

JULY 2020 VOLUME 43 NO. 7

SILICON VALLEY CHEMIST

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GGPF Webinar on Thursday, July 23, 2020, 7:30 PM **Controlled Randomness:** The Secret To Protein-like Heteropolymers

Prof. Ting Xu, UC Berkeley, Dept of Material Science & Engineering & Chemistry

Abstract:

The functionality of polymeric materials has expanded with progress in block copolymers, sequence control, and controlled polymerization. Efforts to understand sequence-structurefunction relationships are under investigation. This seminar addresses the

role of controlled randomness for heteropolymers to achieve protein-like behavior. The approach includes protein-polymer interactions using model peptide-polymer conjugates, protein stabilization in non-native environments, and statistically controlled randomness to design polymers as synthetic membrane proteins. Applications include bioremediation, water treatment, robust catalysis, disposable electronics, and rapid ion transport.



Background reading

 Segmental Heterogeneity in Random Enable Heteropolymers Can Effective and Selective Proton Transport, Nature, 2020, 577, 216. https://doi.org/10.1038/s41586-019-1881-0

• Random Heteropolymer Enables Protein Function in Foreign Environments, Science, 2018, 359, 1239.

https://doi.org/10.1126/science.aao0335

 Reusable Enzymatic Fiber Mats for Neurotoxin Remediation in Water, ACS Applied Materials & Interfaces, 2018, 10, 51, 44216.

https://doi.org/10.1021/acsami.8b18484

Peptide-Polymer Conjugates: From Fundamental

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Chair's Message

Matt Greaney



Hello, and congrats on making it through the first half of one of the most unusual years I've ever been around for. As we enter the second half of 2020, we are still navigating uncharted territory. Vibrant social movements around the globe have put a spotlight on injustice and inequalities that are pervasive throughout so many aspects of society, including STEM. At the same time, the Coronavirus

pandemic rages on, putting so many at risk and preventing the restoration of what was considered normal just a few months ago. Indeed, these are unprecedented times, but opportunity presents itself in the strangest ways.

Most scientists agree that racism and prejudice have long plagued the STEM fields. Current ACS President, Luis Echegoyen, released a statement on behalf of the Society acknowledging and condemning this disappointing truth, citing the country's recent example of the despicable killing of George Floyd (https://www.acs.org/content/acs/en/about/acs-statement-onthe-killing-of-george-floyd.html). Acknowledgement is the first step. Continued discussion, open dialogue, and commitment to addressing the systemic problems are steps along the path forward to bring about real

August 17 - 20 ACS Fall 2020 Virtual Meeting & Expo

Moving Chemistry From Bench to Market

The American Chemical Society has decided to move the ACS Fall 2020 Meeting & Expo to a virtual platform. There will be no physical events held in San Francisco associated with the meeting. continuned on next page

UPCOMING EVENTS

Jul 15	SciFinder-n Webinar (Free)
	Hidden polymers -pro tips for finding them using SciFinder-n
	View details and register
	Upcoming CAS Webinars
Jul 23	GGPF Webinar
	Controlled Randomness: The Secret toward Protein-like
	Heteropolymers
	Prof. Ting Xu, UC Berkeley
	7:30 pm (Free) Registration required.
	Sponsored by the Golden Gate Polymer Forum
Aug 17-20	ACS Fall 2020 VIRTUAL Meeting & Expo

continuned on next page

Controlled Randomness, continuned from front page

Science to Application, Annual Review of Physical Chemistry, 2013, 64, 631. https://doi.org/10.1146/annurev-physchem-040412-110108

- Directed Co-Assembly of Heme Proteins With Amphiphilic Block Copolymers Toward Functional Biomolecular Materials, Soft Matter, 2011, 1, 172. https://doi.org/10.1039/COSM00817F
- Amphiphilic Peptide-polymer Conjugates with Enhanced Processibility and Protein Stability, Macromolecular Rapid Communication, 2011, 32, 344. https://doi.org/10.1002/marc.201000603

Registration:

- registration required www.GGPF.org
- deadline: Monday, July 21, 5:00 pm (or earlier if capacity is reached)
- free of charge; donations (\$5) accepted

Contact: Nadine Ding, ni.ding@abbott.com

GOLDEN GATE POLYMER FORUM



ACS Fall 2020 Virtual Meeting & Expo, continuned from front page

The decision was based on the established COVID-19 reopening plans of the State of California and the City of San Francisco, as well as direct input from San Francisco city and public health officials.

