



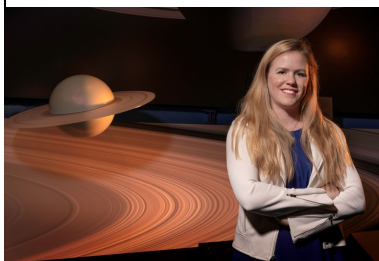
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SCALACS

May/June 2021

A Joint Publication of the Southern California and
San Gorgonio Sections of the American Chemical Society

Southern California Section



**Congratulations to our
50/60/70 Year Members
Virtual Presentation including a
Talk by Dr. Laurie Barge, JPL
May 12, 2021**

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Southern California and San Gorgonio Sections of the
American Chemical Society

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Number 4

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Southern California Section

Chair's Message



"Above all, don't fear difficult moments. The best comes from them." – Rita Levi-Montalcini

Greetings SCALACS Members!

Glad to see our members' great spirit of being exemplary volunteers in making a difference by interacting with our community through many of our events. As part of "Chemists Celebrate Earth Week (CCEW)," we conducted a Zoom **Demonstration on Household Chemistry** (on April 18th) and a **CCEW Illustrated Poem Contest** focusing on this year's theme "Reducing Our Footprint with Chemistry". Thanks to Veronica Jaramillo, Alexandra Aloia and Inessa Bychinskaya for coordinating these events and to all who participated in these signature events, quite beneficial to all especially to our student community.

The **Chemistry Olympiad National Examinations** were conducted on April 17th and 24th. I really appreciate the enthusiasm and hard work of our students, who did a marvelous job in these competitions. Thanks again to Jerry Delker, Barbara Belmont and our volunteer teachers for their dedication.

This year also, the **Educational Awards Program** will be conducted virtually; details are announced on Page 7. Thanks to Jerry Delker and Michael Morgan for coordinating the program.

Congratulations to all our dedicated members, who completed **50, 60, and 70 years of service** to the American Chemical Society! To thank them for their long-term honorable service to American Chemical Society, we have arranged a zoom event scheduled for **Wednesday, May 12, 2021 at 7:00 pm**. Marking the occasion, Dr. Laurie Barge of the Jet Propulsion Laboratory is pleased to give a talk "Searching for Signs of Life and its Origin on Other Planets". Please attend this important event, open to all our ACS members and friends.

We are planning to conduct the Richard C. Tolman Award Presentation by another zoom event on **Wednesday, June 16th** to honor **Professor Pingyun Feng, the 2020 Tolman Medal Recipient**. Details of the award program and the upcoming future virtual events and their status will be announced on our section website, www.scalacs.org, or via emails from our Section Office.

Since we do not have Newsletter during the summer, I wish you all now, in advance a safe and happy summer too.

With Best Regards,
Thomas Mathew, Chair (tmathew@usc.edu)

Southern California Section

**Virtual Presentation honoring our
50/60/70 Year Members**

**Featuring a Talk by
Dr. Laurie Barge, Jet Propulsion Laboratory
“Searching for Signs of Life and its Origin on
Other Planets”**

**Wednesday, May 12, 2021
7:00—9:00 pm**

To register, please go to:

<http://bit.ly/2021-50-year-celebration>

You will receive a confirmation email with the Zoom link

Abstract: Is there life elsewhere in the solar system, and if so how can we find it? Astrobiologists work to define what life is and to figure out how to recognize it on another world, and to understand the processes that could get life started in the first place. This effort involves not only exploring other planets with spacecraft, but also understanding Earth’s history and how life has evolved on our planet to yield an amazing diversity and resilience. Meanwhile, it is important to study abiotic chemical processes in the lab, since prebiotic chemistry can become more complex when devoid of biological influence, and may be a current or formerly active process on other worlds such as Enceladus, Ceres, or Mars. In this talk I will discuss how astrobiologists approach the search for life on other planets, and describe some of the difficulties in distinguishing living and non-living systems. I will also share some of my lab’s work on simulating energy and prebiotic chemistry in deep sea hydrothermal vents, and how we prepare for characterizing such systems if they were to be encountered on other worlds.

