Newsletter



Silicon Valley Section

American Chemical Society Volume 40 No. 5

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Connect with Chemists

An early morning chat with fellow chemists **Thursday, May 17, 2018, at 7 a.m.**

Coupa Café, 538 Ramona Street, Palo Alto Contact Ean Warren (*ewarren@scvacs.org*) for more information or ask for Ean at Coupa.

Chair's Message

Melody Esfandiari



I hope you are welcoming spring and enjoying the season change. Many of you may be graduating or attending a graduation; best of luck to those who

are graduating! This month, the Executive committee drafted a new mission statement

2017 Harry and Carol Mosher Award Recipient Dr. Nicola Pohl

On March 15, the Silicon Valley section awarded the 2017 Harry and Carol Mosher Award to Dr. Nicola Pohl. Nicola Pohl is Professor of chemistry and the Joan and Marvin Carmack Chair in Bioorganic Chemistry at Indiana University. She is currently also a Fellow of the Radcliffe Institute of Advanced for Advanced Study at Harvard and a Visiting Professor at MIT. Her research aims to understand and exploit the subtle differences amongst sugars in order to develop automated workflows to synthesize and analyze carbohydrates and incorporate them into biotherapeutics designs.

The carbohydrates attached to proteins/ antibodies and peptides significantly alter the biological properties of the parent structure. Chemical synthesis of glycopeptides and glycoproteins for systematic structure/function relationships studies, however, is challenging. In her presentation, Dr. Pohl discussed methods developed for solution-phase automated carbohydrate synthesis and current efforts to link the products of this synthesis platform with solid-phase peptide synthesis.

The challenges in synthesizing and studying carbohydrates are illustrated in the figure. There are 16 different regio- and sterioisomers for a hexose, a six carbon sugar. Each of these molecules requires a complex



Dr. Nicola Pohl receiving the Mosher award plaque presented by Natalie McClure, March 15, 2018

multistep synthesis followed by careful analysis to confirm the structure. The lack of a good and easy synthesis scheme has prevented formation of a library of the different hexoses which researchers can use as a tool.

Dr. Pohl and her research group are developing new synthetic routes for the preparation of carbohydrates, drawing on advances in robotic synthesis based on the approaches initial identified by Merriweather for solid phase peptide synthesis.

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for our chapter. We felt it was beneficial to have a clear mission statement. This statement can be used as a tool to guide us in using our resources in ways that are beneficial to the science community and our local community. You can find our revised mission statement in

this newsletter, and we encourage you to write to us with your comments.

Now for the next topic, I'd like to chat about a rather popular subject that has been subject to much scrutiny since it's perceived *continued on next page*

Chair's Message, continued from front page

as a mainstream hobby. Social media! I'm part of the millennial generation and grew up in Cupertino minutes away from high tech companies, yet I always shunned away from social media and never opened a Facebook account until very recently. Many of our readers may have had the same philosophy regarding social media, so I wanted to share my thoughts with you.

Social media has grown tremendously in the past decade. It's hard to imagine that 20 years ago, we had to call someone to talk to them or pass notes in class to someone we liked instead of texting. A recent study showed that on average people check their Facebook 13.8 times a day. That number blew my mind, but after giving it some thought I realized that Facebook doesn't force us to log in constantly and overshare, the users make that decision. Social media can help us connect, raise awareness, and build communities. I have concluded that proper use of social media outweighs the cons. When I became the chair, I felt that I wanted to reach out to our members more, share updates and get feedback, and social media makes that possible. That is key! It's wonderful to write a message to you

every month, but I want to share more update regarding our activities and most importantly get feedback (also known as "likes" in the social media world). If you decide to join us, you can find our Facebook page @SiValleyACS and Twitter account @ SiValleyACS

Lastly, I would like to wish all the mothers a beautiful and happy Mother's Day. In the honor of Mother's Day, for our chair's monthly fun fact, we wanted to have a relevant one. Growing up, my brother and I both had a serious sweet tooth! Of course, my mom had to constantly hide all the sweets in the house and was not happy with us when we would find her secret hiding places. But little did she know that our bad snacking habits were sort of her own fault. What women eat during pregnancy shapes the food preferences of their children later in life. The growing baby swallows amniotic fluids, which are flavored by the foods the mother consumes. Research has shown that the kind of food a fetus intakes from amniotic fluid influences their dietary preferences later in life. So if you want your children to love vegetables and fruits, you need to start before they are born and have a diet with high concentration of veggies and low sweets. But it is hard to resist sweets!

