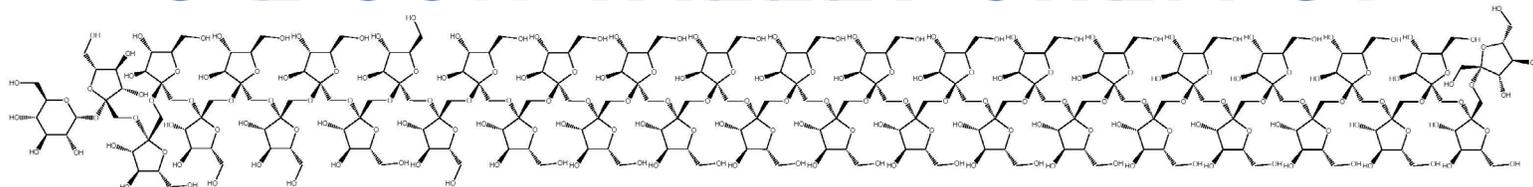


# SILICON VALLEY CHEMIST



## TABLE OF CONTENTS

### Local Section News:

2025 in Review	1, 2
Chair's Message	1
Upcoming Events	3
Upcoming Stanford Chemistry Department Events	4
Volunteer Judges Needed for Local Science Fairs	4
Coming Up in 2026	5
New Members	9
Contributors to this Issue	9

### ACS News:

Notice: The ACS Network - Chemistry Community Online - is closing	3
U.S. National Chemistry Olympiad: Key Dates	5
Celebrating ACS' 150th Anniversary	6
ACS Spring 2026 National Meeting: Early Registration Rate Ends Soon	6
CAS Seeks 2026 CAS Future Leaders Program Applicants	6
Benadryl Inventor Recognized with ACS National Historic Chemical Landmark	7

### Interesting Science:

Chemistry Quiz	2
Public Domain Day 2026	7
To Advance Science It's Important to Blur the Boundaries between Disciplines	8
There Are Two Possible Futures for American Science: Interview With David Spergel	9
Viruses Behind Colds and Flu Infographic	10

## Chair's Message - January 2026

Natalie McClure

Happy New Year. I've started another year as the Chair for the Silicon Valley local section. I thought I'd bring back the monthly chair's message to add to the wonderful newsletter that Grace Baysinger assembles.

2026 is a big year for the American Chemical Society. On April 6, 1876, thirty-five chemists met at the College of Pharmacy of the City of New York to found the American Chemical Society. That makes

*continued on next page*

# SVACS 2025 in Review

When	What	SVACS newsletter coverage and more
January	Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">Redwood City Library</a>
March	Synopsys Championship Science Fair and SVACS Awards SVACS Chocolate Raffle at ACS 2025 Spring National Meeting in San Diego Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">March 2025</a> <a href="#">April 2025</a> <a href="#">Redwood City Library</a>
April	High School Chemistry Olympiad National Exam Chemists Celebrate Earth Week 2025 Glaciers: Hot Topic, Cool Chemistry - Martin Luther King Library Hartnell College Spring 2024 Career & Resource Fair Chemists Celebrate Earth Week Illustrated Poem Contest P.I.E.F.E.S.T. Bay Area Pasifika STEM Fair 2025 Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">US National Chemistry Olympiad</a> <a href="#">April 2025, CCEW 2025</a> <a href="#">May 2025</a> <a href="#">May 2025</a> <a href="#">April 2025</a> <a href="#">Redwood City Library</a>
May	Silicon Valley ACS & Golden Gate Polymer Forum Annual Joint Seminar & Networking, Polymers for Capacitors, Transistors, and Fun, Dr. Yi Liu, Molecular Foundry, Lawrence Berkeley Lab Northern California ACS Undergraduate Research Symposium 2025 Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">June 2025</a> <a href="#">June 2025</a> <a href="#">Redwood City Library</a>
June	Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">Redwood City Library</a>
July	Tech Trek Annual ACS Silicon Valley Picnic and Awards The 2025 Ottenberg Award to Anais Nguyen Bubble Grant Recipient Scotts Valley Middle School Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">TechTrek</a> <a href="#">August 2025</a> <a href="#">August 2025</a> <a href="#">July 2025</a> <a href="#">Redwood City Library</a>
August	SVACS Wins ChemLuminary Award at ACS National Meeting in Washington DC Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">September 2025</a> <a href="#">Redwood City Library</a>
September	Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">Redwood City Library</a>
October	2025 ACS Western Regional Meeting in San Jose	<a href="#">November 2025, December 2025</a>
November	Kid Makers: Pop Up Chemistry at the Redwood City Library 2025 Election of SVACS Officers, Councilors, and Alternate Councilors for 2026	<a href="#">Redwood City Library</a> <a href="#">November 2025, December 2025</a>
December	Kid Makers: Pop Up Chemistry at the Redwood City Library	<a href="#">Redwood City Library</a>

