><br>Jeanne Berk of Cedar Crest College, Lehigh Valley ACS<br>Sponsored by the ACS Puget Sound Section Senior Chemists Committee<br>5-6pm, Online via Zoom, Free, No registration required, <a href="#">Learn more</a>  | <b>Jan 27</b> | <b>Creating Structured R&amp;D Data for Artificial Intelligence</b><br>Will Tashman, Uncountable and Melissa O-Meara, C&EN Media Group<br>Sponsored by C&EN Webinars<br>8-9am, Online via Zoom, Free, <a href="#">Registration required</a>   |
| <b>Jan 18</b> | <b>The Fungus Among Us: Fusarium Mycotoxins In Water And Food</b><br>Professor Daniel Snow, University of Nebraska – Lincoln, Nebraska Water Center<br>Sponsored by the ACS California Section<br>Noon-1pm, Online via Zoom, Free, <a href="#">Registration required</a>  | <b>Jan 27</b> | <b>Can Medical Instruments be Racist?</b><br>Roger Turner, Science History Institute (Moderator: Bill Tsuzynski, The Unami Group LLC)<br>Sponsored by ACS Webinars in partnership with the Science History Institute<br>10-11am, Online via Zoom, Free, <a href="#">Registration required</a> |
| <b>Jan 18</b> | <b>Chemical Recycling of Mechanically Robust Polyacetals Synthesized by Living Cationic Ring-Opening Polymerization</b><br>Prof. Brooks Able, UC Berkeley Chemistry Dept.<br>Sponsored by the Golden Gate Polymer Forum<br>6:30-7:30pm, Online via Zoom, \$5 donation/free, <a href="#">Registration required</a> (registration deadline: January 17, 1:00 PM.) | <b>Feb 12</b> | <b>The Stories We Tell as Women in Chemistry</b><br>Fanny Frausto, PhD, Clorox Company<br>Sponsored by the ACS California Section, Women's Chemist Committee<br>10:30am-Noon, Online via Zoom, Free, <a href="#">Registration required</a>  |
| <b>Jan 26</b> | <b>Before You Press Send! How to Avoid Email Pitfalls and Faux Pas</b><br>Mark Jones, Dow Chemical (retired), (Moderator: Patricia Simpson, University of Illinois at Urbana-Champaign)<br>Sponsored by ACS Webinars<br>11am-Noon, Online via Zoom, Free, <a href="#">Registration required</a>   | <b>Feb 16</b> | <b>Applications of Coupled Rheology–FTIR to Polymer Analyses</b><br>Dr. Sara Reynard, Arkema (& President-elect of NATAS)<br>Sponsored by the Golden Gate Polymer Forum<br>Details TBA soon on the <a href="#">Golden Gate Polymer Forum's website</a>  |

## Shirley B. Radding Award

Call for Nominations Deadline: May 1, 2022

This *award* was established in 1994 by our ACS local Section to recognize demonstrated, dedicated, unselfish leadership, service and significant contributions, over a sustained period of time, to industrial, academic, or applied chemistry and to the American Chemical Society at local, regional and national levels. The award is named for Shirley B. Radding, who was a charter member and long-time supporter of this Section. It currently consists of an engraved plaque and a check for \$1000.

The annual award recipient is selected on the following criteria:

- Member of the American Chemical Society for more than 20 years
- Demonstrated dedicated and unselfish service to ACS members over a sustained period of time
- Provided leadership through elected and appointed ACS positions at local, regional and national levels
- Made significant contributions to industrial, academic, or applied chemistry

Please submit nomination dossier with CV and two letters of recommendation by May 1, 2022 to

Heddie Nichols, Chair, Radding Award Committee

Silicon Valley Section, American Chemical Society

P.O. Box 395, Palo Alto, CA 94302-0395

Email: [hnichols105@gmail.com](mailto:hnichols105@gmail.com)

Past recipients:

1994 Shirley B. Radding

1997 Howard M. Peters

2000 Halley A. Merrell

2003 Jean'ne M. Shreeve

2006 Janan Hayes

2009 Bryan Balazs

2012 Bonnie A. Charpentier

2015 Connie Murphy

2018 Peter Rusch

2021 Natalie McClure

1995 Agnes Ann Green

1998 Alan C. Nixon

2001 Norman A. LeBel

2004 Maureen Chan

2007 Merle Eiss

2010 Herb Silber

2013 Mamie W. Moy

2016 Sally Peters

2019 Mary Virginia Orna

1996 John C. "Jack" Riley

1999 Valerie J. Kuck

2002 Paul H. L. Walter

2005 Glenn Fuller

2008 Dorothy Phillips

2011 Carol A. Duane

2014 Lee H. Latimer

2017 Gary D. Christian

2020 Thomas R. Beattie

## Research Fronts 2021 Report Released

On December 8, 2021, Clarivate and the Chinese Academy of Sciences (CAS) released the "Research Fronts 2021" report, to identify the hottest and emerging areas in the world of scientific research. This is the eighth annual collaborative report between the two parties.