2018 Inductees into the National Inventors Hall of Fame (NIHF)

By Howard Peters

Since 1973, the National Inventors Hall of Fame (NIHF) has inducted selected inventors holding US patents who have contributed significantly to the US and world economies. The next induction will occur May 4, 2018 in Washington DC. More information is available at the URL: *http://www.invent.org*. The selected inventors and patent numbers are listed below. Copies of the U.S. patents listed below can be found at *www.pat2pdf.org* or *www.uspto.gov*.

U.S. Patent No.	Inventor(s)	Technology Area
4,405,829	Leonard Adleman	RSA Cryptography
4,415,732 & 4,458,066	Marvin Caruthers	Chemical Synthesis of DNA
281,884 & 542,733	Warren S. Johnson	Temperature Control
4,010,470	Howard S. Jones, Jr.	Conformal Antennas
6,141,060	Stan Honey	Sports Broadcast Graphic Enhancements
6,387,981 & 6,572,693	Sumita Mitra	Nanocomposite Dental Materials
1,996,171	Mary Engle Pennington	Food Preservation and Storage
6,664,298	Jacqueline Quinn	EZVI (Emulsified Zero-Valent Iron)
3,023,192	Joseph C. Shivers, Jr.	LYCRA® Fiber (Spandex)
5,345,599	Arogyaswam i Paulraj	MIMO Wireless Technology
4,405,829	Adi Shamir	SA Cryptography
4,405,829	Ronald Rivest	RSA Cryptography
4,599,315	Paul Terasaki	Typing for Organ Transplants
4,356,429	Ching Wan Tang	Organic Light-Emitting Diode (OLED)
4,539,507	Steven Van Slyke	Organic Light-Emitting Diode (OLED)

Note how many of these inventions are chemistry-related. This is the highest proportion of chemistry inventors inducted in several years.

A Statement on our SVACS Mission By Madalyn Radlauer

Over our last two Executive Committee meetings, we have discussed and compiled input on the specific mission of the Silicon Valley ACS Section. Our most recent mission statement was written in 2002 and we felt it was important to update this and craft a current mission statement, one that would allow us to evaluate our activities and programming and be the best section we can be! To achieve this, we decided to develop a living mission statement that we could put up for revision each year based on comments from the executive committee and our membership. We put together and voted on an initial draft (see below) and would greatly value any feedback you may have to help us shape this statement. We would also love to hear if you approve of this mission statement. Please send your feedback to Madalyn Radlauer (madalyn.radlauer@sjsu.edu) by June 1st and she will compile it for the executive committee meeting on June 6th when the adoption of the mission statement will be brought to an official vote.

Initial Draft of SVACS Mission Statement:

The mission of the National American Chemical Society is "Advancing the broader chemistry enterprise and its practitioners for the benefit of Earth and its people."

To that end, we, the Silicon Valley Section, define our mission to be "Engaging the chemistry community by providing professional development, educational opportunities, networking, and recognition; and by sharing innovative, exciting, and fun chemistry with our diverse broader community through education and outreach."

Attention Book Lovers!

The next meeting of the Silicon Valley ACS Science Book group will be held on Saturday, May 12 at 2 p.m. in the Stanford Chemistry Gazebo. We will meet for a discussion of the book "The Poisoner's Handbook. Murder and the Birth of Forensic Medicine in the Jazz Age, New York" by Deborah Blum. This is an easy, light read and describes the state of medicine, law enforcement and chemistry analytical forensic techniques during the Prohibition times. Everyone is welcome to join our discussions. For more information, see *http://scuacs.org/?page_id=1337*.