Chair's Message, continued from front page



College of Pharmacy of the City of New York

from approximately 350 students from the Silicon Valley section who take the qualifying exam. If you are interested in helping with the Chemistry Olympiad, please let me know (<https://www.siliconvalleyacs.org/about/contact/>).

I look forward to communicating with you throughout the year. It should be a good year for ACS and the Silicon Valley section.

2026 ACS' 150th Anniversary. There are multiple events plans for a year long celebration using a theme of "chemistry is everything." There will be celebrations at the National meeting in Atlanta in March and in Chicago in August. And of course, there will be special events scheduled for the week of April 6. You can track the events and get involved at [ACS150thAnniversary@acs.org](mailto:ACS150thAnniversary@acs.org) or follow on social media #ACS150.

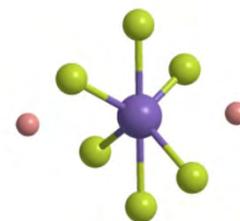
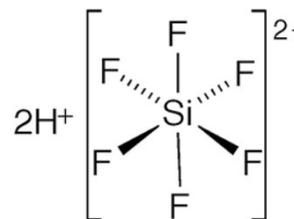
More locally, we are still discussing what we can do for this celebration. I'd welcome hearing any ideas you might have. We will definitely do something special at our summer picnic.

One of the programs that we participate in each spring is the US Chemistry Olympiad. This is a contest to identify the top high school chemistry students to represent the United States at the International Chemistry Olympiad. It is a challenging and grueling test program for the students. We select 14 students to participate in the National competition

CHEMISTRY

# Quiz

If you have healthy teeth, you might thank me. What molecule am I?



Answer

# CALENDAR OF EVENTS

<https://www.siliconvalleyacs.org/events/>

All Times Given are Pacific Time Zone

## - January 2026 -

- Jan 5** **Silicon Valley ACS Executive Committee Meeting**  
7:00-8:30 pm, Hybrid Event, Free  
Guests welcome: [contact Chair](#) to attend
- Jan 8** **ACS Virtual Office Hours: LinkedIn Profiles for Chemists**  
Sponsored by ACS Careers  
9:00-10:30 am, Online, Free, [Registration required](#)
- Jan 21** **Finding Your Path Workshop: Evaluating and Introducing Yourself**  
ACS Careers Pathways Virtual Workshop  
Sponsored by ACS Careers  
9:00-10:30 am, Online, Free, [Registration required](#)
- Jan 22** **Organic Origins: The Chemistry Hidden in an Asteroid**  
Sponsored by ACS Webinars and ACS PHYS Astrochemistry Subdivision  
11:00 am-12:15 pm, Online, Free, [Registration required](#)
- Jan 29** **Diagnose, Adjust, Advance: Job Search Strategies for Scientists**  
Sponsored by ACS Webinars and ACS Division of Professional Relations  
11:00 am-Noon, Online, Free, [Registration required](#)
- Feb 5** **ACS Virtual Office Hours: Skydiving into Retirement**  
Sponsored by ACS Careers  
9:00 am-10:30 am, Online, Free, [Registration required](#)
- Feb 6** **The Chemistry of Romance, Flavor, and Drink: Roses, Chocolate, and Wine**  
Sponsored by ACS Webinars and Science History Institute  
10:00 am-11:15 am, Online, Free, [Registration required](#)
- Feb 18** **Finding Your Path Workshop: Introduction to Careers in Chemistry ACS Careers Pathways Virtual Workshop**  
Sponsored by ACS Careers  
9:00-10:30 am, Online, Free, [Registration required](#)
- Feb 21** **Translating Science: Making Mass Spectroscopy Accessible in Cultural Institutions**  
Alba Alvarez Martin, PhD  
Sponsored by California ACS Women Chemists Committee  
10:30 am-12:30 pm, Online, Free, [Registration required](#), [Download flyer \(PDF\)](#)