It is in keeping with the Society's core value of safety by ensuring the safety of its members, staff, and the citizens of San Francisco.

The ACS Fall 2020 VIRTUAL Meeting & Expo will be held August 17-20, 2020, completely online. Details for attendees, presenters, and organizers will be announced over the coming days and weeks and will be available on the ACS National Meetings website.

For more details, see Frequently Asked Questions.



OnDemand Events

ACS Webinar: **10 Essential Scholarly Publishing Tips from an ACS Editor** Mary Beth Mulcahy (ACS Chemical Health & Safety) and Kali Miller (ACS Publications)

OnDemand; posted June 3, 2020. Access limited to ACS members.

ACS Webinar: Maximizing your Digital Presence: LinkedIn Profiles for Chemists

Sandra Long (Post Road Consulting) and Tom Halleran (ACS) OnDemand; posted May 20, 2020. Access limited to ACS members.

ACS Webinar: *Navigating Your Chemistry Career in a COVID-19 World Joe Martino (ACS) and Tom Halleran (ACS)* OnDemand; posted **April 22, 2020**. Open to all.

ACS Webinar: mRNA Technology for Infectious Diseases: Therapeutic Applications and Vaccine Development

Jim Thomson (Moderna, Inc) and Venkat Krishnamurthy (Astrazeneca) OnDemand; posted May 28, 2020. Access limited to ACS members.

The **3D Printing Revolution: Advances in Material Design and Methods** Timothy Long (Virginia Tech), Rigoberto Advincula (Case Western Reserve University), and Tomonori Saito (Oak Ridge National Laboratory) OnDemand; posted **April 16, 2020**. Access limited to ACS members.

ACS Webinar: Chemistry and the Economy: 2020 Mid-Year Update Paul Hodges (International eChem) and William Carroll (Carroll Applied Science)

OnDemand; posted June 5, 2020. Access limited to ACS members

ACS Webinar: Recovery and Contingency planning for Post-COVID-19 Activities

Neal Langerman (Advanced Chemical Safety) and Harry J. Elston (Midwest Chemical Safety)

OnDemand; posted April 21, 2020. Open to all.

Chair's Message, continuned from front page

change. Within our SVACS Executive Committee, we are having an ongoing open discussion about acknowledging and addressing the lack of diversity within our local section (members and representation) and identifying approaches and programs to ensure we do better. That said, there has been a long-standing effort within SVACS to support the scientific development of the greater community with an emphasis on financially challenged and under-represented groups. One successful example of these efforts is SVACS involvement with Project SEED (Summer Experiences for the Economically Disadvantaged) where high school students, often from underrepresented groups, are placed with real scientists to work in real laboratories for the summer. Many of our SVACS outreach efforts serve underrepresented communities (https://svacs.org/local-outreach-efforts-2), but we recognize that we can do more. I invite anyone interested in taking part in these discussions and contributing their ideas and experiences to contact myself or other Executive Committee members, and I'll reiterate that everyone is welcome at our monthly ExComm meetings.

On our activities and events front, we held our annual joint meeting with the Golden Gate Polymer Forum and our first web-only based seminar on June 24 featuring Dr. Molly Morse, CEO of Mango Materials (https://www.mangomaterials.com/). Molly shared her experience taking

Mango Materials from a lab concept to a commercial demonstration scale, and she shed some light on the fermentation technology they have developed that converts waste off-gas like methane into high value organic molecules used as building blocks in the plastics industry. Over 75 people logged into the zoom meeting room, and feedback was positive. We also took the opportunity to recognize GGPF member and SVACS Councilor, Dr. Jane Frommer, for being awarded the 2020 Perkin Medal for her innovations in applied chemistry resulting in outstanding commercial development. Congrats Jane!

Finally, I wanted to remind everyone that the 2020 Fall National ACS meeting is still a go, albeit 100% virtual in nature. The virtual format National meeting will be held online from Aug 17-20. More information can be found at *https://www.acs.org/content/acs/en/meetings/national-meeting.html*.

As always, please do not hesitate to contact myself or other members of the SVACS Executive Committee with any comments, requests, or suggestions you may have. We love hearing from and interacting with our local section members, and we always hope to see you (even virtually) at our next event.

Stay well.

Matt Greaney 2020 SVACS Chair 2020-2022 SVACS Councilor ACS Committee on Economic and Professional Affairs member

Volunteer Spotlight – July 2020

July's Volunteer Spotlight shines on Ean Warren, who has served the Silicon Valley ACS for the last almost thirty years of which he spent a fabulous couple roaming around Europe.

