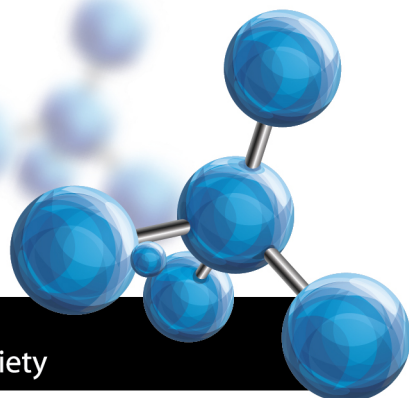




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# SCALACS



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

VOLUME LXXVII/No. 4

MAY/JUNE 2022

## SOUTHERN CALIFORNIA Section



**Richard C. Tolman Award Dinner**  
**Tuesday, June 7 at 6 p.m.**  
**The Beckman Center at UCI**  
**Honoring Recipient**  
**Professor Donald R. Blake**

See Page 3

**“Broadening Stem Participation Through Intentional  
Exposure, Encouragement, and Engaged Support”**

**by Dr. Pamela Leggett-Robinson, PhD, CAPM,**  
**Founder & Executive Director, PLR Consulting**  
**Tuesday • May 17 • 4:00 - 5:00 P.M.**

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**City of STEM Kickoff Festival Recap**

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**ACS 2022 Western Regional Meeting, October 19 - 22**

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## SAN GORGONIO Section

**ACS San Gorgonio Section 2022 Outreach  
Volunteer of the Year Dr. Ana Bahamonde**

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Volume LXXVII

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Number 4

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Chair-Elect:

Edye Udell

Secretary/Treasurer:

Barbara Belmont

Councilors:

Brian Brady, Robert de Groot,  
Veronica Jaramillo, Alex Oxyzolou,  
Eleanor Siebert, Barbara Sitzman

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Secretary:

David Srulevitch

Treasurer:

Dennis Pederson

Immediate Past Chair:

Ralph Rigg

Councilors:

Eileen DiMauro, Emily Viggers,  
Ana Bahamonde, Jessy Lemieux

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# SOUTHERN CALIFORNIA SECTION



*"A person who never made a mistake  
never tried anything new." – Albert Einstein*

## CHAIR'S MESSAGE



**ACS** Local Section  
Southern California

Greetings SCALACS Members!

First of all, I congratulate all our senior members in our section who completed 50, 60, and 70 years of service to the American Chemical Society! We heartily thank them for being great volunteers in various activities and their long-term honorable service to the American Chemical Society.

We are approaching the end of this academic year and getting ready to celebrate the year of hard work during commencement. I wish all our graduating students a very successful future as they pursue the next step in their journey. Also, I thank all our teachers for their dedication, nobility, and learning in molding the future generation.

This year "Chemists Celebrate Earth Week (CCEW)" activities started in our SCALACS tent during the "The City of STEM Kickoff Festival" on April 2 at Columbia Memorial Space Center in Downey and concluded with a very intriguing talk by Urvashi Saxena from Collins Aerospace Center, highly motivational for our STEM students and teachers, and the widely appreciated CCEW poem contest for the K-12th grade students. Thanks to Dr. Veronica Jaramillo for organizing SCALACS Tent and fun-filled Chem-awareness program for the public at the space center. Many families with children visited our booth and really enjoyed the event.

The Chemistry Olympiad Examinations in our section were held on March 16 & 17 and the National Examination was conducted on April 30. Congratulations to all participants. I really appreciate the enthusiasm and hard work of our students, who did a marvelous job in these competitions. Congratulations to all our winners and participants. Thanks to Dr. Jerry Delker, Michael Morgan, Barbara Belmont and our volunteer teachers for their dedication and hard work.

The Richard C. Tolman Award Presentation and Dinner will be held at The Beckman Center, University of California, Irvine on June 7 to honor Professor Donald R. Blake, the 2021 Tolman Medal Recipient. As we do not have newsletters during Summer months, please check e-mails from SCALACS or our website for the details for all programs and activities.

Thanks to Dr. Laurie Barge for initiating future activities in Environmental and Planetary Chemistry by the Environmental Affairs Committee.

