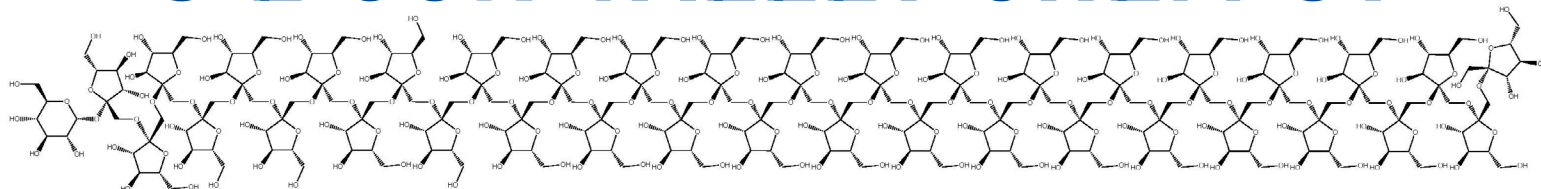




# SILICON VALLEY CHEMIST



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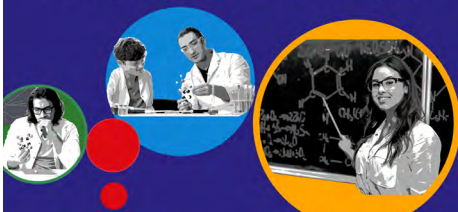
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## Bounty of April Events

**Considering a career change from industry to teaching?**

The Silicon Valley American Chemical Society hosts an EnCorps panel to describe their free training program



Tuesday, 12 April 2022 | 7-8 pm PST  
Hear from previous participants in the EnCorps program. Info session followed by Q&A.

For more information, go to <https://www.siliconvalleyacs.org/event/>  
Registration is free and required to receive a Zoom link:  
Go to <https://scienceprofessionalsinteaching.brownpapertickets.com/>

See Page 2 for more information

**Protein-based Bioplastics for Sustainable Additive Manufacturing**

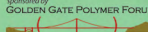
Prof. Alshakim Nelson  
University of Washington Chemistry Department



Wednesday, 20 April 2022 | 6:30 pm PDT

For more information and to register for this seminar and receive a Zoom link go to <https://ggpf.org/events/tee-295>

sponsored by GOLDEN GATE POLYMER FORUM



sponsored by American Chemical Society Silicon Valley



See Page 3 for more information

## Chair's Message

Stephanie Benight, Ph.D.

Hello Silicon Valley Section of the ACS!

I'm thrilled to be back from leave to serve as your Chair after welcoming a brand-new chemist-to-be into the world. We have hosted some great virtual events to kick off the year, and will be continuing with regularly scheduled events in this format to allow more folks to attend and a broad array of guest speakers to present to our Section. While the Omicron variant set us back in resuming in-person events, your Executive Committee is active in planning the return of in-person events barring the measurable emergence of new variants. Hooray!

This month, for those of you interested in transitioning into a career in teaching, we have an **informative virtual panel presentation** by our friends at the EnCorps STEM Teachers Program scheduled for the evening of April 12th. Additional events for the months of May and beyond are posted on our new website: [siliconvalleyacs.org](https://www.siliconvalleyacs.org).

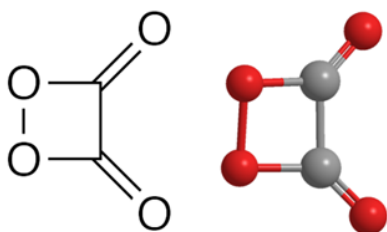
On a heavier note, I'm sorry to report that one of our dear members, George Lechner, passed away in February. George was an over-50-year member of the ACS and an active member of our Section, described in several pages of this newsletter. He will certainly be missed.

Our Section is looking to increase our presence on social media. Are you active on social media? Are you interested in growing the online presence of the Silicon Valley ACS Section? If so, please write to me at [chair@svacs.org](mailto:chair@svacs.org). As always, should you have any feedback or questions, please don't hesitate to reach out to me at [chair@svacs.org](mailto:chair@svacs.org) as well.



## CHEMISTRY Quiz

I'm the key to brightening your day—or night. What molecule am I?



Answer

# The Transition from a Science Profession to Teaching

April 12, 2022, 7 PM PT

Interested in exploring teaching? **EnCorps** STEM Teaching Fellowship allows STEM industry professionals to explore teaching in a low-risk and highly supported way.

STEM professionals, when thoroughly prepared, are uniquely positioned to meaningfully use their talents and real-world expertise as EnCorps STEM Teachers to deliver an authentic, rigorous, and relevant STEM education to students

who need it most.

The EnCorps STEM Teachers Fellowship recruits, selects, develops and supports STEM professionals as an innovative, long-term solution to the shortage of high quality, impactful educators for students in under-resourced schools.

Not ready for a big switch in career? Join EnCorps STEM Teachers Program as a STEMx Tutor and get paired with a student for a semester of

one-on-one tutoring.

Join us to learn more about **EnCorps**, ask questions, and meet science professionals who have participated in the EnCorps program.