If you've been a part of SVACS, you are used to getting emails from Ean or seeing him help out with our multitude of projects. Ean has been a part of SVACS since 1993. He has served as the chair of the section in 2000 and 2014. He has been a longstanding councilor and has put in a tremendous amount of work to provide networking and



educational opportunities at local and national levels like the trivia night, book club, Connect with Chemists, the Younger Chemists Committee Fun Run/Walk, and the Committee on Environmental Improvement's Chemistry and the Environment Film Series. Some years ago, he turned into a web designer and revamped our website. There is so much that Ean does, we could fill pages with his initiatives and accomplishments.

Ean holds the position of Hydrologist Emeritus at the United States Geological Survey (USGS) where he has spent his time studying oceans, effects of oil spills and biodegradation of hydrocarbons commonly found in crude oilcontaminated groundwater and can tell you how microbes once made a house explode.

A couple of years ago, Ean decided to travel the world. Despite being in a different time zone, he always managed to attend all the executive committee meetings and support the smooth functioning of SVACS.

Ean is moving with his family to Salt Lake City and will not be serving SVACS any longer as the councilor. Instead, he will utilize his energy to invigorate the ACS section in Utah. We wish him all the very best for all his future endeavors. We will miss him terribly and he will always have a place here!!!



SVACS Members with Fifty or More Years of Membership in 2020

In response to growing awareness and concern due to COVID-19, SVACS continues to follow the precautionary guidelines of the CDC and other public health organizations. Our annual fete, where we honor and recognize our 50+ year members has been postponed. We are still hopeful that we would be able to hold our annual picnic — just at a later date when the public-health crisis (hopefully) eases. We, however wanted to ensure that we recognized our members with fifty or more years of service in 2020!

The following ACS Silicon Valley Members will receive certificates of recognition issued on behalf of the ACS Board of Directors in grateful appreciation for fifty or more years of affiliation with the American Chemical Society.

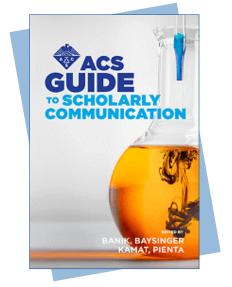
Fifty Years of Service

Dr. David B. Chung Dr. Ronald Lee Dieck Dr. Mohammad H. Ghandehari Man King Go **Robert Charles Harney** Dr. Robert Reagan Holloway Anna Podlovits Jaklitsch Jerry L. Jones David Allen Kamp Dr. Ram Rakshpal **Gregory Paul Smith** Steven Andrew Spencer Dr. Anne Barrett Swanson Shou Nan Ueng Dr. Charles Gordon Wade Dr. Will Todd Wipke Sixty Years of Service Dr. Alexandre Blumstein Guy Vincent Ferry Marius W Kendall Dr. Robert H Schwaar Michael Sullivan Story Dr. Thomas T Tidwell George Low Tong Dr. Mary Jane L R Wegener Herman H Weyland Seventy Years of Service Dr. Robert F Landel Dr. Joe B Lavinge Daniel Lazare

Special Member Access to the New ACS Guide to Scholarly Communication

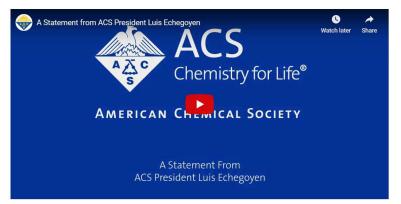
The ACS Guide to Scholarly Communication is an essential reference that covers everything from classic journal authoring topics, to styling conventions, and modern publishing topics such as open access, preprints and data. The Guide provides students, researchers, educators, and librarians with instruction and advice needed to master the art of scholarly communication. And the new Guide is completely updated and modernized, covering all instructions from previous editions.

New! ACS Members can get personal access to the Guide at the special rate of \$65 per year. If you are not a current member, you may purchase the ACS Guide when submitting your application for membership. Current members may include the ACS Guide at the time of renewal or by contacting Member Services at *service@acs.org* or by phone 800-333-9511 (US)/614-447-3776 (outside US). Learn more. See full list of *ACS Membership* benefits.



