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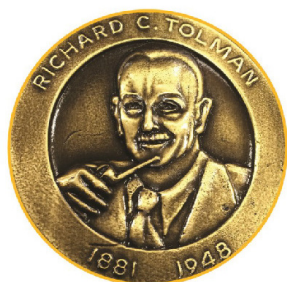
November/December 2021

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

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SCALACS

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

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November/December 2021

Number 7

**SOUTHERN CALIFORNIA SECTION
2021 OFFICERS**

Chair/Chair Elect:

Thomas Mathew

Secretary/Treasurer:

Barbara Belmont

Councilors:

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

**SAN GORGONIO SECTION
2021 OFFICERS**

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Southern California Section



Chair's Message

*"Alone we can do so little;
together we can do so much."*

– Helen Keller

Dear Members,

Greetings! One of the main attributes of our Section I have always noticed has been the great resilience expressed by our members during challenging times. I am greatly indebted to all our members for their constant support and tireless efforts behind the success of every program of our section this year. Their passion and devotion to help the community through chemistry is so commendable. Together, we were able to continue our various activities with more vigor despite still persisting challenges of Covid-19 pandemic. Thanks to all our Board of Directors, Councilors and all Executive Committee members, who have honorably served the Section as chairs and members of different committees devoting their valuable time to lead different activities.

It is our honor to recognize **Barbara Belmont**, who won the **ACS 2021 Volunteer of the Year Award**, two of our members **Heather Maynard** and **Veronica Jaramillo**, who were inducted into **2021 Class of American Chemical Society Fellows** and **Pingyun Feng**, who won the **2020 Tolman Award** from our Section. I am grateful to all our speakers for delivering excellent talks — **Pingyun Feng**, Tolman Award Lecture; **Paula Diaconescu**, **Stephen B. Cronin**, **Richard D. Kidd**, and **Nicos A. Petasis** for **National Chemistry Week Lecture Series**; **Heather Maynard** on **International Women's Day**; **Laurie Barge** on the day honoring our **Senior Scientists** for their outstanding service to society through their membership and selfless activities in American Chemical Society spanning over 50, 60, and 70 years, and all the panel members in various scientific discussions. **Mentoring/Tutoring Program for Title I Students** spearheaded by **Edye Udell** and the team members is a new venture by the section to help and support the needs in our local schools. I greatly appreciate their efforts. Thanks to **Veronica Jaramillo**, **Alexandra Aloia**, and **Chandrasekhar Sonwagne** for organizing the **International Women's Day celebration** including the "Picture a Scientist" Viewing and Zoom Discussion as well as the Earth Day celebration with Illustrated Poem Contest. We had amazing support from members of **Senior Chemist** team led by **Gerald Delker**, **Krishna Kalluri**, **Sofia Pappatheodoru**, **Eleanor Siebert**, and **Barbara Sitzman** in event planning; **Young Chemist Team** led by **Alexandra Aloia** and **Inessa Bychinskaya** for their sincere voluntary activities in many events, in organizing section's important files in Google Drive.

I would like to extend my gratitude to **Ralf Haiges** for taking on the duties of Chair-Elect for the time he served. I am also grateful to **Michael Morgan** and **Brian Brady** (Past Chair) for their timely support in various activities including educational affairs, award nominations/elections. I would like to recognize the hard work of **Barbara Belmont**, our Secretary/Treasurer in technology support, and our high school teachers' team led by **Gerald Delker**, **Danielle Duran**, and **Edye Udell** for conducting **Chemistry Olympiad**

(Continued on Page 3)

Southern California Section

(Continued from Page 2)

Examinations and the respective programs efficiently. I am really honored and privileged to work with these wonderful people, our members who are always keen to render their support any time in need. Special thanks to **Nancy Paradiso**, who has done an amazing job since 1998 in taking care of SCALACS Office activities diligently for 23 years and retired in June. My sincere thanks are due to our current office team, **Huntington Association Management**, for their prompt and efficient administrative services.

I wish you all a very blessed and prosperous New Year 2022 as well as a happy holiday season in advance.