## - February & March 2026 -

- Feb 2** **Silicon Valley ACS Executive Committee Meeting**  
7:00-8:30 pm, Hybrid Event, Free  
Guests welcome: [contact Chair](#) to attend
- Feb 4** **Plastics Know No Bounds: Engineering Polymers for Satellites in Outer Space**  
Prof. Timothy E. Long, Arizona State University  
Sponsored by Golden Gate Polymer Forum  
Timing and other details TBA at <https://ggpf.org/>
- Ma 22-26** **ACS Spring Meeting**  
Atlanta, GA & Digital, Early bird registration pricing ends Jan. 12, 2026  
[Learn more](#)

## The ACS Network Is Closing in Spring 2026

Have you maintained a personal space on the [ACS Network](#) or managed group content as an officer or leader on an ACS Committee, Local Section, or Division? If so, then note that the ACS Network will sunset on January 31, 2026.

### Why This Change?

Recent audits and user research have shown a steady decline in engagement across the ACS Network. In response, ACS is investing in new platforms designed to better support how you share information, connect with peers, and collaborate—tailored to meet the demands of your busy professional and personal lives.

### What to Expect

Over the coming months, you may notice certain features and content gradually becoming unavailable. Full access to the ACS Network will

end on January 31, 2026.

### What Will Remain Available?

- You will be able to log in and view your profile until January 31, 2026.
- The “Ask a Chemist” and “Ask the Community” discussion spaces closed on December 31, 2025.

### What You Should Do

- If you maintain a personal space on the ACS Network, please delete any personally identifiable information and download any important documents you’ve uploaded.
- If you are an officer or leader within an ACS Committee, Local Section, or Division, please contact your ACS staff liaison for guidance on saving or removing group content.
- No action is required if you do not manage any

group spaces.

### Stay Connected

We appreciate your past contributions to the ACS Network—your questions, insights, and collaborations have helped build a vibrant community. While the platform is sunsetting, ACS remains committed to fostering connection and engagement.

Looking for your favorite groups and communities? You can still find ACS [Committees](#), [Local Sections](#), and [Divisions](#) at [acs.org](#). And you can still [subscribe to the GCI \(Green Chemistry Institute\) Nexus Blog](#) for updates and insights.

If you’d like to share feedback or participate in future user research, we’d love to hear from you.

Contact [ACSNetworkFeedback@acs.org](mailto:ACSNetworkFeedback@acs.org)



# STANFORD CHEMISTRY DEPARTMENT UPCOMING EVENTS

Subscribe to *This Week in Chemistry* to attend Stanford Chemistry events held in the *Sapp Center* that are also available via Zoom. TWIC is published on Fridays.