Biography: Dr. Laurie Barge is a Research Scientist in Astrobiology at the NASA Jet Propulsion Laboratory. She co-leads the JPL Origins and Habitability Laboratory which studies how life can emerge and be detected in planetary environments, and she is the Investigation Scientist for the HiRISE instrument on NASA’s Mars Reconnaissance Orbiter (MRO) mission. Dr. Barge is interested in how complex organic chemistry and life can emerge on planets. She is also interested in hydrothermal vents as planetary analogs, and is the science lead for an underwater laser divebot that will be deployed to a seafloor vent in the Pacific in 2021. (Continued on Page 4)

Southern California Section

50/60/70 Year Celebration (Continued from Page 3)

Biography (Continued): Dr. Barge received her Bachelor's degree in Astronomy and Astrophysics from Villanova University, and her Ph.D. in Geological Sciences from the University of Southern California. After graduate school she was a Caltech postdoc and then a NASA Astrobiology Institute postdoctoral fellow. For her astrobiology research Barge has received the JPL Lew Allen Award, the NASA Early Career Public Achievement Medal, and the Presidential Early Career Award for Scientists and Engineers.

Prior to Dr. Barge's talk, we will honor our 50, 60 and 70 year members. We would like to congratulate our senior members on their tenure and thank them for their long-term support of the American Chemical Society:

50 Year Members

Bruce S. Brunschwig
Robert H. Frisbee
Christine E. Geosling
David G. Kaplan

Richard W. Kidd
James J. Margitan
Mostafa A. H. Talukder

60 Year Members

Kyle D. Baves
Karl O. Christe
Thomas W. Giants
Margaret Holzer
Bruce E. Kaplan

T. Joseph Lin
Sofia Pappatheodorou
Leo Roos
Stuart Salot
Kenneth L. Servis

70 Year Members

Phillip G. Abend
Barbara T. Coleberd
Lloyd E. Gardner

We want to remind our older members that we have a spot on our website for **Reminiscences by our Senior Members**. If you have an anecdote, story or remembrance of your career as a chemist that you would like to share, please send it to Nancy Paradiso in the Section Office at office@scalacs.org.

Southern California Section



**Virtual Presentation of the
2020 Richard C. Tolman Award
to
Professor Pingyun Feng
University of California, Riverside**

June 16, 2021

6:30 pm virtual Social Hour

7:00 pm Presentation of Award and Address

**Tolman Address:
“All about Crystalline Porous Materials”**

**For Prof. Feng's biography and abstract, please see the
April issue of SCALACS or our website,
https://scalacs.org/?page_id=29**

**To make a reservation to attend the virtual
presentation, please sign up at
<http://bit.ly/RSVP-Tolman2020>**

**You will receive a confirmation email with the
zoom meeting link.**

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Southern California Section

2021 High School Chemistry Olympiad

The Southern California Section had **332 students** take the local section test online through the National ACS Learning Center. The top students from the local exam were invited to participate in Part I of the online National Exam on April 17, 2021. The top 200 students from the Part I test were then invited to participate in Part II of the National Exam on April 24, 2021. **The Southern California Section had 9 students qualify for Part II.** Congratulations to the students listed below who qualified for Part I. The students who qualified for Part II are annotated with an asterisk. The top scorers from the National Exam will go to a virtual study camp to be held online in June.

Congratulations to our National ACS Exam Team for 2021:

*Alex Dang	Arcadia High School
*Gordon He Guo	Arcadia High School
*Phillip Jeong	Los Angeles Center for Enriched Studies
*Konnie Duan	Harvard-Westlake High School
*Xiyu Wang	South Pasadena High School
Sarah Cao	Palos Verdes Peninsula High School
Sunjae Kim	West Torrance High School
Akash Anand	Palos Verdes Peninsula High School
*Theodore Dupont	North Hollywood High School
*Randall Scharpf	West Torrance High School
*Lydia Qin	North Hollywood High School
Ethan Poladian	Redondo Union High School
Srinivasan Arumugham	San Marino High School
*Jacqueline Mancera	South Pasadena High School
Andrew Choe	Harvard-Westlake High School
William Wang	Polytechnic High School

Please see our announcement on the next page for the **High School Olympiad Awards Presentation on May 26, 2021.**

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Southern California Section

2021 High School Chemistry Olympiad Awards Presentation

**Wednesday, May 26, 2021
7:00 pm—9:00 pm**

This year, we had 332 students representing 29 high schools take the local Olympiad exam. Arcadia and South Pasadena High Schools tied for first place overall while North Hollywood High School finished first for first year students. Sixteen students representing ten schools were invited to participate in Part I of the National Exam on April 17th online. The top 200 students nationally took Part II of the National Exam on April 24th. These students, as well as the top performers and teachers from each school with 10 or more participants, will be honored at our annual Educational Awards Presentation.