The 255th National Meeting of the American Chemical Society

Down in New Orleans

The perspective of Madalyn Radlauer, one of your SVACS alternate councilors

Starting around March 17th over 16,000 members of the chemistry community gathered in "that city way down on the river." Being originally from New Orleans, I was thrilled with the opportunity to hear amazing science in my hometown.

In last month's newsletter Howard and Matt covered the talking points of the Councilor's meeting on the Wednesday of the meeting, so this month it is my pleasure to share with you my experiences leading up to the councilor meeting. In the past, I have found that there are always too many good talks at a national ACS meeting to make it to them all and this one was no exception. I belong to both INOR and POLY and was giving a talk in PMSE. Not only that, one of my fellow professors from San José State University, Joe Pesek, was receiving the ACS Award for Research at an Undergraduate Institution! It promised to be a busy week.

Sunday morning, I dressed in my professional best and headed to the New Orleans Marriott on Canal Street where all the POLY and PMSE sessions were held. All morning I enjoyed polymer science talks including one on selective acyclic diene metathesis by SJSU professor Chester Simocko and one by Joe DeSimone CEO and co-founder of Carbon, a Bay Area-based company that uses polymer science to enable their cutting-edge rapid 3-D printing tech.

Around noon, I made the roughly 1-mile walk to the Convention Center where the majority of the sessions as well as the Exposition were being held. Once in the Convention Center, I couldn't seem to blink without running into someone that I had met before from college, graduate school, my postdoc, or from previous meetings or conferences. I enjoyed a bowl of crawfish étouffée for lunch while chatting with acquaintances from Dow and then nearly ran into a friend from the University of Minnesota as I hurried to the next talk. The afternoon was filled with inorganic catalysis and square schemes to analyze thermochemical data.

Sunday evening, a reception was hosted by Research Corporation in honor of Joe Pesek's award. Coming out of the reception, I ran into my fellow SVACS members including ACS President-Elect Bonnie Charpentier. Plans had changed for one of our councilors and I would get to join the other section representatives at the councilor meeting on Wednesday. Exciting news for your newest alternate councilor!

Monday, I walked in the opposite direction, going from the INOR plenary session at the Convention Center in the morning to PMSE at the Marriott in the afternoon with lunch in between at Lucy's Retired Surfers Bar & Restaurant (great fried shrimp!). Towards the end of the PMSE session, I gave my talk on block polymers. Monday evening was a special treat: my parents hosted a crawfish boil for my friends and colleagues in uptown. We cajoled and peeled pounds upon pounds of boiled crawfish with potatoes, corn, and Zapp's chips.

Tuesday morning, I went back for more INOR talks featuring two Bay Area professors, Ken Raymond of UC Berkeley (talking about energy transfer in lanthanide complexes) and Dan Stack from Stanford University (presenting on his simple imidazole ligands for CuIII2O2 complexes). Before getting over to POLY/PMSE, I stopped in at The Ruby Slipper for shrimp and grits, setting myself up for an afternoon of self-assembling materials.

Tuesday night was the big awards banquet back at the New Orleans Marriott where several Bay Area professionals were honored for their achievements. In addition to Joe Pesek's award, Hairong Zhou (Genentech) was acknowledged as part of the ACS Award for Team Innovation, Richard Saykally (UC Berkeley) received the E. Bright Wilson Award in Spectroscopy, William Degrado (UCSF) was recognized as an Arthur C. Cope Scholar, and Stacey Bent (Stanford) was presented with the ACS Award in Surface Chemistry. To finish off the lovely evening celebrating the accomplishments of these and many others, Geraldine Richmond of the University of Oregon was awarded the Priestley Medal - the highest honor the ACS bestows - "for her pioneering contributions to our understanding of the molecular properties of liquid surfaces and her extraordinary service to chemistry on a global level."

After the council meeting on Wednesday morning and a few more talks in the afternoon, I headed back to San Jose on Thursday. As usual, the ACS meeting was filled with exciting science, (unexpected) reunions, and good times. I especially loved having the meeting in my hometown and maybe, for a short while at least, my fellow councilors will "know what it means to miss New Orleans" right along with me.