For more information, see: <https://www.siliconvalleyacs.org/> and the EnCorps article in our **February 2022 SVACS newsletter**

**Registration** is free and required to receive a Zoom link.

**EnCorps**  
STEM TEACHERS PROGRAM



ACS  
Silicon Valley



## Considering a career change from industry to teaching?

*The Silicon Valley American Chemical Society hosts an EnCorps panel to describe their free training program*



**Tuesday, 12 April 2022 | 7-8 pm PST**

*Hear from previous participants in the EnCorps program. Info session followed by Q&A.*

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Go to <https://scienceprofessionalsinteaching.brownpapertickets.com/>



# Protein-based Bioplastics for Sustainable Additive Manufacturing

Professor Alshakim Nelson, University of Washington Chemistry Department

April 20, 2022, 6:30 PM PT, via Zoom, [Registration](#)

Sponsored by the Golden Gate Polymer Forum (GGPF)

## Abstract

Bio-sourced and biodegradable polymers for additive manufacturing could enable the rapid fabrication of parts for a broad spectrum of applications ranging from healthcare to aerospace. However, a limited number of these materials are suitable for vat photopolymerization processes. We report a process to fabricate protein-based constructs using commercially available SLA and DLP printers. Bovine serum albumin (BSA) was formulated into aqueous resin solutions that were used to print complex 3D geometrical constructs with a resolution comparable to commercial resins. While BSA is often used in cell culture protocols and diagnostic assays, we demonstrate that BSA has network-forming characteristics that

afford 3D printed objects with unique physical properties. Stiff hydrogels and bioplastic materials with a range of complex geometries were fabricated from these BSA resins. Protein-based shape-memory objects and engineered living materials were 3D printed and will be highlighted as potential opportunities for future applications.

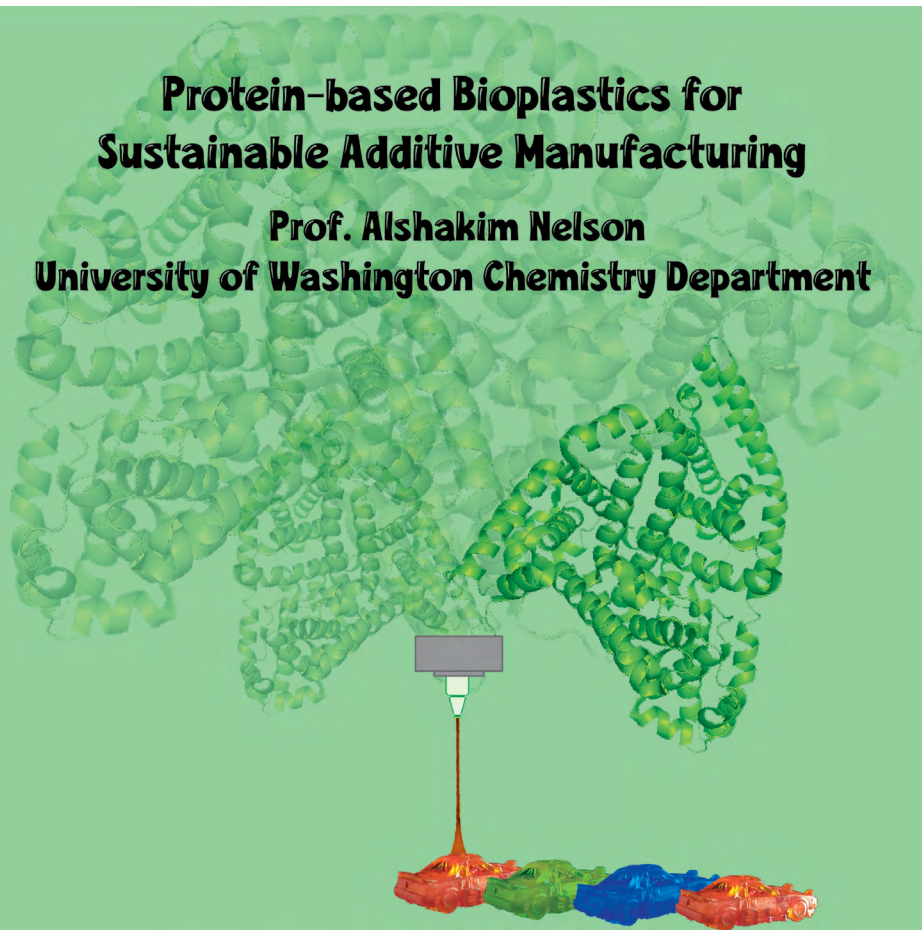
## Bio

Alshakim Nelson is an Associate Professor of Chemistry and the Director of Education at the Molecular Engineering and Sciences Institute of the University of Washington. He received his PhD in organic chemistry from UCLA in 2004, where he worked with Sir J. Fraser Stoddart on carbohydrate-containing polymers and macrocycles. He was an NIH postdoctoral fellow at Caltech with

Professor Robert Grubbs on olefin metathesis catalysts for the formation of supramolecular ensembles. Dr. Nelson was then a Research Staff Member at the IBM Almaden Research Center for 10 years where he focused on the synthesis of nanomaterial building blocks that enabled large area nanomanufacturing via self-assembly. In 2015, Dr. Nelson joined the faculty at the UW, where his research group focuses on the synthesis, characterization, and processing of stimuli-responsive materials for 3D printing. Dr. Nelson has over 70 publications and 25 issued patents. His honors and awards include recognition as an IBM Master Inventor, ACS PMSE Young Investigator, Kavli Foundation Fellow, NSF CAREER award, and 3M Non-Tenured Faculty Award.