To make a reservation to attend the virtual presentation, please sign up at:

<http://bit.ly/2021-EducationalAwards>

You will receive a confirmation email with the zoom meeting link.

Call for Nominations SCALACS 2021 Election

The Nominations, Elections and Awards Committee of the Southern California Section is soliciting nominations for the election of 2022 Section officers (Chair-Elect and Secretary), Members-at-Large of the Executive Committee, and Councilors. For more information on these positions, please see our website:

https://scalacs.org/?page_id=4291.

If you wish to propose names (including your own) for consideration, send them to the Section Office at office@scalacs.org by **June 30, 2021**. We offer you a great opportunity to network with other chemists and promote chemistry.



This Month in Chemical History

Harold Goldwhite, California State University, Los Angeles
hgoldwh@calstatela.edu

The eighteenth century saw great advances in chemistry, sparked by the rapid growth in studies of gases, or “airs” as they were called at the time. The initial spark came from seventeenth century observations by Van Helmont, who coined the term gas from a Greek root meaning chaos, and who realized that there were gases different from common air, which was still regarded by many natural philosophers as one of the four elements. The following century saw great advances in pneumatick chemistry, as the study of gases was called. The great book in chemistry that I will consider in this column incorporates much of the research undertaken by a seminal figure of pneumatick chemistry. The researcher is Joseph Priestley (1733 – 1804); the book is “Experiments and Observations on Different Kinds of Air” (3 volumes, 1774 – 1777).

Priestley was an impressively talented man, by profession a dissenting minister, i.e. a Christian but not an adherent to the established Anglican Church; and by enthusiasm a natural philosopher. He wrote and published prodigiously: charts of history and biography; a history of electricity; a history of vision, light, and colors; several versions of the work on airs already mentioned; two books attempting to establish the doctrine of phlogiston; a book on oratory (he had a stammer!); and around “50 works on theology, thirteen on education and history; eighteen on political, social, and metaphysical subjects; and twelve books and about fifty papers on scientific subjects” (Partington, “History of Chemistry”, Vol.3).

Given such productivity it is not surprising to learn that the Editor of “Philosophical Transactions”, the journal of The Royal Society, after receiving a number of voluminous papers on airs from Priestley, intimated to him that there was no room in Phil. Trans. for any more papers by Priestley, and that he should consider publishing elsewhere. Thus the “Experimental Observations...”.

Several columns could be devoted to the career of Joseph Priestley, but those are for another time. For now I will focus on Priestley’s numerous discoveries and observations in pneumatick chemistry. The pneumatick trough, invented by Stephen Hales, separated the generator and the collector of airs, and was an advance in technique. Priestley used two types (Continued on Page 9)

This Month in Chemical History

(Continued from Page 8)

of pneumattick troughs, collecting airs over water or over mercury. In this way he was able to isolate airs soluble in water.

Early in his work, when he lived in Leeds next to a brewery, he began studying mephittic air (carbon dioxide) produced in the fermentation of grains to beer. He found that impregnating water with mephittic air gave a refreshing sparkling beverage similar to natural mineral waters. His pamphlet on this discovery was his most popular publication, and led to an industry that flourishes to this day – the carbonated beverage industry.

The airs Priestley discusses in his book include nitrous air (nitric oxide); phlogisticated air (nitrogen); nitrous vapor (nitrogen dioxide); nitrous air diminished (nitrous oxide); acid air (hydrogen chloride); inflammable air (hydrogen); vitriolic acid air (sulfur dioxide); fluor acid air (silicon tetrafluoride); alkaline air (ammonia); carbon monoxide; and dephlogisticated air (oxygen). Priestley was not always the earliest discoverer of some of these airs, but he excelled in the wide scope of his work and in his extensive examination of their properties, particularly those of oxygen. Priestley's work on oxygen was the key to Lavoisier's revolution in chemistry and the improved understanding of combustion and respiration. With Priestley's great book on airs we are on the threshold of a new era of chemistry which is encapsulated in the next great book I plan to discuss.