- Feb 4** **Two Dimensional Polymers and Polymerizations**  
Prof. William Dichtel, Northwestern University  
Hosted by Stanford Department of Chemistry  
3:00-4:00pm, Stanford University, Sapp Center Lecture Hall 114, Free  
[Learn more](#)
- Feb 9** **Molecular Assembly of Living and Lifelike Materials**  
Prof. Seunghyun Sim, University of California, Irvine  
Hosted by Stanford Department of Chemistry  
3:00-4:00pm, Stanford University, Sapp Center Lecture Hall 114, Free  
[Learn more](#)
- Feb 11** **Very high frequency (263 GHz) pulse EPR spectroscopy of high spin transition metal centers**  
Prof. R. David Britt, University of California Davis  
Hosted by Stanford Department of Chemistry  
3:00-4:00pm, Stanford University, Sapp Center Lecture Hall 114, Free  
[Learn more](#)
- Feb 23** **Overcoming the Undruggable Nature of the Most Common Human Oncogene: K-Ras**  
Prof. Kevan Shokat, UC San Francisco  
Hosted by Stanford Department of Chemistry  
3:00-4:00pm, Stanford University, Sapp Center Lecture Hall 114, Free  
[Learn more](#)
- Mar 6** **52nd Annual Linus Pauling Lectureship**  
Prof. Jennifer Doudna, UC Berkeley  
Hosted by Stanford Department of Structural Biology  
4:00 - 5:00 pm, Stanford University, Location TBD, Free  
[Learn more](#)

## Volunteer Judges Needed for Local Science Fairs in 2026



To join our Silicon Valley ACS special award team of judges at the Synopsys Championship on March 10, 2026 in San Jose, please [contact us](#). We welcome participants from all chemistry-related fields.

As an ACS volunteer judge, you will be able to see the incredible level of focus, energy, sophistication, intelligence, commitment, and diversity in students who participate in science fairs. These are our science stars of tomorrow, and they need to be encouraged. It takes just one day of your time to judge at a local science fair – and all but one (San Mateo STEM Fair) are in person. Our local science fairs need category awards judges, especially in the areas of biology, chemistry, microbiology, and all areas of informatics. Science fairs put a human face on chemistry – make it yours by volunteering!

All of our local science fairs are qualifiers for the [California State Science & Engineering Fair](#) and either the [Thermo Fisher Scientific Junior](#)

[Innovators Challenge](#) (previously Broadcom MASTERS) (middle schoolers) or the [Regeneron ISEF](#) (International Science and Engineering Fair) (high schoolers) which will be held this year in Phoenix, Arizona. No matter which local fair(s) you choose, please volunteer now!

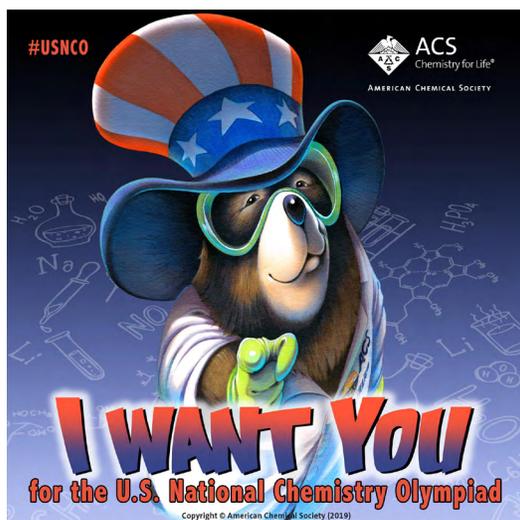
- [Synopsys Championship, Santa Clara County](#), March 10, 2026, San Jose Convention Center
- [San Mateo County Office of Education STEM Fair](#), March 14, 2026, virtual format
- [Santa Cruz County STEAM Expo](#), March 28, 2026, Santa Cruz County Fairgrounds
- [Golden Gate STEM Fair](#), March 8, 2026 for High School and March 22, 2026 for Middle School, Randall Museum, San Francisco
- [Alameda County Science and Engineering Fair](#), March 14, 2026, Chabot College, Hayward Campus