## Protein-based Bioplastics for Sustainable Additive Manufacturing

Prof. Alshakim Nelson  
University of Washington Chemistry Department



Wednesday, 20 April 2022 | 6:30 pm PDT

For more information and to register for this seminar and receive a Zoom link go to <https://ggpf.org/events/?ee=295>



# Remembering *George Lechner*

George Lechner, a 59-year member of ACS, passed away in February; see his [Obituary](#), and the [2013 C&EN article honoring 50-year members](#). George was very passionate about ACS. He clearly put a lot of time and energy into the society. He served as:

- Silicon Valley councilor: 2006-2019
- Silicon Valley chair: 2004, 2007
- ACS Chemical Safety Committee member: 2007-2018
- ACS Constitution and ByLaws Committee member: 2019

Commemorating George's many contributions is an article plus pictures below, reprinted from many years of our section's newsletter.

## ByLaws Need Superheroes

The very mention of bylaws in a board meeting is usually met with dread! It typically means either that there is a conflict, and it has risen to the point where the bylaws must be consulted, or it means that someone is pointing out an area of noncompliance that has gone unnoticed for years. If written well, the bylaws undergird the whole governance structure and culture of a nonprofit organization. Even the Avengers needed the By-Laws and nonprofits need superheroes to tackle them. We at Silicon Valley American Chemical Society (SVACS) wanted to take this opportunity to thank someone who is best known for being our resident parliamentarian – always following the letter of the 'by' law, all pun intended! We are talking about none other than our very own George Lechner.

George has been a part of the SVACS for many years and has been an active member of this executive committee for over 20 years. He has served the Silicon Valley section in a myriad of roles such as Chair, Alternate Councilor and Councilor. George received his BA in Chemistry and Biological Sciences at San Jose State University in 1963. In his work life, he analyzed rocket motor fuels and space ordnance



chemicals, helping employees conduct their work safely and in environmentally sound ways while in the semiconductor manufacturing and also in the copier and printer industries. He is well versed in safety and environmental training programs, hazardous waste operations and regulations, injury and illness prevention processes and industrial hygiene. He earned a certificate in Industrial Hygiene (Certified Industrial Hygienist) and has used his expertise to shape ACS's Committee of Chemical Safety to encourage a more safety-minded approach to teaching chemistry to students at all levels and providing guidance for teachers, professors, students, academic institution administrators and officials.

But most importantly for our section, George has served as an impartial arbiter of the SVACS Bylaws, Roberts Rules of Order and has played a central role in building the Operations Manual. The By-Laws and the Operations Manual have served as resources and strategic documents to the newer members. We would like to take this opportunity to thank George for his many years of service!

*Reprinted from the June 2020 issue of the SVACS newsletter*



*George Lechner presented a desk-sized, Novel Periodic Table to Bonnie Charpenter, ACS President*

*(SVACS newsletter, May 2019)*



*Bruce and Ida Raby with George Lechner*



*George Lechner and Guests enjoying BBQ picnic hosted by Armadillos Willy's*

**George and colleagues enjoy SVACS Annual July picnics on the Stanford campus**





SVACS receives 2019 Chemluminary Award at ACS National meeting  
(SVACS newsletter, January 2020)

## Chair's Message

Welcome to 2024, a significant milestone in the life and history of the Santa Clara Valley Section—50 years! This year comes with the promise of an exciting program: interesting monthly dinner meetings, teacher workshops, community outreach programs, member profiles, section awards honoring ACS members who have exhibited excellence in the field of chemistry with service to the Society as well as our local section.



Section conception of those and clear. The Executive Director At meeting to pre and Carol Mosher Joseph B. Lamber Hall endowed pre at Northwestern U Evanston, Illinois.

George was Chair of our ACS local section in 2004. This snippet is from the *January 2004 issue of the newsletter*.



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

SVACS YCC & Senior Chemists Beer-Brewing Contest (2018) (SVACS newsletter, January 2019)



SVACS Organizers and Speaker (L to R): George Lechner, Sarah Gerhardt, Jane Frommer, Phil Crews (speaker), Matt Greaney

SVACS Monterey Bay subsection quarterly gathering (2019)  
(SVACS Newsletter, April 2019).



George Lechner presenting Abby Kennedy with her award from National ACS for her outstanding National Chemistry Week programs.

(SVACS newsletter, March 2008)



SVACS Judges at Santa Clara County Synopsys Science Fair  
(SVACS Newsletter, April 2019)



George Lechner by Periodic Table

Foothill College (SVACS newsletter, May 2019)