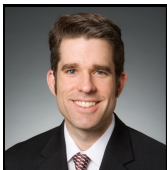
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Insights Into IP Law

Keith Orso*, Irell & Manella LLP
KOrso@irell.com

As discussed last month, the patent laws generally exempt from the universe of “prior art”—which is, in general, pre-existing information that can be used to establish that an invention is not patentable, e.g., because it was not novel—a disclosure made one year or less before the effective filing date of a claimed invention if the disclosure was made by an inventor or a joint inventor, or by another who obtained the disclosed subject matter directly or indirectly from the inventor or joint inventor.

This general rule effectively gives an inventor or joint inventors a one-year grace period to file a patent application after publicizing an invention, without having their own work used against them to defeat patent rights.

So suppose that in early 2020, Amy, Bob, and Christie published in the *Journal of the American Chemical Society* a paper that discloses their invention of a novel chemical and methods of synthesizing it. Eight months later, Amy, Bob and Christie file a patent application on the chemical and methods. The disclosure of the invention in the earlier paper should not be used against them because it was published less than a year before they filed their application.

What if the paper lists only a subset of inventors—say, Bob and Christie, but not Amy—as authors on the paper published in JACS? The disclosure of the invention in the paper still should not be used to defeat patentability because all of the authors are listed as inventors.

But what if the paper listed as authors not just Bob and Christie, but also Dave, Emily, and Francis? Or what if, several months before Amy, Bob, and Christie published their paper or filed a patent application, Gary and Helen heard about the invention from Amy and then wrote and published an article reporting the discovery—without taking credit for it but also without listing any of the inventors as authors? Suppose the United States Patent Office finds the article and uses it to reject Amy, Bob, and Christie’s patent application on the ground that the subject matter was described in a publication before the priority date.

In those circumstances, Amy, Bob and Charlie can submit to the patent office a written statement, sworn or signed under penalty of perjury, explaining that the subject matter disclosed in the prior publication was obtained directly or indirectly from them and therefore should not constitute “prior art” to defeat patentability of their invention.

* The author earned engineering and chemical engineering undergraduate and graduate degrees, and is a patent attorney and partner at the law firm of Irell & Manella LLP. This column does not constitute legal advice and does not necessarily reflect the views of the firm or its clients.

San Gorgonio Section

Chair's Message



I begin this message by expressing sincere appreciation for all those who contributed to another successful Chemistry Olympiad exam for high school students in the San Gorgonio section. Details of the exam are provided in a separate section of this newsletter. Our Olympiad Coordinators, Eileen DiMauro and Dennis Pederson, worked tirelessly to plan and communicate with the National ACS and the local schools to ensure that the virtual examination was successfully completed. Several section board members and other volunteers from our local colleges helped proctor the exam. A special thanks to Chloe Jonsson, an undergraduate student at CBU, for communicating with local Chemistry Clubs to identify proctor volunteers. Later in the spring, we will have an awards event honoring the top scoring students, their teachers, and parents. This may be a virtual event, unless conditions at that time permit an in-person setting. Please check the section website for updated information regarding this event.

On **Saturday, May 15** the section will host an online scientific presentation entitled **"CMC Strategies for Accelerated Development of Bamlanivimab—A Therapeutic Monoclonal Antibody for COVID-19" given by Dr. Bryan Harmon from Eli Lilly and Company.** Details of this presentation are provided on Page 15, as well as on the San Gorgonio Section website. Therapeutic antibodies have become one of the most important categories of pharmaceuticals and many current and future chemists, biochemists, and biochemical engineers are required to meet the research, development, and manufacturing demands for these products.

One final topic. Many of you will be receiving this newsletter via an email link, rather than a mailed hard copy. You can also access the newsletter, as well as archived newsletters, via the Southern California Section website at https://scalacs.org/?page_id=227. If you did not receive this newsletter in hard copy form and feel strongly that you would prefer to receive a hard copy, please contact me via the email address at the end of this message.

As a reminder you can access the local section information on the websites shown below--a link to the National ACS website is provided therein:

---ACS San Gorgonio Local Section website: <http://www.sgacs.org>

---ACS San Gorgonio Local Section Instagram:
<https://www.instagram.com/sangorgonioacs/>

As always I welcome any questions, suggestions or comments from members of the section or other interested parties. My email is: rm.riggin@yahoo.com. Feel free to contact me at any time.