As an ACS Local Section, we echo ACS President's statement on the killing of George Floyd and the long-standing issue of systemic racism

We will be evaluating our activities to insure that we are promoting the ACS core values of diversity, inclusion, and respect



Click to view: https://www.acs.org/content/acs/en/about/acs-statementon-the-killing-of-george-floyd.html

Video Transcript

The following is a transcript from the video message delivered by ACS President Luis Echegoyen on June 4, 2020.

Hello, my name is Luis Echegoyen and I am the President of the American Chemical Society. I am speaking with you today during very sad days for the US and the World. The horrific killing of George Floyd has shed additional light on hundreds of years of racism and injustice occurring in our country.

As President of the American Chemical Society, I want to be clear that we stand in solidarity with our Black and Brown members, staff and communities during these times. We recognize the issues of systemic racism that have plagued our society as a whole and even within our own scientific organization.

ACS deplores the abuse of power that resulted in the killings of George Floyd, Ahmaud Arbery and Breonna Taylor. We mourn their deaths and those of countless other Black and Brown Americans who have been victims of abuses of power and authority.

We condemn racism, discrimination, and harassment, in any form or manifestation. These behaviors rob our fellow citizens of the opportunity to reach their full potential, of their place in society, and sometimes, of their lives.

ACS is dedicated to supporting, promoting and ensuring diverse, inclusive and respectful chemistry learning environments and workplaces. It is, in fact, a core value of the Society.

ACS will use its platform as one of the world's largest professional scientific organizations to lend a voice to those who are voiceless, and speak

truth to power. We will continue to speak out to condemn injustice, racism, bigotry, discrimination, intolerance and harassment.

In the wake of this most recent horrific tragedy, ACS renews its commitment to its core value of Diversity, Inclusion and Respect. We recognize that some progress has been made thus far, but issues of systemic racism continue despite that progress. We commit to continuously evaluate our policies and practices to actively remove systemic barriers to participation by all in the ACS community.

Diverse chemistry learners and professionals continue to experience rejection, isolation, aggression, and harassment by their peers leaving them disillusioned and their work undervalued. We commit to finding new ways to use our influence and resources to bring about needed change and diversity in the STEM community and beyond to bring about greater opportunities and advancement for African Americans, as well as for Latinos, Native Americans and other underrepresented populations around the world.

For those of us who are old enough, we remember the riots in the 1960s, and it is very sad to say that as a nation we have not made significant progress in addressing systemic racism. As a Latino, I understand and acknowledge the frustrations, the fear, and the trauma that comes with discrimination and injustice.

We are in this together. Let us renew our commitment to empower all people with the right to live a life of peace, dignity and respect free from discrimination, racism, harassment and intimidation.

Thank you very much.

Inspiring Black Scientists



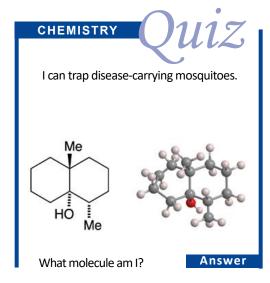
100 inspiring Black scientists in America By Antentor O. Hinton Jr on Cell Press' CrossTalk Blog. Posted February 3, 2020.

"A few months ago, an African-American colleague of mine was speaking with an undergraduate student. During the conversation, the student raised two poignant questions: (1) are there any other Black science professors, and (2) if they do exist, why aren't we learning about their accomplishments in our curriculum?"



100 more inspiring Black scientists in America By Antentor O. Hinton Jr on Cell Press' CrossTalk Blog. Posted Jun 19, 2020.

"The murders of George Floyd, Breonna Taylor, and countless other Black people and BIPOC (Black, Indigenous and People of Color) has called America to attention. In the throes of these uprisings, we're forced to assert, again, the value of Black lives—in this specific instance, scientists of color."



Publishers Against Racism

World-leading publishers join the Royal Society of Chemistry in commitment to make research publishing more inclusive and diverse

"We have gathered publishers of more than 4,400 scholarly journals and tens of thousands of books in a landmark commitment to reduce bias.

Publishers responsible for tens of thousands of peer-reviewed journals and books have signed an agreement with us to take a proactive stance against bias, as we commit to working together to better reflect the diversity of our communities and to remove barriers for under-represented groups.

The *joint statement* will impact scholarly publishing on a global scale, having been initiated by the Royal Society of Chemistry and signed by the American Chemical Society (ACS), BMJ, Cambridge University Press, the Company of Biologists, Emerald Publishing, Elsevier, Hindawi, IOP Publishing, Oxford University Press and Royal Society Publishing."