Calling All Community College Instructors!

I would like to invite you to nominate a deserving teacher-scientist for the Teacher Scholar Award.

The ACS Teacher Scholar Award, established in 2008 by the Silicon Valley section of the American Chemical Society, recognizes the contributions of Community College faculty to science and education. The award consists of an ACS plaque and a check for \$500 for the awardee, with another \$500 check being donated to the awardee's college chemistry department.

The nomination form and more information regarding the award and the nomination process can be found *here*. The deadline for submission is June 30th 2018.

If you have any questions please don't hesitate to contact me directly at *sbekker@hartnell.edu*.

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Slava Bekker, Chair SVACS Teacher-Scholar Award Committee Chemistry Instructor, Hartnell College

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Call for Nominations Ottenberg Award

The Ottenberg Award is presented annually to a member of our local section for outstanding service to the section. Previous recipients are not eligible to receive it again. Nominations should include the nominee's biography, description of the service(s) for which the member is nominated, and a discussion or evaluation of the service to be recognized by the award. Please send your nomination to *PFRusch@aol.com* or by fax (650-961-8120) before June 15, 2018.

* * *

ACS Webinars

Preview the ACS Webinars archive https://www.acs.org/content/acs/en/acs-webinars.html?cid=home_4up by viewing these three, open recordings.



Reshaping Chemical Lab Safety: Creating a Dynamic and Adaptive Safety Environment What You Will Learn

- A 21st century strategic direction that you can implement to support laboratory chemical safety for both academics and industry.
- Recent documents that achieve a spiral approach to chemical safety education.
- Invaluable tools and resources for chemical safety planning in all lab environments.

Resources You Can Use

Dimensions

https://app.dimensions.ai/discover/publication

"Digital Science has launched Dimensions, a ground-breaking research information platform that enables users to explore over 4 billion connections between 128 million publications, grants, patents, data and metrics for the first time, with free search and citation data across 89 million articles." (publisher's description). The Winter 2018 issue of *Issues in Science and Technology Librarianship* contains a review of the Dimensions database.

CompTox Chemistry Dashboard https://comptox.epa.gov/dashboard

"The Chemistry Dashboard is part of a suite of dashboards developed by EPA to help evaluate the safety of chemicals. The Chemistry Dashboard provides access to a variety of information on over 700,000 chemicals currently in use. Within the Chemistry Dashboard, users can access chemical structures, experimental and predicted physicochemical and toxicity data, and additional links to relevant websites and applications. It maps curated physicochemical property data associated with chemical substances to their corresponding chemical structures. These data are compiled from sources including the EPA's computational toxicology research databases, and public domain databases such as the National Center for Biotechnology



Exceptional Presentations In Spite of PowerPoint: How to Communicate in the Digital Age

What You Will Learn

- How and why you must identify your target audience to deliver impactful presentation.
- What are the limitations when presenting to faceless audiences that are miles away.
- How to overcome virtual audience limitations with learnable skills.



Sexual Harassment in the Sciences: Steps Forward

- What You Will Learn
- What is sexual harassment.
- Why sexual harassment is prevalent in science.
- How to address sexual harassment in your science workplace.

Information's PubChem database." Source: https://www.epa.gov/chemicalresearch/chemistry-dashboard

SpectraBase

https://spectrabase.com

"Available at *https://spectrabase.com* and with hundreds of thousands of free spectra available, Bio-Rad's SpectraBase is an excellent resource for those wanting to look up NMR, IR, Raman, UV-Vis, and mass spectra by chemical name, synonym, CAS Registry Number, or InChIKey. Users can zoom in on the spectra and upload and overlay their own spectrum for comparison. Bio-Rad encourages their use in presentations and publications (with proper citation, of course). Free access but registration required." (publisher's description)