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

The Nobel Prize in Chemistry, in brief

Last month, the Nobel Prize in Chemistry was awarded to **Benjamin List** (Max-Planck-Institut für Kohlenforschung) and **David W.C. MacMillan** (Princeton University) for the development of asymmetric organocatalysis. For quite a while, catalysts were believed to be represented by two categories: metals and enzymes. In 2000, List and MacMillan independently developed asymmetric organocatalysis, built upon small organic molecules. Because these compounds contain only carbon, oxygen, nitrogen, sulfur, or phosphorus, they are more environmentally friendly and cheaper to produce than traditional catalysts. Asymmetric catalysis directs the formation of a chiral compound such that formation of one particular stereoisomer is favored. With control over which stereoisomer is produced, researchers can construct anything from new pharmaceuticals to molecules that can capture light in solar cells. List and MacMillan are both in their early 50s, nearly twenty years younger than the average age of 71 for Chemistry Nobel Laureates. Remarkable at all levels.

Sources:

Bjørk, R. *The Age at Which Noble Prize Research Is Conducted*. *Scientometrics* 2019, 119 (2), 931–939.

The Nobel Prize in Chemistry 2021 <https://www.nobelprize.org/prizes/chemistry/2021/press-release/> (accessed Oct 14, 2021).

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Southern California Section

Call for Nominations **2021 Richard C. Tolman Medal**

The Tolman Medal is awarded each year by the Southern California Section of the American Chemical Society in recognition of outstanding contributions to chemistry. These contributions may include achievements in fundamental studies, achievements in chemical technology, significant contributions to chemical education, or outstanding leadership in science on a national level. The nominee need not be a Southern California resident; however, most of the award-related accomplishments must have been made in this area. The Southern California Section and the Tolman Award Committee are now seeking nominations for the 2021 award.

There is no official nominating form for this award and nominations are accepted from any member of this section or of neighboring sections. The nomination package should include:

- an up-to-date curriculum vitae or resume of the candidate
- letters of support from colleagues in the profession describing the candidate's major achievements
- if the candidate is being considered for outstanding teaching, letters of support from former students should be included.

Please submit nomination packages electronically to the Chair of the Tolman Committee at **office@scalacs.org**. Rather than submitting copies of publications, a list of representative publications would suffice.

The deadline for receipt of nominations is **December 15, 2021**. Inquiries should be directed to the Chairperson via email at **office@scalacs.org**. A list of winners appended here demonstrates the caliber of awardee sought by the committee.

1960 William G. Young	1981 Paul D. Boyer	2002 Robert H. Grubbs
1961 Anton B. Burg	1982 Donald T. Sawyer	2003 Arie Warshel
1962 Ernest H. Swift	1983 James N. Pitts	2004 Christopher Reed
1963 W. Conway Pierce	1984 Donald C. Cram	2005 Fred Wudl
1964 A.J. Haagen-Schmidt	1985 Arnold O. Beckman	2006 G. K. Surya Prakash
1965 Thomas Doumani	1986 M. Frederick Hawthorne	2007 Barbara Finlayson-Pitts
1966 Arthur W. Adamson	1987 Clifford A. Bunton	2008 Joan S. Valentine
1967 Ulric B. Bray	1988 John D. Baldeschwieler	2009 Richard B. Kaner
1968 Francis E. Blacet	1989 Mustafa A. El-Sayed	2010 Dennis Dougherty
1969 Robert Vold	1990 Linus Pauling	2011 Karl O. Christie
1970 Robert L. Pecsok	1991 George A. Olah	2012 John E. Bercaw
1971 Roland C. Hansford	1992 Peter C. Ford	2013 Mark E. Thompson
1972 James Bonner	1993 Charles L. Wilkins	2014 William J. Evans
1973 Howard Reiss	1994 Jacqueline K. Barton	2015 Michael E. Jung
1974 John D. Roberts	1995 Christopher S. Foote	2016 Paul S. Weiss
1975 Corwin Hansch	1996 Larry R. Dalton	2017 Jeffrey I. Zink
1976 F. Sherwood Rowland	1997 Ahmed H. Zewail	2018 Clifford P. Kubiak
1977 Sidney W. Benson	1998 Kendall N. Houk	2019 Andrew S. Borovik
1978 Thomas C. Bruice	1999 Peter Dervan	2020 Pingyun Feng
1979 Harry B. Gray	2000 William A. Goddard III	
1980 Herbert D. Kaesz	2001 Peter M. Rentzepis	