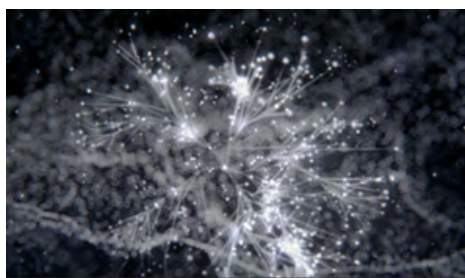
"Research Fronts 2021" identified 171 research fronts, including 110 hot and 61 emerging fronts in 11 broad research areas in sciences and

social sciences. Research Fronts are formed when clusters of highly cited papers are frequently cited together, reflecting a specific commonality in the research – sometimes experimental data, a method, a concept or a hypothesis. Around one third of the Research Fronts identified this year are related to COVID-19. These include six among the top 10 Research Fronts in clinical medicine and three among the top 10 Research Fronts in biological sciences. The research being produced in these areas is instrumental to the fight against the disease and will have enormous impact on the world. (Read the [full text](#) of the press release published in *STM Publishing News*.)

[Download the report.](#)



## Highly Cited Researchers of 2021 Announced



"Out of nearly 8M researchers in the world over the last decade, less than 1% have published multiple papers frequently cited by their peers that rank in the top 1% of citations for field and year. Since 2001, our experts have used *Web of Science* citation data to identify these very influential researchers."

See who made the list on the [Researcher Recognition](#) page from Clarivate, the organization that publishes the *Web of Science*.

## ACS on Campus Resources

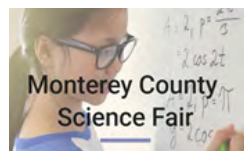
"ACS on Campus is the American Chemical Society's initiative dedicated to helping students advance their education and careers. We provide resources for you to develop your skills and partner with schools around the world to bring leaders in chemistry, publishing, career development, research, and science communication right to your doorstep. At our free events, you'll network with top professionals, local experts, your peers, and more!" (Description from [ACS on Campus website](#))

You don't have to participate in an ACS on Campus event to view favorite resources on these topics: Grow My Network, Advance My Career, Stay Informed, Maximize My Research, and Communicate My Science. Below is an example of one of the resources available.



### [Top 10 Tips for Leveraging Social Media \(PDF\)](#)

"Sure, you're on social media, but how can you use it to communicate your science? Following these ten tips will help you make the most of your accounts and presence."



## Local Science Fairs in 2022 Judges Needed

by Susan Hines

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 a local science fair. Due to the pandemic, the fairs listed below are being held in either a virtual or hybrid format (the latter having both virtual and in-person judging). It's now easy to become part of the SVACS-sponsored Synopsis Championship

**2022 special award judging team on March 9-10.** Consider being a category judge at one or more of the other fairs, all from the convenience of your computer. These science fairs need category awards judges, especially in the areas of botany, biology, chemistry, microbiology, and behavioral science. Other than Sciencepalooza!, all fairs are qualifiers for the International Science and Engineering Fair, ISEF.

Please contact me ([svsefmgr@gmail.com](mailto:svsefmgr@gmail.com))

to join our special award team of dedicated chemists for the Synopsis Championship on March 9-10, 2022.

No matter which fair(s) you choose, please volunteer now!

- Synopsis Championship: March 9-10, 2022, hybrid format, go to [judge registration](#)
- Santa Cruz County Science and Engineering Fair: March 14-19, 2022, hybrid format, [join judging team](#)
- Monterey County Science & Engineering Fair: March 5-19, 2022, hybrid format, [volunteer to be a judge](#)
- Alameda County Science and Engineering Fair: March 26, 2022, hybrid format, [judge registration](#)
- Sciencepalooza! Virtual Fair and Expo\*: May 7, 2022, hybrid format, [register to be a judge](#)

\*Many students at this competition are first time science fair participants.

## 2022 CAS Future Leaders Program Open for Applications

Submission Deadline:  
January 16, 2022

By Alexandra A. Taylor



"CAS, a division of the American Chemical Society, is accepting applications for its 2022 CAS Future Leaders program. The program will be held Aug. 15–20 in Columbus, Ohio. Participants will also attend the ACS Fall 2022 meeting in Chicago, to be held Aug. 20–25. The program provides early-career scientists with leadership training, plus opportunities to network and learn from industry thought leaders, entrepreneurs, and communicators. Applications will be accepted between Dec. 6 and Jan. 16. Visit [cas.org/futureleaders](http://cas.org/futureleaders) for more information and to apply." (Reprint of article published in C&EN, December 17, 2021.)

## Call for Nominations

### 2022 Abraham Ottenberg Service Award Silicon Valley ACS Section

The *Ottenberg Award* is presented annually to a member of our local section for outstanding service to the section.

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. Previous recipients are not eligible to receive it again.