Welcome to the Silicon Valley Section of ACS

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

New SVACS Members

Dr. Nicholas Borrero Dr. David A. Britz Trevor Alexander Cabreros Cassandra Elizabeth Callmann David Cate Bruce Clemens Dr. Kanad Das Maria del Carmen Duran Daniel Holycross Tianyi Kou Roberto Ladino Rebecca Lennen Yayuan Liu Helen Claire Maschino Michael Robert Mish Atia Naim Marita E. Ocampo Justin Poelma Kaitlyn Ramirez Ramandeep Rekhi Edward Prinz Schreiner James Alfred Winston Shoemaker Peter Martin Vanderpool Deborah Wang

This Month in Chemical History

May 1

- Hilaire Bernigaud de Chardonnet born 1839: invented rayon by forcing liquid nitrocellulose through fine glass capillaries.
- Alexander William Williamson born 1824: alcohols and ethers (synthesis of ethers, with important consequences in organic structure theory); suggested the notion that catalysis can proceed through intermediate compounds; synthesis of ethylene glycol. May 2
- BF Goodrich incorporated, 1912.
- William Nicholson placed wires connected to a battery in water, observing its electrolysis, 1800.

May 3

 George Paget Thomson born 1892: electron diffraction; Nobel Prize (physics), 1937. It has been noted that G. P. Thomson helped show that the electron is a wave while his father, J. J. Thomson, helped show that it is a particle.

May 4

• Louis-Jacques Thénard born 1777: discovered sodium peroxide, potassium peroxide, and hydrogen peroxide; Thenard's blue (used in coloring porcelain); showed that caustic soda and potash contain hydrogen and oxygen; research on chlorine and alkali metals.

• Sigurd Varian born 1901: with brother Russell, invented klystron tube and founded Varian instruments.

- Proctor and Gamble incorporated, 1905. *May 6*
- Victor Grignard born 1871: developed magnesium-based reagent (Grignard reagent) used in organic synthesis; Nobel Prize, 1912.
- Paul Christian Lauterbur born 1926: magnetic resonance imaging (MRI), an application of nuclear magnetic resonance (NMR) to medical imaging (see original paper); Nobel Prize (Medicine), 2003.
- Richard Moore born 1871: advocated helium for balloons and dirigibles; supervised production of radium salts in US.

May 8

 Antoine Lavoisier was sentenced to death by the French Revolutionary Tribunal and executed by guillotine, 1794.

• Henry Gilman born 1893: organometallic chemistry.

May 10

• François-Marie Raoult born 1830: properties

of solutions; discovered that vapor pressure in many solutions is proportional to the number of molecules per unit volume in the solution (Raoult's law); freezing-point depression; vapor pressure lowering.

May 11

• Donald Othmer born 1904: chemical engineer; co-founder and editor of Kirk-Othmer Encyclopedia of Chemical Technology.

May 12

- Dorothy Crowfoot Hodgkin born 1910: Xray determination of Vitamin B12 crystal structure; Nobel Prize, 1964.
- Justus Liebig born 1803: "Father of agricultural chemistry"; quantitative organic analysis; Liebig condenser; distinguished fats, protins, and carbohydrates in foods. *May 13*
- Marie Curie was appointed professor of physics at the Sorbonne, 1906 (the first woman professor there). *May 14*
- George Fownes born 1815: organic and analytical chemistry; author of Elementary Chemistry: Theoretical and Practical, which went through many editions long after Fownes' death.

CHEMPLOYMENT ABSTRACTS MAY 2018

CHEMPLOYMENT ABSTRACT 4004

Position Title: Senior Production Chemist – Silica Manufacturing *Job Description:* The Senior Production Chemist is responsible for conducting production activities for silica based separation media and related intermediates. QUALIFICATIONS DESIRED:

Education: PhD in Organic Synthetic Chemistry preferred, but will consider Bachelor's in Chemistry with 8 years of synthetic chemistry experience.

Experience: Deep knowledge and experience in analysis of grafting and surface modification of polymeric materials required. Must have strong background in synthetic organic chemistry.

