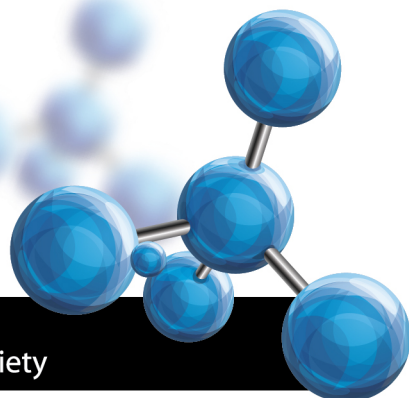




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SCALACS



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

VOLUME LXXVII/No. 1

JANUARY / FEBRUARY 2022

SOUTHERN CALIFORNIA Section

**Paul Shin Memorial Outstanding
High School Chemistry Teacher Award
Deadline for Nomination: January 31**

See Page 2

**High School Chemistry Olympiad
March 16 & 17**

See Page 2

**Senior Chemists Committee
Virtual Seminars Recap**

See Back Cover

SAN GORGONIO Section

**Message from 2022 Chair
Dr. Jenifer N. Nalbandian**

See Page 5



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Volume LXXVII

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TABLE OF CONTENTS

So. Cal. Chair's Message	1
So. Cal. Information	2-4
This Month in Chemical History	3
Insights Into IP Law	4
S. G. Chair's Message	5
Senior Chemists Committee	BC

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SOUTHERN CALIFORNIA SECTION



CHAIR'S MESSAGE



ACS Local Section
Southern California

Dear SCALACS Members,

Welcome to the Year 2022! Hope you had a joyful holiday season with family and friends.

I am very grateful to the executive committee members and all the officers who have served the section this past year, especially Secretary-Treasurer, Barbara Belmont, and Office Managers Nancy Paradiso (served the section until June 2021), Yvette Fearon (served from July-October 2021), and Jenneva Guzman (since October 2021) for their sincere dedication and hard work.

As ACS members, we are always reminded of ACS' vision, "Improving all people's lives through the transforming power of chemistry!" While we continue our current activities, we welcome new great ideas and plans from our members. Our mentoring program, for High School students from Title-I schools who are interested in taking the ACS High School Olympiad, will soon resume. I really appreciate the enthusiasm and commitment of all our members in supporting ACS' mission "Advancing the broader chemistry enterprise and its practitioners for the benefit of Earth and all its people" and translating our goals into action for the benefits of our community. For information and your participation in various programs and upcoming events, please refer to the SCALACS website, www.scalacs.org, and our monthly newsletter. I can be reached at tmathew@usc.edu.

We are so saddened to hear about the passing of Nobel Laureate Professor Robert H. Grubbs, the Victor and Elizabeth Atkins Professor of Chemistry at the California Institute of Technology. He was a wonderful person, a great mentor to many and a good friend of SCALACS. He has been a kindling light of wisdom and we always felt very encouraged by his presence. Our deepest condolences to Bob's family and friends.

I wish you all a year filled with happiness, peace and success ahead.

With warm regards,

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

SOUTHERN CALIFORNIA SECTION

Call for Nominations

Paul Shin Memorial Outstanding High School Chemistry Teacher 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 Outstanding High School Chemistry Teacher 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. Questions, call SCALACS office at (310) 327-1216.

High School Chemistry Olympiad March 16 & 17, 2022

The Southern California Section will hold the **ACS High School Chemistry Olympiad** on March 16 and 17, 2022 at over 30 schools in the Los Angeles area. The test is designed to test a student's knowledge of a wide variety of topics in chemistry. If you know of a school or student that would like to participate, please contact **Gerald Delker** at Delker@earthlink.net to receive the letter and participation form or **download from our website**.

The top scorers on the local exam are nominated to compete in the National Exam, which will take place on April 30 at location to be determined. The top 20 national winners are invited to attend an all expense paid two-week study camp at the Air Force Academy. The top four finalists are then selected to represent the United States at the 55th International Chemistry Olympiad. We will recognize the top local students with monetary awards and certificates. A Banquet may be held in May, depending on conditions.