# CALENDAR OF EVENTS

## - April 2022 -

- Apr 6** **The Basics of Building Resilience: Burnout, Boundaries, and Believing in Yourself**  
Lori Ana Valentín, The College of Saint Rose  
Sponsored by ACS Webinars  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Apr 7** **Virtual Office Hour - How to Write a Resume**  
Mukund Chorghade  
Sponsored by ACS Careers  
9-10am, Online via Zoom, Free, [Registration required](#)
- Apr 12** **Science Professionals: Explore a Career in Teaching**  
Panel presentation by Encorps STEM Teachers Program  
Sponsored by the ACS Silicon Valley Section  
7-8pm, Online via Zoom, Free, [Registration Required](#)
- Apr 13** **Carbon Capture. Electrified!**  
Sahag Voskian, Verdox  
Sponsored by ACS Webinars  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Apr 14** **OPEN Executive Committee Meeting for the ACS Silicon Valley Section**  
Sponsored by the ACS Silicon Valley Section  
7:30-9:00pm, Online via Zoom, Free, Open to Visitors, [Learn more](#)
- Apr 17-23** **Chemists Celebrate Earth Week**  
Theme: The Buzz About Bugs - Insect Chemistry  
Sponsored by the American Chemical Society, [Learn more](#)
- Apr 20** **Protein-based Bioplastics for Sustainable Additive Manufacturing**  
Prof. Alshakim Nelson  
University of Washington Chemistry Department  
Sponsored by the Golden Gate Polymer Forum (GGPF)  
6-7pm, Online via Zoom, Free/\$5 donation, [Registration Required](#)
- Apr 21** **New Sustainable Crop Protection: The Pursuit of Synthetic Spinosyn Mimics**  
Natalie Giampietro, Corteva AgriSciences  
Sponsored by ACS Webinars  
11am-Noon, Online via Zoom, Free, [Registration required](#)

- Apr 27** **Como ser Empresaria de la Industria Quimica**  
María Elena Torres Jiménez, Química Blantex  
Coproducido con: Sociedad Química de México y Chemical & Engineering News  
11am-Noon, Online via Zoom, Free, [Registration required](#)

## - May 2022 & Beyond -

- May 5** **Virtual Office Hour – Careers in Government**  
Sponsored by ACS Careers  
9-10am, Online via Zoom, Free, [Registration required](#)
- May 12** **OPEN Executive Committee Meeting for the ACS Silicon Valley Section**  
Sponsored by the ACS Silicon Valley Section  
7:30-9:00pm, Online via Zoom, Free, Open to Visitors, [Learn more](#)
- May 12** **New Approaches to Non-Flammable Polymer Materials and Composites**  
Prof. E. Bryan Coughlin, UMass Polymer Science and Engineering Dept.  
Sponsored by the Golden Gate Polymer Forum (GGPF)  
Online via Zoom, details [TBA](#)
- May 18** **The Flavor Equation**  
Nik Sharma  
Sponsored by the ACS Silicon Valley Section  
7-8pm, Online via Zoom, Free, [Registration Required](#)
- May 21** **How to Thrive (Not Just Survive) As A Woman in Today's World**  
Keda Edwards Pierre, True II Soul Network  
Sponsored by the Women's Chemist Committee of ACS California Section  
10:30am-11:30am, Online via Zoom, Free, [Registration required](#)
- Jun 6-8** **The 26th Annual Green Chemistry & Engineering Conference**  
Sponsored by the ACS Green Chemistry Institute  
Held in Reston, Virginia and Online (fully hybrid meeting for speakers and attendees)  
[Learn more](#) (Early registration March 15-April 30)
- Jun 26-30** **47th National Organic Chemistry Symposium**  
Sponsored by the ACS Organic Chemistry Division  
La Jolla Marriott, California. [Learn more](#)

## ACS Strategic Initiatives

**Our commitment to impact the world for 2022-2026!**

Allocating \$50 million dollars for this strategic initiative, ACS strives to enable a sustainable future, ensure a skilled technical workforce, and enhance scientific data collections and access.

- Campaign for a Sustainable Future: Advance chemistry innovations, global collaboration and education to address the challenges of a sustainable future. [Learn more](#)
- Fostering a Skilled Technical Workforce: Recruit and engage a diverse group of students and potential employees to fulfill workforce needs in the chemical sciences. [Learn more](#)
- Accelerating Digital Research Data Products: Support the chemistry enterprise by developing open and accessible research data products. [Learn more](#)
- CAS Accelerating Life Sciences Growth: Enable seamless collaboration between chemists and molecular biologists to accelerate innovation in drug discovery and development. [Learn more](#)

## Missing Elements: Racial and ethnic inequalities in the chemical sciences

“Just published by the Royal Society of Chemistry, *Missing Elements* shines a stark light on racism and ethnic inequalities in the chemical sciences. We reviewed relevant data and reports and gathered new qualitative evidence of chemical scientists’ lived experiences.

Talented Black chemists leave the profession at every stage of their career path after undergraduate studies. People from Black and minoritized ethnicities are underrepresented at senior levels in industry and academia.”

[Learn more and download the report](#)





# ACS Council Meeting held on March 23, 2022 during the ACS Spring National Meeting

## *Synopsis of Councilor Talking Points: Summary of Governance Issues and Actions*

### **Election Results: Candidates for President-Elect, 2023**

The Committee on Nominations and Elections presented to the Council the following nominees for selection as candidates for President-Elect, 2023: Frank Blum, Mary Carroll, Rigoberto Hernandez, and Ingrid Montes. By electronic ballot, the Council selected **Mary Carroll** and **Rigoberto Hernandez** as candidates for 2023 President-Elect. These two candidates, along with any candidates selected via petitions, will stand for election in the Fall National Election.

### **Committee on Committees (ConC) Actions**

- The Council approved the Petition to Amend the Duties of the Committee on Chemists with Disabilities (CWD) to change the language in the duties of CWD from *students* to *persons* to be more inclusive to ACS members of all levels and backgrounds participating in the Society's meetings and events.
- ConC reviews each Society Committee no less often than every five years and advises the Board of Directors and Council whether they should be continued. ConC completed the performance review for the Committee on Chemists with Disabilities and recommended its continuation.