LOCATION, SALARY, EMPLOYER:

Job Location: Sunnyvale, CA

Salary: Commensurate with experience

Description: Thermo Fisher Scientific is the world leader in serving science. Our mission is to enable our customers to make the world healthier, cleaner and safer, with revenues of \$13 billion.

Application Instructions: Please apply online at *www.thermofisher.com/careers* jobcode: 63797BR

Chemistry Quiz

What is the common trivial name of n-hexanoic acid (CH₃(CH₂)₄COOH)? What is the basis for this name?

The answer will appear in next month's newsletter.

Last Month's Chemistry Quiz

Who has won the Nobel prize in Chemistry twice?

Frederick Sanger in 1958 for his work on the structure of proteins, and in 1980 for his contributions concerning the determination of base sequences in nucleic acids

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May 5

May 9



SILICON VALLEY SECTION AMERICAN CHEMICAL SOCIETY P.O. Box 395, Palo Alto, CA 94302



is published on our web site, sign up at: http://scvacs.org/?page_id=99

SILICON VALLEY SECTION

2018 Section Officers				FUTURE EVENTS
ChairMelody EsfandiariChair-ElectGrace Baysinger	408-924-4973 650-725-1039	melody.esfandiari@sjsu.edu graceb@stanford.edu	May 12	Stanford's Jasper Ridge Biological Preserve: Community Open House v6.slac.stanford.edu/community/public-tours
Past ChairTodd EberspacherSecretaryJigisha ShahTreasurerIhab Darwish	650-723-2505 315-289-5115 650-624-1389	eberspacher@stanford.edu jssheth@syr.edu darwishis@yahoo.com	May 12	Silicon Valley ACS Section Book Club Stanford Chemistry Gazebo - 2 p.m.
Councilors 2016-2018 Linda Brunauer 2016-2018 Sally Peters	408-554-6947 650-447-3027	lbrunauer@scu.edu sallybrownpeters@gmail.com	May 19	http://scvacs.org/?page_id=1337 Hayward Fault 150th Anniversary of Great Quake Tour Tule Ponds
2010-2018Sany Feters2018-2018Peter Rusch2017-2019George Lechner	650-961-8120 408-226-7262	pfrusch@aol.com glechner@aol.com	http://msnu	1999 Walnut Avenue, Fremont, CA ucleus.org/haywardfault/150_hayward.html
2017-2019 Matt Greaney 2018-2020 Ean Warren 2018-2020 Natalie McClure	510-410-0195 650-329-4554 650-906-7831	greaney19@gmail.com ewarren@scvacs.org nmcclure@drugregulatoryaffairs.com	Jun 18-20	Green Chemistry and Engineering Conference Portland, OR
Alternate Councilors2018-2018Alex Klevay2018-2018Richard Bone2018-2018Howard Peters	408-561-0087 650-714-7897 650-447-3027	alex.klevay@gmail.com rgab@scvacs.org peters4pa@sbcglobal.net	Jun 21	http://www.gcande.org/?cid=home_meetings SVACS Joint Meeting with the Golden Gate Polymer Forum Dr. Robert Grubbs, speaker Michael's at Shoreline Park
2017-2019Elizabeth Migicovs2017-2019Slava Bekker2018-2020Madalyn Radlauer2018-2020La E	831-759-6005 408-924-5482	elizabeth.migicovsky@sjsu.edu sbekker@hartnell.edu madalyn.radlauer@sjsu.edu	T 114	<i>http://michaelsatshoreline.com/</i> Mountain View, CA
2018-2020 Jane Frommer Newsletter Editor Kevin Greenman	408-927-2225 408-634-2309	jane@collabra.net editor@scvacs.org	Jul 14	Silicon Valley ACS Section Annual Awards Presentation and Picnic Stanford, Chemistry Department
Assoc. Editor Partha P. Bera ChemPloyment Abstracts	408-034-2307	partha.pb@gmail.com	~	Stanford, CA Click on links for more information or newsletter at <i>http://scvacs.org/?page_id=99</i>
Director: Liang Cao		liang.cao@aol.com		······································

FUTURE EVENTS