*Continue on Page 2.*

# SOUTHERN CALIFORNIA SECTION

## City of STEM Kickoff Festival



*SCALACS Chair, Thomas Mathew interacting with families who visited our booth.*



*Families who visited our SCALACS booth enjoyed the activities we had for them.*



The City of STEM Kickoff Festival at The Columbia Memorial Space Center ran from 10 a.m. – 4 p.m. on April 2 with special guest Ellen Ochoa, the first female Latina to go in space who gave a speech about her experience as a woman in STEM. Congresswoman Lucille Roybal-Allard, Assemblywoman Cristina Garcia, former Downey Mayor Claudia Frometta and other guest speakers were on stage. Thousands of families from all over the state attended the event that featured local businesses with their own booths and food trucks.

SCALACS had the opportunity to be a booth host for the first time at this event, thanks to Community Activity Councillor Veronica Jaramillo. We had at least 500 visitors to our booth. We gave out CCEW activity books and small presents. Visitors had fun watching the wonders of squished bugs. Thank you Thomas Mathew, our SCALACS chair, and the Pasadena City College Chemistry Club for volunteering at the booths.



*Pasadena City College Chemistry Club students volunteering at the festival.*

*Continue from Page 1.*

Also, I thank Dr. Krishna Kallury, Dr. Eleanor Siebert and the Senior Chemists team for spearheading many activities especially for arranging the talk by Urvashi Saxena on April 22 and upcoming Senior Chemists events.

Special thanks to Peggie Chan and team for Newsletter and publication activities and Jenneva Guzman for managing and conducting all the Zoom events promptly and properly.

I wish you all a happy Summer, including safe and joyful travels of course!

With best wishes,  
**Thomas Mathew**  
Chair, SCALACS  
([tmathew@usc.edu](mailto:tmathew@usc.edu))

# SOUTHERN CALIFORNIA SECTION

## Honoring the 2021 Richard C. Tolman Award Recipient

### Professor Donald R. Blake

Department of Chemistry,  
University of California, Irvine



At the Richard C. Tolman Award Dinner

Date: Tuesday, June 7 • Time: 6 p.m. - 9 p.m.

Venue: The Arnold and Mabel Beckman Center of the National Academies of Science and Engineering at University of California, Irvine  
100 Academy Way, Irvine, CA 92617

Price: \$85 per person

### Tolman Address:

**“From Methane To Methane: Forty Years Of Research And Insight Into One Of The Most Important Greenhouse Gases”**

Tickets will go on sale mid-May. More information on our website. The Beckman Center is currently requiring proof of vaccination to attend events. Please present a physical or digital copy of your vaccination card. For more information on Professor Blake's biography and abstract of his address, please visit our website, [www.scalacs.org](http://www.scalacs.org).

## High School Chemistry Olympiad

This year, the in-person High School Chemistry Olympiad had 576 students representing 22 schools taking the tests on March 16 and 17. Below is the list of the selected 15 students who took the National Exam on April 30 at Cal State Dominguez Hills. Congratulations!

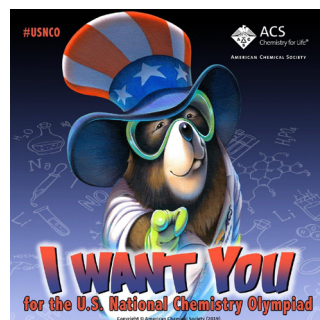
### Name

Sonia Zhang  
Qingyu Zhang  
Aarya Riasati

### School

Arcadia High School  
Arcadia High School  
Francisco Bravo Medical  
Magnet High School  
Harvard-Westlake High School  
Harvard-Westlake High School  
La Canada High School  
North Hollywood High School  
North Hollywood High School  
Palos Verdes Peninsula High School  
Redondo Union High School  
San Marino High School  
South Pasadena High School  
Temple City High School  
Venice High School  
South Pasadena High School

Emmy Zhang  
Konnie Duan  
Kai Bredemann  
Lydia Qin  
Richard Zhu  
Zishi Li  
Theodore Danial  
Michael Wang  
Jacob Woods  
David Zhang  
Lidia Prokopovych  
Chun Hei Lincoln Lam