### **Committee on Budget & Finance Petition**

The Council approved the Petition to Amend the Use of Dues.

- The petition has two major components. The first changes the basis for developing the total pool of allotments available for local sections and technical divisions. The second eliminates the connection between dues revenue and C&EN.
- The total resource pool available for distribution to Local Sections and Divisions will be funded via a quasi-endowment established from the Society's unrestricted investment balances. This replaces the previous pool that was funded through the allocation of 20% of dues revenue to local sections and divisions.

### **Committee on Divisional Activities Action**

- The Council approved a division name change. Effective January 1, 2023, the Division of Carbohydrate Chemistry (CARB) will change its name to the Division of Carbohydrate Chemistry & Chemical Glycobiology (CARB).

### **Committee on International Activities Petition**

- The Council approved a Petition for a new International Chemical Sciences Chapter in Switzerland.

### **Committee on Membership Affairs**

- The Council approved the extension of market testing of the international dues discount program based on World Bank country income levels. The test results to date have suggested a positive impact on membership through new members and the expanded inclusivity that a wider global community provides.
- The Council approved the 2023 Schedule of Membership.

The 2022 Schedule went live a few short months ago, and the 2023 Schedule was designed to add more value and increased choice for membership by adding clarity and a more intuitive explanation of how our membership works. The 2023 Schedule of Membership did not change any dues, benefits, eligibility, or privileges from the 2022 Schedule.



### **- Highlights from Committee Reports -**

#### **Budget and Finance**

In 2021, ACS generated a net from operations of nearly \$79 million, which was almost \$48 million higher than budgeted. Total revenues were \$660 million, which was 5.2% or \$32.6 million over budget. Expenses for the year were \$581 million, or 2.5% below budget. This overall result was attributed to strong revenue performance from the Society's Information Services units (CAS and ACS Publications), reduced spending due to COVID-19 related impacts, and careful management of expenses across the ACS.

The Society's overall financial position strengthened considerably in 2021 as Unrestricted Net Assets, or reserves, increased by \$123 million to \$676 million on December 31. The increase was primarily the result of the \$79 million net from operations and growth of the Society's investments totaling \$71 million.

**The Committee on Nominations and Elections** solicits Councilors' input regarding qualified individuals for President-Elect and/or Directors for future consideration. Suggestions may be sent to [nomelect@acs.org](mailto:nomelect@acs.org).

#### **Committee on Committees**

All Councilors, including new Councilors, were reminded to complete their online committee preference form for 2023 committee assignments.

The preference form will be open to all ACS members and no one will be required to request permission to gain access to the form. The new form will allow users to review each committee by its main topic and focus, along with the skills and expertise needed to serve.

The committee preference form will open mid-April at <https://www.acs.org/content/acs/en/about/governance/committees.html>. Users will also be able to submit a skills assessment which will be used when considering which committees may best suit their talents.

#### **The Chief Executive Officer's Report**

The Board received an extensive report from the CEO on issues relating to ACS core values of safety and DEIR, membership, financials, the ACS Institute, strategic initiatives, and upcoming events and activities. Notably, the strategic initiatives include funding of up to \$50 million over 5 years for sustainability, fostering a skilled technical workforce, accelerating digital research data projects, and accelerating life sciences growth. See the ACS Strategic Initiatives article in this newsletter.

#### **The Board's Committees and Task Forces**

The Board received and discussed reports from its committees on Executive Compensation, on Professional and Member Relations, as well as the ACS Governing Board for Publishing, Budget and Finance and the Working Group on Structure/Representation.

- Upon recommendation of the Committee on Professional and Member Relations, the Board approved five nominees each for the 2023 Priestley Medal, the 2023 Award for Volunteer Service to the ACS, and the 2023 Charles Parsons Award as well as a recommendation for an ACS nominee for the 2022 GRAND PRIX of the Fondation de la Maison de la Chimie.
- Pending approval of the Petition to Amend the Use of Dues, the Board resolved to authorize the creation of a quasi-endowment from proceeds in the ACS General Fund. This would have an initial principal amount of \$85 million, the annual payout from which would fund individual technical divisions and local sections per allotment policies established by the Committees on Divisional Activities (DAC) and Local Section Activities (LSAC). Further, the amount of funding available for this purpose would be the standard payout from this quasi-endowment or \$3.2 million, whichever is greater.

# ACS Spring 2022 News Releases and Media Briefings



Not able to attend the ACS Spring Meeting in March? Then the [press releases](#) below plus [media briefings](#) (videos) may be of interest.

## March 20, 2022

- [Giving the cold shoulder to crunchy ice cream — with a dash of cellulose](#)
- [‘Worm-on-a-chip’ device could someday help diagnose lung cancer](#)
- [Sponges, not just their microbes, make biologically potent compounds](#)
- [Waste coffee grounds could someday help detect brain waves](#)

## March 22, 2022

- [A psychedelic drug, combined with intense therapy, improves PTSD symptoms](#)
- [Space-grown lettuce could help astronauts avoid bone loss](#)
- [An improved ink for colon tattoos](#)
- [Making wooden construction materials fire-resistant with an eco-friendly coating \(video\)](#)
- [Cooking up a way to remove microplastics from wastewater — with okra, aloe](#)

## March 23, 2022

- [Sustainable leather, yarn and paper — from bread-eating fungi](#)
- [Growing extremely tiny, uniformly sized diamonds — without explosives](#)
- [Stimulating the sense of touch with chemistry](#)
- [High schoolers develop an inexpensive filter to remove lead from tap water](#)
- [A non-hormonal pill could soon expand men’s birth control options](#)

## March 23, 2022

Be sure to check out the media briefings posted on the [ACS Spring 2022 YouTube channel](#).