# Coming Up in 2026

## Silicon Valley ACS (SVACS) Events Plus Key ACS Events

Month	Event
January	ACS Leadership Institute (Atlanta, GA)
February	SVACS Annual Report and ChemLuminary Nominations
February	Teacher-Scholar Community College Award Nomination Deadline
February or March	Paving the Path Initiative
February-March	Judges Needed for Local Science Fairs
March	U.S. National Chemistry Olympiad: Qualifying Exam
March	ACS Spring 2026 National Meeting (Atlanta, GA)
March	Bay Area Science Fairs
April	Chemists Celebrate Earth Week
April	P.I.E.F.E.S.T.
April	U.S. National Chemistry Olympiad: National Exam
April	Hartnell College Career & Resource Fair
May	Abraham Ottenberg Service Award Nomination Deadline
May	Shirley Radding Award Nomination Deadline
May	Golden Gate Polymer Forum & SVACS Joint Annual Seminar
June	Northern California Undergraduate Research Symposium
July	Annual Picnic and Awards
July	TechTrek
August	ACS 2026 Fall National Meeting (Chicago, IL)
October	Bay Area Chemistry Symposium
October	Bay Area Science Festival (SF)
October	National Chemistry Week
October-November	SVACS Elections for Officers, Councilors, & Alternate Councilors
November	K-12 BUBBLE Grant Application Deadline
November-December	Harry and Carol Mosher Award Nomination Deadline
December	Submit Budget Requests
December	Report Election Results to ACS
Monthly event	SVACS Executive Committee Meetings (first Monday; hybrid & open to all)

## U.S. National Olympiad: Key Dates



The *U.S. National Chemistry Olympiad (USNCO)* program is a multi-tiered chemistry competition for high school students. ACS has sponsored the program since 1984. To be eligible for participation, the parents for all students must register on the ACS website. Nominees for the National Exam will be selected based on their results of the local competition. *Prepare for Exams* has previous exams and recorded webinars.

### December 15, 2025

USNCO Coaching - Student Application [Application Form](#)

### Feb. 27-Mar. 16, 2026

Local Qualifying exam period in schools

### Mid-March, 2026

Exam for students whose schools don't offer the program

### Mid-April, 2026

National Exam for selected students

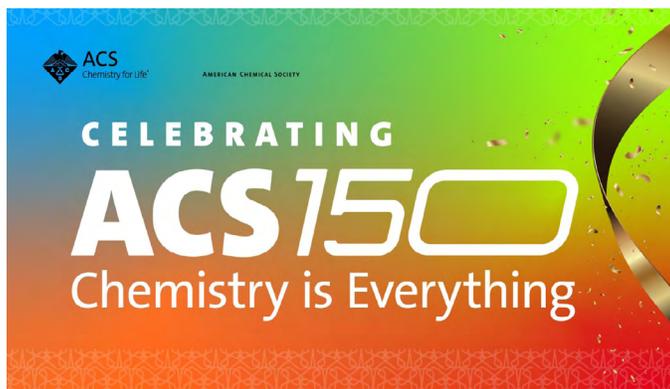
### May 31-June 13, 2026

Study Camp

### July 10-19, 2026

International Chemistry Olympiad

## Celebrating ACS' 150th Anniversary



[Watch video on YouTube](#)

In 2026, the American Chemical Society turns 150! ACS is a nonprofit organization established by a congressional charter in 1876. Since then, ACS has supported and connected scientists from around the world and fostered innovation in chemistry. Together, we will envision the future and celebrate 150 years of chemistry all year long.

Chemistry is human. Chemistry is the answer. Chemistry is everything. Chemistry wouldn't be possible without you! Join the celebration by telling us a little more about you and sharing what "Chemistry is everything" means to you. [Share your story](#)

Visit [acs.org/150](https://acs.org/150) for more information. Follow #ACS150 on social media.

## ACS Spring 2026 National Meeting: Early Registration Rate Ends Soon



Early bird pricing for registration ends January 12, 2026. There are only a few days left to save on your ACS Spring 2026 registration. Register today to take advantage of the best rates available.

Don't forget to book your hotel room. Housing for ACS Spring 2026 is still available, but room blocks are filling up quickly! Reserve your room today to get the best rate.

Quick links: [Ways to Attend](#) | [Registration](#) | [Hotels](#) | [Program & Activities](#) | [Symposia Topics](#) | [Tips for Presenters](#) | [Attendee Resources](#) | Learn more about [ACS Spring 2026](#) | Atlanta, GA & Digital | March 22-26, 2026.