## SOUTHERN CALIFORNIA SECTION



### Honoring our 50/60/70 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

Sunney I. Chan  
William A. Goddard  
Charles Edward McKenna  
Donald Burton Sage  
Joseph Mamoru Takahashi  
Karen C. Timberlake

#### 60 Year Members

Robert A. Beaudet  
William C. Kenney  
Charles Martin Knobler  
Ernest Kopka  
Michael J. Ram-Esq  
Robert F. Reeves  
Seymour Siegel  
Fred Sonnenberg Reeves  
William Daniel Timberlake  
Herbert Wollgiehn

#### 70 Year Members

Isabelle Joan Getz  
Martin J. Weisman  
Jerome Greenfield

We want to remind our senior 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 the Section Office at [office@scalacs.org](mailto:office@scalacs.org).

## Western Regional Meeting American Chemical Society

October 19 – 22, 2022

Flamingo Hotel &  
Casino Convention Center  
Las Vegas, NV



For additional information,  
visit [www.wrm2022.com](http://www.wrm2022.com)

*Empower The Chemist For A Better Tomorrow*

# SOUTHERN CALIFORNIA SECTION

## SENIOR CHEMISTS COMMITTEE Chemist Virtual Seminar

### ***Broadening Stem Participation Through Intentional Exposure, Encouragement, and Engaged Support***

**TUES. • MAY 17 • 4:00 - 5:00 P.M. PT**

*Presented by*

**Dr. Pamela Leggett-Robinson, PhD, CAPM**

Founder & Executive Director, PLR Consulting

**Register at [www.scalacs.org](http://www.scalacs.org)**

This event is presented through the DEIR grant from Senior Chemists Committee awarded through the Analytical Chemistry Division of ACS.



Many of the educational STEM settings (K-12 and higher education) serve as arenas where both academic and social inequities (and injustices) can be produced and reproduced by privileging some identities while marginalizing others. To effectively broaden participation and decrease the opportunity gap for these groups, current STEM environments must intentionally create and foster a culture of diversity, inclusion, and equity — one that is open, welcoming, and nurturing to everyone. This seminar aims to build capacity for ways in which individuals and local sections can work together to broaden participation in STEM for marginalized groups through intentional exposure, encouragement, and engaged support. Be sure to join us via Zoom. **RSVP on our website: [www.scalacs.org](http://www.scalacs.org).**

*Dr. Pamela Leggett-Robinson has more than 15 years of higher education experience which includes academic and student success/support programming, institutional strategic planning, data analytics, and program evaluation.*

*She helps organizations (higher education and industry) broaden participation by building and retaining a diverse STEM workforce through project management, program development and evaluation, and facilitated workshops.*

*Her diverse skill set is a result of serving as an academic administrator, principal investigator/program director for student and community initiatives, high school teacher, and lobbyist for K-20 science funding on Capitol Hill.*

*Dr. Leggett-Robinson holds a B.S. in chemistry from Georgia State University, M.S. in Bio-Organic Chemistry and a Ph.D. in Physical Organic Chemistry. She is the author and co-editor of the book "Overcoming Barriers for Women of Color in STEM Fields: Emerging Research and Opportunities" and co-authored Chapter 2 "Navigating the Landscape of the STEM Professoriate: Reflections and Insights From Women of Color" from the book "Women's Influence on Inclusion, Equity, and Diversity in STEM Fields."*

BY

KEITH ORSO  
Irell & Manella LLP  
KOrso@irell.com



The previous edition of this column explored the idea-expression dichotomy in copyright law. Copyrights protect the expression of ideas, not the ideas (or procedures, processes, systems, methods of operation, concepts, principles, or discoveries) themselves. This is especially important in the context of scientific writing, which often reports data—and not only data, but also hypotheses, theories, experiments, and results, for example. A description of data may be copyrightable, but the data itself is not. The expression of a theory may be copyrightable, but the theory itself is not.

A significant amount of scientific data is generated by United States government agencies and consortiums that include such agencies. That data is doubly unprotected by copyright law—first, because of the idea-expression dichotomy, and second, because, by statute, copyright protection is not available for any work of the United States government (though the government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise).