## Local Science Fairs in March and May 2022

by Susan Hines

The results of the March 10 SVACS Synopsys Championship special awards judging teams are in! In its 63rd year, this regional competition virtually showcased and celebrated our local 6th-12th graders’ extracurricular projects, again challenging this year due to limited access to school facilities. It will be these students who become our future scientists, engineers, technologists, and mathematicians. So, whether or not they were selected for the SVACS awards, other organizations’ special awards, or the Synopsys Championship’s category or grand prize awards, they are all winners. Kudos to the science fair’s board of directors for a seamless virtual judging experience.

Our seven-member SVACS special award teams judged two awards: the middle school Dave Parker Award and the high school SVACS Award. Dr. Howard Peters, Dr. David Shull, and Mike Lepisto judged for the former award, and Dr. Natalie McClure, Dr. Owen Gooding, Dr. Anish Vadukoot, and Susan Hines judged for the latter. Of the incredible 142 chemistry and chemistry-related projects at the fair, we selected the following winners:

### SVACS Middle School Dave Parker Award for Excellence in Chemistry:

- Atharva Manjunath for “Investigating the Inhibitory Effect of Medicinal Plants on Alpha Amylase Enzyme”
- The team of Tiffany Zhu and Ashley Mo for “The Effects of Different Nutrients Used in Ocean Fertilization on Growth of Algae”

### SVACS High School Award for Excellence in Chemistry:

- 1st place: Keira Chatwin for “Synthesizing novel cinnamic acid analogs as small molecule inhibitors of EP2 towards the treatment of cognitive decline”
- 2nd place: Alyssa Manche for “Synthesis of novel Ibrutinib derivative towards the targeted inhibition of BTK mediated anaphylaxis”
- 3rd place: Joshua Lipman for “Effect of qubit count on the calculated ground state energy and molecular structure of H<sub>2</sub>O using quantum computation”
- 4th place: Hiranya Parekh for “Which increases the pH of ocean water more effectively and efficiently, Chaetomorpha or olivine sand?”

We’d also like to thank the many SVACS members that were category, grand prize, and other special award judges for volunteering their time and expertise. Additionally, we extend our thanks to Dr. Aart de Ges and Dr. Chi-Foon Chan, chairmen and CEOs of Synopsys, and Kate Houston of the Synopsys Outreach Foundation for their continuing and generous support of local science students and their teachers. Science fairs don’t happen without these committed students, teachers, and sponsors.

But we’re not done yet! **Category awards judges in all areas are desperately needed for Sciencepalooza!** Sciencepalooza! is San Jose’s East Side Union High School District’s (ESUHSD) science fair that will take place virtually on May 7. Many students at this ESUHSD competition are first time science fair participants. While the cost is minimal

(a day of your time judging at the local science fair), the return is great (encouraging students to participate in the world of STEM). Since category awards judges are needed not only in chemistry but in the areas of botany, biology, microbiology, and behavioral science, please spread the word so all of our participating youth have the opportunity to interact with professionals in these fields. Please sign up at <https://sciencepalooza.zfairs.com/app/user/new/Judge/?f=3ab33e00-9132-4dc1-bb3e-637edd80ba02>.

SVACS will be co-hosting an outreach booth with the SJSU Chemistry Club at the in-person Sciencepalooza! Expo awards celebration and STEAM festival at San Jose State University on Saturday, May 14, 2022. Please contact [Natalie McClure](#) if interested in joining us. Looking forward to seeing you there!

## The Art of Explosive Demolition (video)



“How do you demolish a massive building in the middle of a populated city in a matter of seconds...safely? Counterintuitively, you do it with explosives. We explore how chemistry, engineering and more than a little artistry come together to safely bring down massive structures: <https://youtu.be/2llozOn6xec>” (Reactions video, posted March 24, 2022).



## News You Can Use About Preprints

### Preprints: best practice tips librarians can share with researchers

“One of the most striking aspects of COVID-19 from a publishing perspective has been the rapid growth in preprints. Some *estimate* that

researchers were posting around 40 new virus-related preprints each day at the height of the pandemic.

In this article, Jay Bhatt, Engineering and Biomedical Engineering Librarian at Drexel

### Call for Nominations

## Silicon Valley ACS Harry and Carol Mosher Award

#### Award recipients selected on the following criteria:

- Recognition of outstanding work in chemistry
- Advancing chemistry as a profession
- Recognized service to ACS

Submit nomination dossier by **July 1, 2022** to

[sallybrownpeters@gmail.com](mailto:sallybrownpeters@gmail.com) or [peters4pa@sbcglobal.net](mailto:peters4pa@sbcglobal.net)

#### Nomination dossier to consist of:

- 2 letters of recommendation
- nominee CV

For more details:

<https://www.siliconvalleyacs.org/awards-funding/mosher/>

#### Recent recipients:

*Resa M Kelly, 2021*  
*P. Andrew Evans, 2020*  
*Chad Mirkin, 2019*  
*Gary Molander, 2018*  
*Nicola Pohl, 2017*  
*John Warner, 2016*  
*Attila Pavlath, 2015*  
*Scott Denmark, 2014*  
*Peter Wipf, 2013*  
*Charles & Martha Casey, 2012*

### Call for Nominations

## Silicon Valley ACS Radding Award

#### Award recipients selected on the following criteria:

- Member of the American Chemical Society for more than 20 years.
- Demonstrated dedicated and unselfish service to ACS 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, applied or academic chemistry.