Southern California Section

Call for Nominations **Paul Shin Memorial High School Chemistry Teacher of the Year Award**

If you know of a local high school chemistry teacher who is making a difference, please consider nominating them for the Paul Shin Memorial Award. The award recognizes high school teachers in the greater Southern California area for their dedication to their students and the Chemical Education Community. It is teachers like the recipients of this award who make learning chemistry rewarding. Plus, there is a financial component of \$500. The \$500 will be an unrestricted award directly to the teacher. The winner of the Section Award will also be entered for the Western Regional High School Teacher of the Year Award and, at the National ACS level, for the ACS James Conant Bryant Award. Having won a previous award does not necessarily exclude a nominee; however, the nomination would need to be based on different criteria than the first award.

Nomination Package should include: Biographical sketch of nominee with date of birth, list of any publications, statement (no more than 1,000 words) of nominee's achievements as a high school chemistry teacher including quality of teaching, effective methods, nominee's ability to challenge and inspire students, extracurricular work (science fairs, clubs, etc.) and contributions to the Chemical Education Community at large. Two nominating letters are required, but up to five may be included. Nominating documents should be submitted via email to **office@scalacs.org**. Note that signed documents that have been scanned are acceptable. Nominations from current students at the nominee's institution will not be considered.

The deadline for nominations is **January 31, 2022**. Feel free to contact **Michael Morgan** of the Educational Affairs Committee at **mmorgan@lausd.net** if you have any questions.

Congratulations to UCLA Professor Heather Maynard

Congratulations to UCLA Professor **Heather Maynard**, a Southern California ACS local section member who joined the ACS Fellows Class of 2021 this Fall. Heather was recognized for:

- outstanding contributions to the synthesis of protein-polymer conjugates, protein stabilization, and protein drug delivery,
- efforts to increase diversity, equality, and inclusion in education; innovative outreach activities,
- service to the ACS Polymer Chemistry and Polymeric Materials: Science and Engineering Divisions.



SENIOR CHEMISTS (AND OTHERS TOO!)

A Zoom meeting was held on **October 9th** and several areas of opportunity were discussed. If you would like to support our local students, the following opportunities exist: 1) Volunteer for local science fair and poster contests; 2) Prepare a short (20 minutes) video on career ideas, local chemistry topics, or science topics, etc. that High School teachers can download and present as supplemental class material; 3) Identify speakers that can speak on various topics at our ACS meetings (20 to 30 minutes); 4) Volunteer as a presenter or assistant with our High School chemistry enrichment programs that were conducted last year. These are only a few of the ideas discussed, but please consider volunteering for one of them or suggest other areas you would like to contribute.

Gerald Delker (Delker@earthlink.net) & **Krishna Kallury** (KKallury@socal.rr.com)

Southern California Section

Thank You to All 2021 Volunteers

2021 like 2020 has been challenging to us all. Because of the Covid-19 virus, we were only able to provide great virtual events to keep our members engaged. The many programs and services that your Section provides are accomplished by the volunteers of the various committees. We would like to acknowledge and thank all of you who volunteered your time and talents during this year.

Chair/Chair-Elect:

Thomas Mathew

Secretary/Treasurer:

Barbara Belmont

Elected Members of Executive Committee:

Henry Abrash

Thomas Mathew

Michael Morgan

Alexandra Aloia

Derek Marin

Edye Udell

Laurie Barge

Inessa Bychinskaya

Richard Kidd

Councilors:

Brian Brady

Bob de Groot

Veronica Jaramillo

Alex Oxyzolou

Eleanor Siebert

Barbara Sitzman

Alternate Councilors:

Armando Rivera

Chandrashekhar Sonwane

Krishna Kallury

Sofia Pappatheodorou

Gerald Delker

Miklos Czaun

High School Olympiad:

Gerald Delker, Chair

Barbara Belmont

Caroline Morgan

Michael Morgan

Community Activities:**NCW & CCED:**

Thomas Mathew, Chair

Barbara Belmont

Alexandra Aloia

Gerald Delker

Veronica Jaramillo

Chandrashekhar Sonwane

Awards Committee:

Brian Brady, Chair

Barbara Belmont

Bob de Groot

Krishna Kallury

Thomas Mathew

Nominations & Elections:

Michael Morgan, Chair

Barbara Belmont

Project SEED:

Robert Vellanoweth, Chair

Mentoring/Tutoring**Program for Title I****Students:**

Edye Udell

Younger Chemists:

Alexandra Aloia

Inessa Bychinskaya

Senior Chemists:

Gerald Delker, Chair

Krishna Kallury

Sofia Pappatheodorou

Barbara Sitzman

Eleanor Siebert

Edye Udell

Environmental**Improvement:**

Laurie Barge, Chair

Inessa Bychinskaya

Thomas Mathew

Speakers &**Volunteers:**

Daniella Duran

Claire Leon

James Martin

Michal Meyer

Dorothy Pan

G. K. Surya Prakash

Heather Maynard

Pingyun Feng

Laurie Barge

Paula L. Diaconescu

Stephen Burke Cronin

Richard D. Kidd

Nicos A. Petasis

Ralf Haiges

Rita Blaik

Malancha Gupta

Jill L. McNitt-Gray

Dayanni Bhagwandin

Ashley Shin

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Carlos Gutierrez

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Kathy Flynn

Gloria Takahashi

Candice Groat

Webmaster:

Barbara Belmont

Publication**Committee:**

Harold Goldwhite

Ralph Riggan, SG

Keith Orso

Eleanor Siebert

Tolman Award:

Joshua Figueroa, Chair

There were several people that went out of their way to really provide us with exceptional help. We would like to acknowledge **Barbara Belmont** for her technical talents in providing us with an online platform for our High School Olympiad and for implementing our High School Awards and Tolman presentations via Zoom this year, in addition to her many other duties.

We would like to thank **Thomas Mathew**, **Barbara Belmont**, and **Jenneva Guzman** for the interesting virtual presentations we were able to provide this year including a well-organized NCW virtual program.

We'd also like to thank **Harold Goldwhite** and **Keith Orso** for their wonderful columns in SCALACS Magazine. Their engaging topics help make our magazine viable and interesting. Thanks for your contributions! Also many thanks to **Eleanor Siebert**, whose eagle-eye proofreading keeps SCALACS looking its best.

Finally, we'd like to thank **Ralf Haiges** for his tenure as Chair-Elect.

It takes a lot of people's time and efforts to make our programs work. We as a Section and the community at large sincerely appreciate the dedication of these people and invite you to participate if you haven't already! This Section would be nothing without your volunteer efforts.

If you're interested in Section governance or helping with any of our events, please contact our Section Office at office@scalacs.org. We'd love to have you on a committee!

We tried to get everyone on the list. If we missed you, please accept our thanks for a job well done!



This Month in Chemical History

Harold Goldwhite

California State University, Los Angeles

hgoldwh@calstatela.edu

In my previous column I continued my “Great Books in Chemistry” series with an examination of the works of Jabir or Geber, a prominent Arabian Alchemist. I now turn from the mystic and almost undecipherable manuscripts of the great alchemist to the completely practical publications (yes, we move now to the era of printed books) deriving from the mining and metallurgical industries.

Growth in population in early medieval times led to increased demand for manufactured goods and a corresponding growth in extraction of mineral resources. This is reflected in a number of publications and I begin with the anonymous “Proberbuchlein” (pamphlets on testing) of the early 16th Century. These were published in Germany, an area in which mining flourished, and they described, among other procedures, methods of separating gold and silver (a procedure called parting) since silver may be a contaminant of native gold.

In 1540 Vanoccio Biringuccio (1480 – 1538) published *De La Pirotechnia* (on the technological applications of fire), a richly detailed and well-illustrated manual on metallurgy, applied chemistry, gunpowder, fireworks, and related subjects. Biringuccio had traveled in both Italy and Germany and had served as an advisor to many Italian nobles and the Pope. While the book is quite practical, in its descriptions there are some discussions of theory. Biringuccio does support the four element theory, but is dismissive of transmutation. He notes that lead increases in weight by fire by about 8% (in its conversion to the calx, or oxide) and draws a parallel to animal corpses (“which weigh more than when alive”!)