Ralph Riggin, Chair

San Gorgonio Section Scientific Presentation

Saturday May 15, 2021 at 10:30 am

(Zoom Videoconference link will be provided to participants on
Friday, May 14th)

CMC Strategies for Accelerated Development of Bamlanivimab – a Therapeutic Monoclonal Antibody for COVID-19

**Presenter: Bryan Harmon, PhD
Eli Lilly and Company**

Abstract: In collaboration with AbCellera Biologics Inc., Lilly identified bamlanivimab, a potent neutralizing antibody directed against the spike protein of the SARS-CoV-2 virus. The typical development timeline at Lilly from cell line transfection to First in Human (FIH) study is ~17 months. However, in the face of a global pandemic, alternative approaches were sought to enable rapid acceleration into the clinic. Two key strategies identified to accelerate this timeline included the use of stable bulk culture (SBC) for drug substance manufacturing and the use of Compounded Sterile Preparation (CSP; USP 797) at a centralized Lilly location for drug product manufacturing. Critical to enabling these alternative approaches was proactive engagement and collaboration with the FDA to ensure that their concerns about consistency of materials produced by SBC and sterility assurance of drug product produced by CSP were fully addressed. These strategies as well as the coordination and dedication of the Lilly workforce allowed the timeline from cell line transfection to FIH to be reduced from ~17 months to less than 2 months. Bamlanivimab has now received emergency use authorization by the FDA as both a monotherapy for the treatment of COVID-19 as well as part of a combination therapy with a second Lilly antibody, etesevimab.

Speaker Biography: Dr. Harmon is a Senior Research Fellow in Bioproduct Research and Development at Eli Lilly and Company. Following receipt of his B.S. degree in Chemistry from Rose-Hulman Institute of Technology, Dr. Harmon completed his Ph.D. studies in Analytical Chemistry under the direction of Professor Fred Regnier at Purdue University in 1994. He then completed a two-year position as a post-doctoral research associate in the laboratory of Professor Daniel I.C. Wang in the Biotechnology Process Engineering Center at Massachusetts Institute of Technology developing rapid mass spectrometry-based methods for glycosylation analysis of recombinant glycoproteins. He joined Lilly after working in the vaccine division of Merck Research Laboratories from 1996
(Continued on Page 13)

San Gorgonio Section

San Gorgonio Local Section 2021 High School Chemistry Olympiad

The National Chemistry Olympiad examination was held online this year. The Local Section Exam was conducted on March 27th. Approximately 80 students from 15 high schools in the San Gorgonio Section participated. The Section was permitted to nominate 10 students to sit for the National Chemistry Olympiad, Part I being held on April 17th. The top 200 nationally scoring students participated in Part II on April 24th. San Gorgonio had three students qualify and we're very proud of their success.

We are extremely grateful for the dedication of all students as well as their teachers and parents in preparing for and taking the local exam.

Congratulations to San Gorgonio National Olympiad Team Members And Part II Finalists (indicated with asterisk)

***Eric Bi**

Andrew Bondoc

***Aditya Desai**

Norah El-Banna

Serena Huang

Sophie Pan

David Stephens

Carter Weiss

***Luke Zhou**

Eileen Zu

Martin Luther King High School

Great Oak High School

Martin Luther King High School

Great Oak High School

Walnut High School

Walnut High School

Rancho Cucamonga High School

Elite Academic Academy

Diamond Bar High School

Diamond Bar High School

Speaker Biography (Continued from Page 12)

to 1999. At Lilly, Dr. Harmon has been played a leading role in establishing strategies for comparability and Quality by Design, and he has provided technical leadership for several CMC development teams, including bamlanivimab.

Reservations: There is no cost to attend this event. Please register using the electronic reservation form on the San Gorgonio Section Website <http://sgacs.org> If you are unable to register via the electronic form please send your name, email address, and phone contact information to Ralph Riggin via email at rm.riggin@yahoo.com

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***IMPORTANT
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Contains Dated Meeting Announcement

PERIODICAL

Bi-Section Chemists' Calendar

May

- 12 SC 50/60/70 Year Member Program with Talk by Dr. Laurie Barge, JPL—see page 3
- 15 SG Scientific Presentation, Speaker: Dr. Bryan Harmon, Eli Lilly—see page 12
- 26 SC High School Virtual Awards Program—see page 7

June

- 16 SC Tolman Award Zoom Presentation honoring Prof. Pengyun Feng, UCR—see page 5

**For more information or to find virtual events,
please see our websites:**

www.scalacs.org

www.sgacs.org