Posted June, 2020. Click on title link to read the full statement.



Welcome to the Silicon Valley Section of ACS

Each month, the section receives a spreadsheet from national ACS with the names of members new to our section. The members are either new to ACS, have transferred in from other areas, or are the newest members -- students. To welcome you to the section and get to know you, the Executive Committee offers new members a free dinner! To encourage you to attend a monthly section seminar meeting, we would like you to be our guest. When you register, make certain to mention that you are a new member and you and a friend will be our guests. The seminar meetings are held at a number of local venues. If you are unable to attend in the evening, perhaps you would join us for an outreach event, like judging a science fair, proctoring the Chemistry Olympiad or participating in a National Chemistry Week event in October. Then, there is our annual beer & wine tasting and awards picnic in July. The local section is a volunteer organization. Please attend an event, volunteer to help and get to know your local fellow chemists. Welcome!

NEW ACS MEMBERS

John Michael Bennett Andrew Bockus Sarah Bunger Jennifer Dougherty Nour Fezzani Giresh Ghooray Jennifer Hadix Dr. Patrick Holder Brian Hong Jun Hu Anna Hurtley Julia Levine Longbo Li Dr. Stefan Lutz Dr. Rashid Mavliev Anthony Napoli Rama K. Penta Dr. Dmitry Pervitsky Stephanie Pitch Ryan Scamp Sanjay Sethuram Alice Snelling Claire E. Spitzer Mark Thomas Karen N. Van Hecke Chris Warner Lisa Wisser Dr. Congqi Yan Lauren Yu

ACS Publications editors-in-chief outline steps to confront racism in chemistry publishing

The American Chemical Society published an *editorial* signed by all of its editors-in-chief and deputy editors acknowledging the deleterious impacts that racism and discrimination have had on scientists from underrepresented communities, especially Black chemists. The editorial includes demographic data of publications and calls for action to combat discrimination.

"We all have a responsibility to eradicate racism and discrimination in the science and engineering community; indeed, in order to make a real difference we need to be antiracist," the editors write in the editorial. "The tragic events we have seen in the Black community provide great urgency to this goal. The work will be difficult and will force us to confront hard realities about our beliefs and actions. And we fully expect that you, and everyone in the community, will hold us accountable."

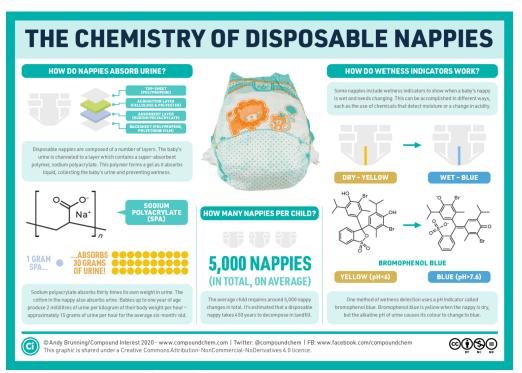
News release posted June 18, 2020. Click on title link to read the full statement.

Worth Knowing About Steve Boyer

DataWarrior – an open-source program with chemical intelligence for data visualization and analysis

Have a spreadsheet of molecules that you want to visualize and further work with their structures? Try this powerful resource that is available for free to the public: *Data Warrior*. Developed by Dr. Thomas Sander, it is hosted on *openmolecules.org*.

DataWarrior combines dynamic graphical views and interactive row filtering with chemical intelligence. Scatter plots, box plots, bar charts and pie charts not only visualize numerical or category data, but also show trends of multiple scaffolds or compound substitution patterns. Chemical descriptors encode various aspects of chemical structures, e.g., the chemical graph, chemical functionality from a synthetic chemist's point of view, and 3-dimensional pharmacophore features. These allow fundamentally different types of molecular similarity measures. DataWarrior supports the enumeration of combinatorial libraries as the creation of evolutionary libraries. Compounds can be clustered and diverse subsets can be picked. Calculated compound similarities can be used for multidimensional scaling methods. Physicochemical properties can be calculated, structure activity relationship tables can be created, and activity cliffs can be visualized.



Diapers are called 'nappies' in many English-speaking countries. Click to enlarge

2020 Section Officers

Chair	Matt Greaney	510-410-0195	greaney19@gmail.com			
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Treasurer	Ihab Darwish	650-624-1389	darwishis@yahoo.com	_		
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2020-2022	Matt Greaney	510-410-0195	greaney19@gmail.com			
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