Participation fees start at **\$8/student**. Fees may be paid by check or online at https://scalacs.org/?page_id=236. Questions, call SCALACS office at (310) 327-1216.

THIS MONTH IN CHEMICAL HISTORY

BY

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



Jons Jacob Berzelius (1779 – 1848) was a giant of early 19th Century chemistry. He was informally known as the lawgiver of chemistry. To this day we owe so much of the everyday language and ideas of chemistry to this Swedish chemist. He coined such terms as isomer, polymer, catalysis etc. He turned the awkward, quasi-alchemical symbols of even as enlightened a scientist as Dalton into the alphabetical symbols we use today: H, O, N, C, Fe, and so on. He standardized atomic weights. Perhaps even more important than these was his electrochemical view of chemical affinity that gave rise to the terms electronegative and electropositive. I felt I had to include a work by Berzelius among the “Great Books of Chemistry.” But which to choose? Berzelius was a prolific writer and his “Textbook of Chemistry,” 6 volumes, 1808 – 1830 and written in Swedish, seemed at first the right choice. It was translated into German, French, Dutch, Italian, and Spanish, but not, curiously, into English. Clearly this was a widely read and influential text. But I have rejected that significant work in favor of a series of volumes that marked a new and enormously influential departure in the literature of chemistry.

Beginning in 1822 Berzelius published in Swedish the first of an annual and critical review of new work in chemistry, physics, and mineralogy. It was immediately translated into German and it is by its German title that it is generally known: “Jahres-Bericht uber die Fortschritte der physicalischen Wissenschaften” or “Jahres-Bericht” for short. In all, 27 volumes were published over the period 1822 – 1848 (the year of Berzelius’ death). A French version was published but only covered the years 1841 – 1848.

As far as I have been able to ascertain this impressive series of annual critical abstracts was the work of Berzelius alone. He was able to read every important article or book on the physical sciences published in a given year, abstract those he deemed important, write critical reviews of them, and arrange them appropriately for publication. My mind boggles at the thought that Berzelius, having done all this, still had to proof the volumes before they were published. “Chemical Abstracts” pales in contrast to “Jahres-Bericht.” Of course the latter was the parent of every scientific abstract publication that followed it.

If you think that “Jahres-Bericht” was Berzelius’ full-time job you are mistaken. He wrote books on chemical mineralogy and animal chemistry (the biochemistry of animal systems). He was a prolific letter-writer – an important way for scientists to communicate in those days when journals were in their infancy. And he was a superb experimental chemist. One of his main objects was to strengthen Dalton’s atomic theory by determining precise values of atomic weights. In that process working on mineral samples, he discovered cerium (as its oxide, ceria) in 1803; selenium in 1817; and thorium in 1828. A little after Davy he isolated, by electrochemistry, potassium and sodium. He used a mercury electrode to prepare amalgams of the alkaline earth metals and then produced the free metals. For those of us, like myself, who have an interest in forensic science, Berzelius improved the Marsh test for arsenic (a favorite poison of the 19th and perhaps earlier centuries).

BY

KEITH ORSO
Irell & Manella LLP
KOrso@irell.com



The title of this column is “Insights Into IP Law,” but the topics explored here have been mostly, if not entirely, patent-related. Of course, patents are not the only type of intellectual property in existence. In response to a terrific suggestion from a reader, and the heralding of a new year, this column will temporarily shift focus to copyright—another form of intellectual property with which researchers and educators regularly grapple.

Like patent rights, copyrights are rooted in Article I, Section 8, Clause 8 of the U.S. Constitution, which grants to Congress the power “To promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Notice that this clause refers to “Authors and Inventors.” Whereas patent law is directed to works of invention, copyright law is directed to original works of authorship. Such works can include not only writings like books, articles, poems, and plays, but also other creations such as sound recordings, photographs, movies, drawings, paintings and even architecture, for example.

The key is that to be protected by copyright, a work of authorship cannot simply be resident in the mind of the author, but must be fixed in a tangible medium of expression. According

to the copyright statute, a work is fixed in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.