Please send your nomination before **June 1, 2022**, by e-mail to [PFRusch@aol.com](mailto:PFRusch@aol.com), by fax (650-961-8120) 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

## 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 at a monthly section seminar meeting, once we return to meeting in person! When you register for the event, 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 several local venues. We hope you will also join us for an outreach event, like judging a science fair, proctoring the Chemistry Olympiad, or participating in a National Chemistry Week event in the autumn. The local section is a volunteer organization. Attend an event, volunteer to help, and get to know your local fellow chemists. Welcome!

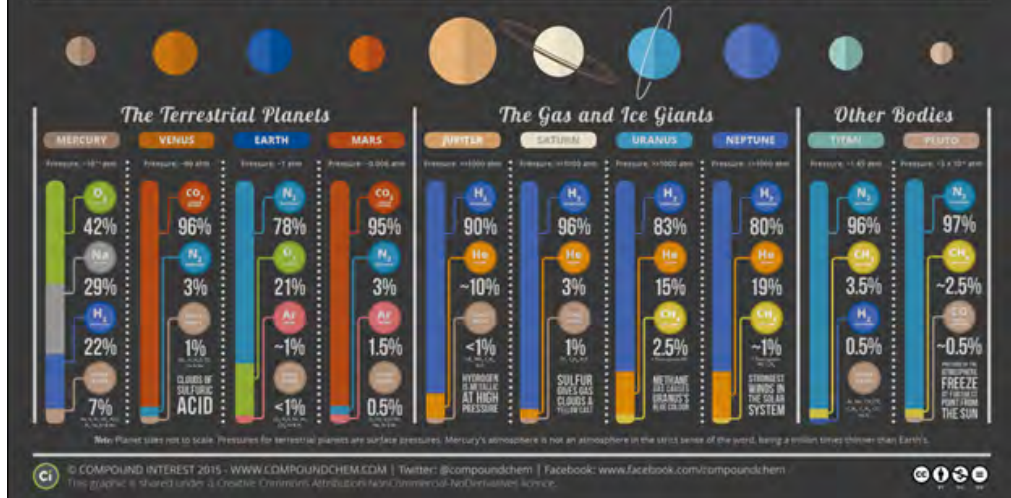
## NEW ACS MEMBERS

Keith Armstrong  
Suraj Kumar Ayer  
Peter Cockram  
Bartłomiej Iwan  
Amber L. Janda  
Kerry Jones  
Kara M. Juneau  
Abigail Kaplan

Halee E. Kemper  
Em Lundberg  
Jessica McKinley  
Qianli Meng  
Anna M. Michalak  
Jeromy James Rech  
Audrey Rose Rushing

Shubhangi Singh  
Robert E. Tricca  
Annika Viswesh  
Peter Wagner  
Brenda Wu  
Roosbeh Yousefi  
C. Yow

# THE ATMOSPHERES OF THE SOLAR SYSTEM



Learn more about the *The Atmospheres of the Solar System*. [Enlarge image](#)

## 2022 Section Officers

Chair	Stephanie Benight	206-604-3163	sbenight@gmail.com
Chair-Elect & Interim Chair	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com
Past-Chair	Jigisha Shah	315-289-5115	jssheth@syr.edu
Secretary (2022)	Laura Yeager	626-826-3145	laura.yeager123@gmail.com
Treasurer (2022-2023)	Ihab Darwish	650-624-1389	darwishis@yahoo.com

## Councilors

2020-2022	Matt Greaney	510-410-0195	greaney19@gmail.com
2020-2022	Madalyn Radlauer	408-924-5482	madalyn.radlauer@sjsu.edu
2021-2023	Grace Baysinger	408-410-6105	gracebaysinger@gmail.com
2021-2023	Natalie McClure	650-906-7831	nmclure@drugregulatoryaffairs.com
2022-2024	Linda Brunauer	408-554-6947	lbrunauer@scu.edu
2022-2024	Jane Frommer	408-927-2225	jane@collabra.net
2022-2024	Sally Peters	650-447-3027	sallybrownpeters@gmail.com

## Alternate Councilors

2020-2022	Todd Eberspacher	650-723-2505	eberspacher@stanford.edu
2020-2022	Avni Gandhi	626-831-8230	avni.caltech@gmail.com
2020-2022	Heddie Nichols	310-435-2133	hnichols105@gmail.com
2021-2023	Howard Peters	650-447-3027	Peters4pa@sbcglobal.net
2021-2023	Dipti Shingnapurkar	408-242-0674	doc.dipti@yahoo.com
2022-2024	Megan Brophy	503-407-1133	brophymegan@fhda.edu
2022-2024	Anais Nguyen	415-828-6941	anaisn@fastmail.com

## Newsletter

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Assoc. Editor	Jane Frommer	408-927-2225	jane@collabra.net



ACS Local Section  
Silicon Valley

P.O. Box 395, Palo Alto, CA 94302

Contact us: <https://www.siliconvalleyacs.org/about/contact/>

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