Submit nomination dossier by **May 1, 2022** to

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

#### Nomination dossier to consist of:

- 2 letters of recommendation
- nominee CV

For more details:

<https://www.siliconvalleyacs.org/awards-funding/radding/>

#### Recent recipients:

*Natalie McClure, 2021*  
*Tom Beattie, 2020*  
*Mary Virginia Orna, 2019*  
*Peter Rusch, 2018*  
*Gary Christian, 2017*  
*Sally Peters, 2016*  
*Connie Murphy, 2015*  
*Lee H. Latimer, 2014*  
*Mamie W. Moy, 2013*  
*Bonnie A. Charpentier, 2012*

### Call for Nominations

## Silicon Valley ACS Ottenberg Award

#### Award recipients selected on the following criteria:

- Recognize members who have rendered outstanding service to the Section
- Nominees must be members or affiliates of the Silicon Valley Section.

Submit nomination dossier by **May 30, 2022** to Peter Rusch

[PFrusch@aol.com](mailto:PFrusch@aol.com)

#### Nomination dossier to consist of:

- letter of recommendation
- Brief biography
- Description or evaluation of service(s) recognized by the award

For more details: <https://www.siliconvalleyacs.org/awards-funding/ottenberg/>

#### Recent recipients:

*Grace Baysinger, 2021*  
*Jane Frommer, 2020*  
*Joseph A. Castellano, 2018*  
*Ihab Darwish, 2017*  
*Susan Oldham-Fritts, 2016*  
*Todd Eberspacher, 2015*  
*Natalie McClure, 2013*  
*Harry Ungar, 2012*

University, runs through some of the key insights he shared during a *presentation on preprints* for this year's *Open Access Week*. He touches on the potential implications for researchers and research, before highlighting some key do's and don'ts that librarians can share with authors." (Source: *Elsevier Connect* issue from March 31, 2022. Article originally posted on Elsevier's website on December 15, 2021).

### The arXiv of the Future Will Not Look Like the arXiv

“The *arXiv* is the most popular preprint repository in the world. Since its inception in 1991, the arXiv has allowed researchers to freely share publication-ready articles prior to formal peer review. The growth and the popularity of the arXiv emerged as a result of new technologies that made document creation and dissemination easy, and cultural practices where collaboration and data sharing were dominant. The arXiv represents a unique place in the history of research communication and the Web itself, however it has arguably changed very little since its creation. Here we look at the strengths and weaknesses of arXiv in an effort to identify what possible improvements can be made based on new technologies not previously available. Based on this, we argue that a modern arXiv might in fact not look at all like the arXiv of today.” (Source: Alberto Pepe, Matteo Cantiello, Josh Nicholson, *ar5iv*, posted January 25, 2022). (Also see [Articles from arXiv.org as responsive HTML5 web pages.](#))

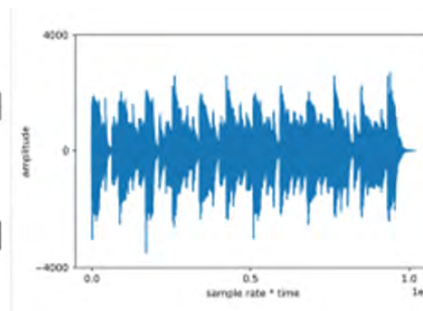
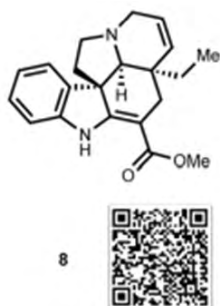
### CHORUS and ChemRxiv Sign MOU to Advance Discoverability of Preprints Associated with Funded Research

“*CHORUS* and *ChemRxiv* have signed a one-year Memorandum of Understanding (MOU) to pilot a preprint dashboard service. By using persistent identifiers, CHORUS will create a dashboard for ChemRxiv that connects preprints to funders and datasets as well as information related to public accessibility and other key metadata to be added later. The Preprint Dashboard will aid in discoverability of preprints with the potential to provide non-ambiguous links between the preprint and published research, researchers, and their funding.” (Source: *CHORUS news*, posted February 8, 2022). (Note: this dashboard has not been released to the public yet.)