The rule that works of the United States government are not eligible for copyright can be described as based on a metaphorical concept of citizen authorship. Those who create such works are acting as servants of

the people and whatever they produce can be considered to be authored by the people and therefore intrinsically public domain material freely accessible to all.

Although works generated by the government are not eligible for copyright, works made under government contracts by employees of government contractors are copyrightable. Generally, the contractor must obtain permission from the government before asserting rights in any copyrighted work containing data first produced in the performance of a contract. There is an exception, however, for asserting copyright in technical or scientific articles based on or containing such data that is published in academic, technical or professional journals, symposia proceedings, and similar works.

Relatedly, the Secretary of Defense may direct a civilian author at certain defined covered institutions, such as the United States Naval Academy, to provide the federal government with an irrevocable, royalty-free, world-wide nonexclusive license to reproduce, distribute, perform, or display a literary work produced by the author in the course of employment at the institution for publication by a scholarly press or journal.

*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.*

# THIS MONTH IN CHEMICAL HISTORY

BY

HAROLD GOLDWHITE  
California State University, Los Angeles  
hgoldwh@calstatela.edu



In this month's column I will continue my looking back a century and examining what was new in the chemical world in 1922. I will again be scanning the pages of the "Annual Reports of the Progress of Chemistry for 1922" issued by The Chemical Society (of London; now the Royal Society of Chemistry) in 1923. This is the 19th Volume of this valuable series.

Organic chemistry occupies the largest section of the Annual Report and was clearly of great interest to chemists of the early 20th century. There is an extended analysis of the theory of partial valences proposed by Kermack and Robinson to account for reactivity of conjugated dienes like butadiene. This theory does include the possibility of three electron bonds and also includes consideration of four-membered rings as reaction intermediates.

Still of interest today, considering concerns about the role of carbon dioxide from fossil fuels as an agent of climate change, are reports from BASF of catalysis of a reaction between methane and carbon dioxide to yield first formaldehyde and then methanol.

Reaction between Grignard reagents and hydrogen peroxide gives excellent yields of primary alcohols such as isobutyl and isoamyl (I use the nomenclature of the time). Rather curiously, the authors of this article propose that the hydrogen peroxide reacts in the isomeric form  $O:OH:H$  – a formula that does not make chemical sense to me!

Another puzzle is the reaction between formaldehyde and hydrogen phosphide (phosphine I presume) in presence of hydrochloric acid to give crystalline  $CIP(CH_2OH)_4$ . As a former student of, and researcher in, phosphorus chemistry I cannot accept the compatibility of a PCI

bond and an OH group in the same compound. If I were still active in the laboratory I would surely re-investigate this report. The reference is JACS, 1921, 43, 1684.

A section on optical activity includes some unusual findings. Mixing l-malic acid with solutions of alkali metal salts of racemic tartaric acid produces a precipitate of pure d-tartaric acid. The l-menthyl ester of dl-mandelic acid on chlorination with thionyl chloride followed by hydrolysis yields l-phenylchloroacetic acid. Ethyl tartrate has been crystallized (m.p.  $18.7^\circ$ ) and its optical rotatory dispersion has been carefully re-determined ranging from  $+6.87^\circ$  in the green part of the spectrum to  $-12.2^\circ$  in "the last photographic reading in the ultra-violet". The recorded values agree with those calculated using two terms in the Drude equation.

There are new insights into the mechanism of the synthesis of nitrogen compounds in plants. Carbon dioxide is believed to be reduced to formaldehyde and this compound, photochemically activated, reacts with nitrites or nitrates to give formhydroxamic acid  $HC(OH):NOH$ , a key intermediate in the production of amino-acids and hence proteins and alkaloids.

The reviewer of the section on homocyclic compounds was Robert Robinson, Nobel Laureate in chemistry in 1947 for research on natural products, particularly plant pigments and alkaloids. He begins his review with a remarkable apologia: "In compiling this report the writer has endeavored to adopt an impartial and unprejudiced point of view, but he is fully aware of the difficulties which may be en-

*Continue on Page 9.*

# SAN GORGONIO SECTION



## CHAIR'S MESSAGE



Hello!

Please join me in congratulating the **ACS San Gorgonio Section 2022 Outreach Volunteer of the Year**, Dr. Ana Bahamonde!