## CAS Seeks 2026 CAS Future Leaders Program Applicants

**Deadline: January 25, 2026 at 9:00 PM Pacific Time**

CAS, a division of the American Chemical Society, is accepting applications for the 2026 [CAS Future Leaders program](#). The program, established in 2010, supports the growth of science leadership among early-career scientists. Those selected receive leadership training from industry experts, as well as opportunities to share their latest discoveries at the ACS Fall 2026 meeting in Chicago and to network with peer scientists and innovators from around the world.

Interested PhD students and postdoctoral scholars can [learn more about the program and apply](#).

### 2026 Program benefits:

- Expense-paid trip to CAS Headquarters in Columbus, Ohio, August 17-22, 2026
- Expense-paid trip to ACS Fall 2026 in Chicago, Illinois, August 23-27, 2026
- \$1,000 USD
- 3-year [ACS membership](#)
- Profile featured in C&EN ([2018](#), [2019](#), [2022](#),

[2023](#), [2024](#), and [2025](#) articles)

- Complimentary registration for the ACS meeting
- Opportunity to present your research at the ACS meeting
- Complimentary registration for an ACS Professional and Leadership Development course at the ACS meeting
- Lifetime membership in the CAS Future Leaders Community





# 'To Advance Science, It's Important to Blur the Boundaries Between the Disciplines'

Reprint of article published in the *Stanford Report*, January 5, 2026

"Stanford chemical biologist Carolyn Bertozzi studies sugars on the surface of cells to better understand their involvement in diseases, including cancer. This work aims to add to our fundamental knowledge of biology while also informing new medical treatments.



In the *Research Matters* series, we visit labs across campus to hear directly from Stanford scientists about what they're working on, how it could advance human health and well-being, and why universities are critical players in the nation's innovation ecosystem. The following are the researchers' own words, edited and condensed for clarity.

The reason we're able to make discoveries and breakthroughs in science is because we go deep into subjects. You have to go really deep into the science to be able to get to the root of how things work and, if they're off-kilter, how to fix them. So you end up in this world of technical jargon and concepts, talking mostly to people in your workplace bubble who already understand what you're saying. In times like these, you realize what a problem that's been – because it's the taxpayers who have, for 70 years, been supporting basic, curiosity-driven research, through the agencies of the federal government. And they might not even know that the government has stopped the flow of research funding, or they might not care, because they never really understood the purpose of the science, or their relationship to it anyway.

**This points to an urgent need for scientists, and especially those in universities who are being supported by federal research funds, to have a more direct connection to the people who are actually giving them the money – the taxpayers. If the taxpayers lose their faith in you, it undermines the entire scientific enterprise.**

I am a chemical biologist. My lab develops chemical technologies to study biological systems

and to make new kinds of medicines.

The area of biology that we focus on is called glycobiology, which is the biology of complex carbohydrates (sugars), called glycans. Cells have a forest of glycans on their surfaces, so they're kind of the first point of contact when cells are touching each other and exchanging information.

In my lab we try to understand, at a biological level, how cell surface glycans contribute to the immune system, how immune cells recognize cancer cells, and how immune cells might contribute to autoimmune diseases. Then we develop molecules that we think might have therapeutic value because they interfere with some disease process having to do with those cell surface sugars.

Back in the late 1990s and early 2000s, we invented a new type of chemistry that we call "bio-orthogonal chemistry" to study changes in the structures of cell surface glycans for diseases like cancer. This allowed us to chemically attach molecular imaging probes to these glycans, so that we could literally see them in a microscope. This is the work for which I *received the Nobel Prize*.

Using this technique, we recognized that the cell surface glycan structures were changing in the cancer cells compared to the healthy cells. Now, we are trying to develop medicines that target the surface of cancer cells to chop up these immune-suppressive glycans. We have a couple of new candidates that are going through tests in animal models now, and then if they look good, we will try to spin them out into companies.