A decade later, *De Re Metallica* was published posthumously in 1556 by Georg Bauer (1494 – 1555), also known by the Latinized name of Agricola. Agricola was a prolific author and had produced an earlier work on mining and metals. *De Re Metallica*, with its many and very attractive illustrations, is his most important book. Some of Agricola’s book is clearly copied from Biringuccio, but much of it is original. Agricola, who was also a physician, lived in mining districts in Bohemia and learned much by direct observation. He is neutral on the topic of alchemy, and is clearly influenced by the writings of Paracelsus. He covers most of the topics that are included in *Pirotechnia*, but adds a section on glassmaking taken from his own observations during an extended stay in Venice, then (and still) a renowned center for the craft.

Reasonably priced reprints of English versions of both Biringuccio and Agricola’s major works are available. The English translation of *De Re Metallica* was made by two authors, one of whom became the President of the United States. I’ll leave it to my readers to work that one out.



Insights Into IP Law

Keith Orso

Irell & Manella LLP

KOrso@irell.com

If an inventor wants to obtain a patent, his or her invention must be novel and non-obvious as compared to the “prior art,” which generally includes information in a U.S. patent or a published U.S. patent application that was effectively filed before the inventor filed his or her own patent application. The previous edition of this column explored an exception where a patent application that was filed before an inventor files his or her own application (and does not seek to patent an idea obtained directly or indirectly from the inventor), and that eventually published and/or issued as a patent, cannot be used as “prior art” against the inventor. That exception is when the information in the earlier-filed patent application was generated by colleagues of the inventor engaged in team research that is owned by the same person or entity, or subject to an obligation of assignment to the same person or entity.

But what if the colleagues do not all work for the same company and do not have an obligation to assign their inventions to the same company? What if the people involved are working together under a cross-company agreement? The earlier-filed patent application can still be excluded as “prior art” against the later-filed application if certain conditions are satisfied.

First, the subject matter disclosed in the earlier-filed patent application must have been developed by, and the invention claimed in the later-filed application or patent must have been made by or on behalf of, one or more parties to a joint research agreement that was in effect on or before the effective filing date of the claimed invention in the later-filed application or patent. The patent statute defines a “joint research agreement” to be a written contract, grant, or cooperative agreement entered into by two or more persons or entities for the performance of experimental, developmental, or research work in the field of the claimed invention.

Second, the invention claimed in the later-filed application or patent must have been made as a result of activities undertaken within the scope of the joint research agreement. And third, the later-filed application must disclose, or be amended to disclose, the names of the parties to the joint research agreement.

If these conditions are met, then an inventor at Acme Chemical Co. who is working pursuant to a joint research agreement with Globex Chemicals Ltd., for example, may be able to patent her invention despite an earlier-filed U.S. application on similar subject matter filed by colleagues at Globex.

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

The **Section's Annual Meeting** has been scheduled for **November 13** at **UC Riverside Campus from 10am to 1pm**. The agenda and format of the meeting are presently being finalized and this information will be posted to the San Gorgonio Section website and emailed to section members by November 1. Covid-related requirements to enter campus will be included in the posted information. Recognizing that some individuals may wish to participate virtually, rather than in-person, we hope to establish a hybrid format for the meeting, if possible.

This Chair's message will be my last. Chair-Elect Jenifer Nalbandian, Associate Professor of Chemistry at California Baptist University, will assume the Chair position at year's end. She is already doing an outstanding job and we are excited for the new perspective and energy she brings to the Chair position. I am most grateful to the Executive Board members and many volunteers who have made the Section function effectively despite encountering a variety of logistical challenges over the past two years.

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.

Ralph Riggin, Chair

SAVE THE DATE

ACS San Gorgonio Local Section Annual Meeting

Saturday, November 13, 2021

10 am until 1pm

University of California, Riverside

Details regarding agenda, logistics, and registration to be posted on the San Gorgonio Section website by November 1st.

**SOUTHERN CALIFORNIA SECTION
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Bi-Section Chemists' Calendar

NOVEMBER

13 San Gorgonio Section Annual Meeting —see page 9

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

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