**Dr. Ana Bahamonde** is an Assistant Professor of Chemistry at UCR. She attended our College & University Professor Mixer last fall and immediately got involved with Section activities. She was instrumental in recruiting over 20 UCR grad students to host several demo tables during our 2021 National Chemistry Week Celebration. Her efforts helped to make the outreach event a massive success, where we were able to show 250 K-8 students, teachers, and parents how fun chemistry can be. Dr. Bahamonde recently volunteered to take the positions of Alternate Councilor and Women Chemists Committee Chair for the Section. Thank you, Dr. Bahamonde! We appreciate all you have done for the Section in such a short time, and we look forward to working with you for many years to come!



*Continue on Page 9.*

# SAN GORGONIO SECTION

*Continue from Page 8.*

Our first meeting of the **Women Chemists Committee** was a huge success! Special thanks to our guest speakers – Graciela Torres, Pilar Calleja, Karen Bailey, and Sadie Otte. I know many students were inspired by the words of wisdom shared by these scientists. Also, thanks to the members of the San Gorgonio Section Women Chemists Committee: Ana Bahamonde (Committee Chair), Kimberley Cousins, and Olivia Taylor. Thank you to everyone that attended this event!

The Section hosted our **Chemists Celebrate Earth Week** outreach event on April 23. We had several general chemistry, environmental chemistry, and entomology demos and activities for students, teachers, and parents. Thank you to the members of the San Gorgonio Section Environmental Improvement Committee: Michael Nalbandian (Committee Chair), Junyi Chen, Kuanliang Shao, Jay Jones, Mike Schmidt, Bronwyn Horton, and Zaira Alibay. Thank you to everyone that hosted tables during this event and made it a success! Also, thanks to everyone that attended the event!

The Section recently held the local exam for the **2022 U.S. National Chemistry Olympiad (USNCO)**. The exam was offered in a hybrid format to 14 schools - 4 schools opted for online administration and the other 10 schools administered the exam on their campuses. Around 170 students participated in the local exam in March, and the top ten students participated in the National Chemistry Olympiad exam in late April. We are so proud of the young chemists that are representing the San Gorgonio Section! Thank you to Dr. Dennis Pederson and Eileen DiMauro for their work in coordinating the Chemistry Olympiad exams for our Section!

We would love to partner with you as we make worthwhile and engaging activities, events, and programs for the San Gorgonio Section. If you are interested in helping out with one or more of our committees, please fill out the form at <https://forms.gle/swTa7XWpLYAb7GD96>, where you are able to include information about your preferred availability. Thank you to everyone who has already volunteered and helped on a committee so far this year. We can only do what we do with your help!

Feel free email me if you have any questions or suggestions for the Section. Have a great month!

Dr. Jenifer N. Nalbandian,  
Chair of the San Gorgonio Local Section  
[jnalbandian@calbaptist.edu](mailto:jnalbandian@calbaptist.edu)

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*Continue from Page 7.*

countered in such an attempt..." Refreshingly frank. He then plunges into a severe critique of attempts to resuscitate the Dewar formulation of benzene – the structure in which the para positions of the benzene ring are covalently linked. Another benzene structure also comes under his critical scrutiny – a twisted Ladenburg prismatic formulation derived from

bonding six tetrahedra. These arguments about benzene are, to some extent, bolstered by a 1921 analysis of the crystal structure of naphthalene derivatives by William Bragg that concluded that the hexagonal rings are puckered, not planar!

More about 1922 in the next issue.

**SOUTHERN CALIFORNIA SECTION  
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**IMPORTANT  
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**Contains Dated Meeting Announcement**

# PERIODICALS

## **Bi-Section Chemists' Calendar**

### **MAY**

- 17** SCALACS Virtual Seminar: Broadening Stem Participation Through Intentional Exposure, Encouragement, and Engaged Support by Pamela Leggett-Robinson — see page 2

### **JUNE**

- 7** SCALACS Richard C. Tolman Award Dinner — see page 3

### **OCTOBER**

- 19-22** ACS 2022 Western Regional Meeting — see page 4

For more information or to find events, please see our websites:  
[www.scalacs.org](http://www.scalacs.org) • [www.sgacs.org](http://www.sgacs.org)