I've put myself in positions where I bridge different fields and interact with different kinds of scientists all at once. The big breakthroughs

often come when concepts from a different field get brought to bear on a problem for the first time. A lot of the problems we've tried to solve in glycobiology, for example, have required high-end instrumentation that has its roots in physics. To advance science, I think it's important to blur the boundaries between the disciplines.

I do this work because it's interesting, hopefully important, and benefits patients who don't have good treatment options. I do this at a university because I care about the opportunity to educate, mentor, and train students. That's our primary mission; it's not the primary mission of a private pharmaceutical company.

**"The big breakthroughs often come when concepts from a different field get brought to bear on a problem for the first time."**

The cool thing about Stanford is it does encourage entrepreneurship. We have this investment community around us, and Stanford has a very progressive approach toward helping faculty file their intellectual property disclosures and file patent applications and even spin out companies. Stanford is one of those rare academic environments where you can have it both ways. Private industry doesn't really invest much in super-early-stage basic science. But we do. "

Bertozzi is the Baker Family Director of *Sarafan ChEM-H* and the *Anne T. and Robert M. Bass Professor and Professor of Chemistry* in the *School of Humanities and Sciences*. She is also a member of *Stanford Bio-X*, the *Wu Tsai Human Performance Alliance*, the *Maternal & Child Health Research Institute*, the *Stanford Cancer Institute*, and the *Wu Tsai Neurosciences Institute*.

## There Are Two Possible Futures for American Science: Interview With David Spergel



*Simons Foundation president David Spergel talks about the evolving landscape for science philanthropy, his outlook for the research enterprise, and remaining hopeful in an uncertain time.*

“Astrophysicist David Spergel has an insider’s perspective on just about every aspect of the research enterprise. As president of the Simons Foundation, one of the largest donors to science and basic research in the country, Spergel oversees both its grantmaking operations and the foundation’s *Flatiron Institute*, an in-house research arm that focuses on advancing computational methods in many areas of science.

Spergel has also led science teams for several large NASA projects, including the Nancy Grace Roman Space Telescope, which is scheduled to launch in 2027, and the Wilkinson Microwave Anisotropy Probe, which played a significant role in establishing the standard model of cosmology. He is the Charles Young Professor of Astronomy Emeritus on the Class of 1897 Foundation at Princeton University, where he spent more than 30 years on the faculty, including serving a decade as department chair. A member of the National Academy of Sciences, he has received numerous awards and honors, including the 2018 Breakthrough Prize for mapping the early universe, and is a two-time recipient of NASA’s Exceptional Service Medal.

In an interview with *Issues* editor Molly Galvin, Spergel discusses how philanthropy is responding to the seismic shifts in the US science policy landscape, what worries him most about drastic cuts in federal funding and science agencies, and his predictions about where US science could land five years from now.”

Source: Spergel, D.; Galvin, M. *There Are Two Possible Futures for American Science: Interview with David Spergel. Issues in Science and Technology*, 42 (2), Winter 2026.

[Read online](#) | [Download PDF](#)

## Welcome to the Silicon Valley Section of ACS



Each month, our Silicon Valley local ACS 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 chemists - students. As a welcoming gesture, the SVACS Executive Committee offers new members free attendance at a catered SVACS event. Come join us at our in-person gatherings. To register as our guest for a catered event, **contact us** directly to receive complimentary admission for you and a friend.

Join us for an outreach activity, like judging a science fair, proctoring the high school Chemistry Olympiad, or participating in National Chemistry Week hands-on experiments.