### Japan's First Full-Fledged Preprint Server Jxiv to be Operational

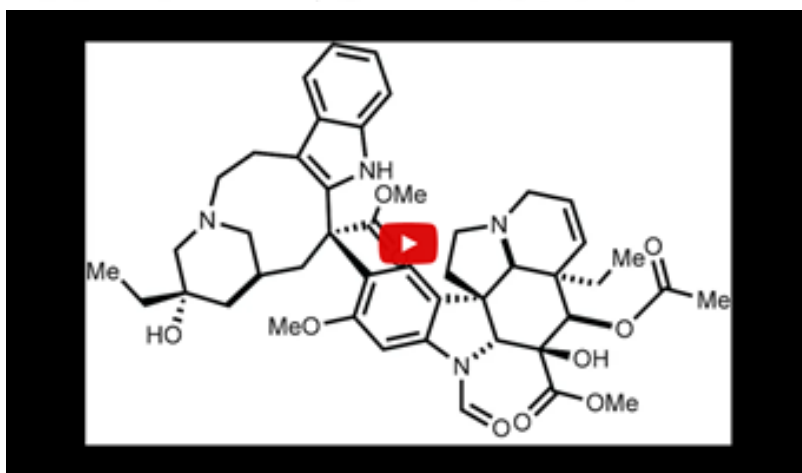
“The Japan Science and Technology Agency (JST) plans to release *Jxiv* on Thursday, March 24, 2022. *Jxiv* is the first full-fledged preprint server in Japan that makes unpublished, pre-reviewed papers (preprints) openly available, in order to support rapid-release research results and promote open science.” (Source: *Science / Business*, posted March 23, 2022).

## Converting Molecular Structures into Music



Mahjour B, Bench J, Zhang R, Frazier J, CERNAK TIMOTHY. Molecular Sonification for Molecule to Music Information Transfer. *ChemRxiv*. Cambridge: Cambridge Open Engage; 2022. URL: <https://chemrxiv.org/engage/chemrxiv/article-details/6236172dd75627dbfb1e0c92>

Abstract: Organic chemical structures encode information about a molecule's atom and bond arrangement. The most established way to encode a molecular structure is through line drawing, although other representations based on graphs, strings, one-hot encoded labels, or fingerprint arrays are critical to the computational study of molecules. Here we show that music is a highly dimensional information storage medium that can be used to encode molecular structure. The resultant method allows a molecular structure to be heard as a musical composition, where the key of the music is based on the molecular properties and the melody is based on the atom and bond arrangement. This allows for a molecular generation approach that leverages modern artificial intelligence tactics for music generation.



*Listen to musical composition for Vincristine (27 seconds, posted on YouTube).*

#ccew April 17-23, 2022  
**THE BUZZ ABOUT BUGS:**  
insect chemistry

CHEMISTS CELEBRATE EARTH WEEK  
ACS Chemistry for Life

“The Buzz About Bugs: Insect Chemistry” is the theme of 2022 CCEW - Chemists Celebrate Earth Week - April 17–23, 2022.

Explore the many ways insects in nature can

- help us - promote biodiversity, pollinate fruits and vegetables, produce honey and silk, etc.
- bug us - give us itchy bites, spread disease, etc.

Learn about the exciting chemistry at play in the lives of insects.

Check out the free [Educational Resources](#) available on the CCEW website.

[Access current and past issues of Celebrating Chemistry](#) (PDF) (available in English and Spanish).

[Celebrate Earth Week 2022 with Resources from the Journal of Chemical Education](#)



## JACS Au Launches First Virtual Issue

Emerging Chemistry & Machine Learning



“Machine learning has become an essential tool for chemists and engineers to predict or gain deeper understanding of chemical processes, allowing more rapid discoveries and providing access to possibilities only previously imagined. Covering a wide variety of topics such as analytical chemistry, catalysis, diagnostics, drug discovery, proteins, reaction prediction, spectroscopy and so on, this collection of 15 manuscripts highlights some of the exciting work in this subfield that has already been published in the early days of *JACS Au*, offering insight into current and future directions in the chemical sciences.”

[Read the virtual issue](#)



# NEONICOTINOID PESTICIDES - THE FACTS

The use of neonicotinoid pesticides has been a contentious issue in recent years. They account for around 25% of the global agrochemical market, but have also been linked with negative environmental effects. This graphic looks at how they work, and the nature of the concerns surrounding them.

**IMIDACLOPRID**

**THIAMETHOXAM**

**CLOTHIANIDIN**

**HOW DO NEONICOTINOIDS WORK?**

Can be added to irrigation water, then taken up & spread through plant tissues. Also used in seed treatments.

Bind to nicotinic receptors for the neurotransmitter acetylcholine in the insect central nervous system.

This leads to overstimulation and blocking of the receptors, leading to paralysis and eventual death.

Neonicotinoid pesticides are effective against a wide range of crop pests. They are the most widely used insecticides in the world, accounting for roughly 25% of all insecticide use. Median lethal doses vary depending on the size of the insect, ranging from less than 1 nanogram to almost 90 nanograms per insect. Mammals also have the receptors neonicotinoids bind to, but they bind to them less strongly than in insects, so neonicotinoid mammalian toxicity is much lower.

**ENVIRONMENTAL CONCERNS**

- Can accumulate in soil, low concentrations found in nectar of treated crops.
- Linked as contributors to honey bee colony decline. However, this is still inconclusive, and subject to continued research and conflicting interpretations.
- Increasing evidence of effects on non-target organisms. Negative impacts on monarch butterfly populations in the USA have recently been suggested.
- Use has been partially restricted in the EU since 2013. However, some have suggested this has merely led to increased use of older, harsher pesticides.

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Creative Commons Attribution-NonCommercial-NoDerivatives 3.0 license. Image: Karunakar Rajkar, <https://www.flickr.com/photos/rajkar/4312965916/>

**Enlarge image.** Learn about [Neonicotinoid Pesticides & Bee Colonies](#)

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