Although the word “phonorecord” might evoke images of an old-time trumpet horn turntable or a vinyl record, the copyright statute uses the term broadly to encompass material objects in which sounds, other than those accompanying a motion picture or other audiovisual work, are fixed by any method now known or later developed, and from which the sounds can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.

So to be copyrightable, a work of authorship must be somewhat durable. A haiku written in the sand below the high-tide mark at the beach or drawn onto a steamed-up mirror in a bathroom after a hot shower may not qualify, but a haiku carved into the piling of a pier or perhaps even drawn onto a bathroom mirror with oil pen—or even a dry erase marker—could be protected by copyright.

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



Dear Members,

Happy New Year! I am excited for what this year holds, including me taking on the role of Chair of the San Gorgonio Section. I have been involved with the Section since early 2019, when I first attended a Board meeting to help with planning an event. I thought it might be a commitment spanning a couple months, but I was welcomed in by the other Board members and I found that I really enjoyed being a part of the Section's events. I have been Chair-Elect of the Section for the past two years, which enabled me to learn more about the Section and the people we serve as the San Gorgonio Section Executive Board. I am thankful to have such a great team working with me on the Executive Board for the Section. Though it feels like a large task to be Chair, I know that I have a wonderful group of people beside me who will support me throughout my time in this role.

I am currently an Associate Professor at California Baptist University, where I mainly teach Organic Chemistry. I am passionate about K-12 outreach and helping college students in their transition to graduate programs and careers, especially for those from underrepresented groups in STEM, like myself. I am excited to be able to use my role as Chair in order to plan events that address these passions of mine.

I have a few ideas for Section events for this year, but I am open to hearing suggestions from you on what you would like the Section to do or how the Section can better serve your needs. One of my goals for this year is to increase participation and engagement in our Section. To that end, I hope to increase participation of our members on various committees. Each committee will help to plan one event for the year and involvement could require as little as a few hours of time spread out over two or three months.

For now, I would like to extend an invitation to anyone interested in being a member of one of the following committees: Women Chemists Committee, Environmental Improvement Committee, Younger Chemists Committee, Senior Chemists Committee, or Industry-University Mentorship Committee. If interested in one or more of these committees, please fill out the form here: <https://bit.ly/3y9dW0h>

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/>

My email is jnalbandian@calbaptist.edu. I look forward to working with you in the future!

Dr. Jennifer N. Nalbandian

Chair

jnalbandian@calbaptist.edu

**SOUTHERN CALIFORNIA SECTION
AMERICAN CHEMICAL SOCIETY**

**2700 East Foothill Blvd #209
Pasadena, CA 91107**

**IMPORTANT
Do Not Delay!**

Contains Dated Meeting Announcement

PERIODICALS

SCALACS Senior Chemists Committee

Through the Mini-Grant offered by the National Senior Chemists Committee, SCALACS' Senior Chemists Committee hosted two 60-minute virtual seminars on December 6 and December 8, 2021. We would like to thank Krishna Kallury for coordinating these webinars. Among the attendees were high school students, teachers, and fellow chemists. We were honored to have Dr. Roger Turner as our presenter for both webinars. Dr. Turner is the Science Museum Curator of the Science History Institute in Philadelphia. Dr. Turner developed "Science Matters: The Case of Rare Earth Elements," a science curriculum module where high school students can learn about sustainable technology. He created a digital exhibit about the emerging field of Mechanochemistry titled "The Science of Crush." Dr. Turner earned his Ph.D. in the History and Sociology of Science from the University of Pennsylvania. You may watch the recorded webinars here.

COMBATING AIR POLLUTION IN SOUTHERN CALIFORNIA IN THE 1950s

<https://youtu.be/jaERnO6JaD4>

MATERIAL MATTERS: THE PAST AND PRESENT OF THE RARE EARTH ELEMENTS ESSENTIAL TO OUR FUTURE

<https://youtu.be/dP37atVYcZY>



For more information or to find events, please see our websites:
www.scalacs.org • www.sgacs.org