**The Silicon Valley local section is a volunteer organization.**

**Attend an event, volunteer to help, and get to know your local fellow chemists!**

### New SVACS Members

Heder Ambriz	Arshpreet Kaur	Liam Pruitt
Anushree Bhattacharya	Risha Koparde	Samantha Ramirez
Etta Chase	Emma Krebs	Arhan Ravi
Vinh Chau	Ellison Lee	Damian Renteria Mata
Samantha Chin	Kayla Lee	Celeste Rousseau
Sophia Crudo	Kang Rui Garrick Lim	Karla Ruiz
Natalie Dinh	Steven Liu	Ethan Schweizer
Jason Do	Natalia Lopez-Garcia	Teera Sirisak
Gilbert Dominguez	Quang Nguyen Minh Luu	Alex Smith
Jason Etchingham	Boi San Ly	Aliya Erin Tapucu
Jasmine Fong	Felix Ma	Samira Vera
Axel Arturo Garcia	Sofia Malmhall	Johan Villalpando
Stefanie Garza	Thomas Mathew	Joel Vinod
Charlie Gates	Nicholas Meissner	June Vo
Angelina Graf	Faaris Mian	Isabella Wang
Christian Harlick	Jasmine Nguyen	Chris Williams
Jasmin Ho	Monique Nguyen	Alan Wong
Katherine Hoang	Quynh Nguyen	Mason Woo
Jeslyn Hopham	Tiffany Nguyen	Katherine Yan
Irfan Jarkas	Yvonne Pham	Zelalem Yazachew

### Contributors to this Issue

Grace Baysinger  
Eefei Chen  
Jane Frommer  
Natalie McClure  
Howard Peters

# The viruses behind colds and flu



## The common cold

**ADULTS HAVE 2-5 COLDS EVERY YEAR**  
**CHILDREN HAVE 7-10**

OVER 200 DIFFERENT VIRAL TYPES ARE ASSOCIATED WITH COLDS

**2-4 DAYS**  
PEAK OF SYMPTOMS AFTER ONSET

**7-10 DAYS**  
AVERAGE DURATION OF A COLD

Due to the number of viruses and their rapid mutation, vaccination against colds is very difficult. As colds are caused by viruses, not bacteria, antibiotics can't be used to treat them. There's limited evidence that zinc acetate lozenges can reduce the duration of a cold if taken from when symptoms start.



## Rhinoviruses

**30-50% OF ALL COLDS**  
**3 SPECIES AFFECT HUMANS**  
**DIAMETER: 30 NANOMETRES**

The 3 species of rhinovirus that affect humans contain around 150 different serotypes (viruses that differ in their surface proteins). Rhinoviruses replicate best at temperatures found in the nose (33-35°C); their name comes from the Greek *rhinos*, meaning 'of the nose'. They're one of the smallest viruses.

## Influenza viruses

**5-15% OF ALL COLDS**  
**3 SPECIES AFFECT HUMANS**  
**DIAMETER: 120 NANOMETRES**

Infections with the influenza virus are commonly referred to as flu. Influenzavirus A, which has 12 known serotypes in humans, is the most common in humans and causes yearly flu outbreaks around the world. Due to the more serious symptoms, flu vaccinations are produced each year based on predictions of the strains of the virus most likely to be circulating. However, it does not confer protection against other strains and as the viruses mutate, doesn't protect against them in subsequent years.

## Coronaviruses

**10-15% OF ALL COLDS**  
**7 SPECIES AFFECT HUMANS**  
**DIAMETER: 120 NANOMETRES**

Coronaviruses cause colds with major symptoms, including fever, and can also cause pneumonia. Major outbreaks including SARS and the COVID-19 pandemic were caused by coronaviruses. They're named from the Latin *corona*, meaning 'crown', for their characteristic surface projections.

## Other viruses

RESPIRATORY SYNCYTIAL VIRUS.....5%  
PARAINFLUENZA VIRUSES.....5%  
ADENOVIRUSES.....<5%  
OTHER ENTEROVIRUSES.....<5%  
METAPNEUMOVIRUS.....?%  
UNKNOWN.....20-30%

The virus causing a cold can be identified using several complex techniques. These are rarely used as the treatment is often independent of virus type. 5% of patients with colds are infected with two or more viruses simultaneously, and other cold-causing viruses may still be identified in the future.

[Enlarge this image](#) | [Download PDF version of image](#) | [Read associated article](#)



ACS Local Section  
Silicon Valley

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	2024-2026	Natalie McClure
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<b>Alternate Councilors</b>	2024-2026	Karan Dikshit
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