ACS Chemistry for Life®

SCALACS

A Publication of the Southern California Section of the American Chemical Society

VOLUME LXXIX/No. 6 OCTOBER 2024

SCALACS Celebrates National Hispanic Heritage Month

Virtual Symposium

October 3, 2024 • 2 - 4 PM

Presentations by Dr. Socrates Munoz, Kansas State University and Prof. Benjamin A. Garcia, Washington University School of Medicine.

Registration info on **Page 3**

Join us for SCALACS programs celebrating the NCW!

"More Than Pretty Pictures" Virtual Seminar

October 23, 2024, 3 - 4 PM

Presentation by Felice Frankel, an award-winning scientific image photographer.

Registration info on **Page 6**

October 25, 2024, 11 AM

Picture Perfect Private Tour at Getty Center

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Volume LXXIX OCTOBER 2024 Number 6

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NOTICE: DISCONTINUING PRINT VERSION OF THE SCALACS MAGAZINE

Beginning **January 2025**, the *SCALACS Magazine* will be going 100% digital as the default delivery mode. *SCALACS Magazine* has been available in digital form since 2010, but we continued to send print issues to a subset of members. If you are currently receiving a printed version of the *SCALACS Magazine* and wish to continue receiving the SCALACS Magazine in this form, please e-mail **office@scalacs.org** by **November 15, 2024.**

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Email: office@scalacs.org or call: 626.327.1216.

POSTMASTER: Send change of address to SCALACS, 2700 East Foothill Blvd #209, Pasadena, CA 91107.

Website address: www.scalacs.org

CHAIR'S MESSAGE

Hello everyone.

We have a series of virtual meetings planned during the months of October and November. Our Section will be celebrating National Hispanic Heritage Month with a virtual Symposium on October 3rd. Dr. Socrates Munoz, Kansas State University, will be speaking about "Acyloxyphosphonium Ions as Versatile Building Blocks in Organic Synthesis" and Dr. Benjamin Garcia, Washington University School of Medicine will be speaking about "Quantitative Mass Spectrometry for Understanding Epigenetic Mechanisms."

On October 23rd, in celebration of National Chemistry Week, Felice Frankel will present "More Than Pretty Pictures," a virtual seminar on creating depictions in science and engineering. Another important event is the SCALACS High School Students Research Symposium on November 2nd. Please see our website for the details of these events.

Ballots for the election of members-at-large and section officers with candidate statements will be sent out this month. Please cast your vote and support the section through the ballot. Thanks to Mr. Brian Brady, Ms. Barbara Belmont, and SCALACS office staff for all the arrangements. Also, I really appreciate all the volunteers, who are nominated to be candidates, for their willingness to serve the Section. Thank you all for your continued support.

All the best,

Richard Kidd
Chair, SCALACS

SCALACS Seeking Candidates for Election!

SCALACS is excited to announce that we are seeking candidates for the positions of Member-at-Large, Chair-Elect, and Councilors.

The Member-at-Large role is a 3-year term starting January 1, 2025, and involves attending monthly Executive Committee meetings (most held remotely), participating in one of our committees (initially as a helper and later as a leader), and, in the third year, joining our Executive Committee to help set and approve the budget for the following year.

The Chair-Elect will assist in overseeing the organization's activities and prepare to assume the role of Chair in the future, while Councilors will represent SCALACS at local and national levels, contributing to the strategic direction and governance of the organization.

For details on our committees, please visit SCALACS Committees, http://scalacs.org/?page_id=4.

We feel it is very important to engage all interested members in Southern California Section leadership. If you're interested in participating in your Section's governance, please email us by **October 15, 2024, office@scalacs.org.** We look forward to hearing from you.

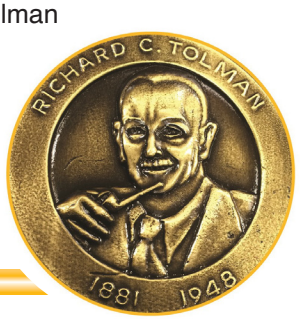
Call for Nominations
2024 Richard C. Tolman Medal

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 2024 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
- no more than 5 letters of support from colleagues in the profession describing the candidate's major achievements
- if the candidate is being considered for outstanding teaching, no more than 5 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 **November 15, 2024.** Inquiries should be directed to the Chairperson via email at **office@scalacs.org.** A list of winners here demonstrates the caliber of awardee sought by the committee: https://scalacs.org/?page_id=20

Celebrating Hispanic Heritage Month: The Southern California Section of the American Chemical Society (SCALACS) showcases seminars by two distinguished scientists as role models for our next generation (funded by the LSAC-DEIR grant).

NATIONAL HISPANIC HERITAGE MONTH VIRTUAL SYMPOSIUM

THURSDAY, OCTOBER 3 • 2 - 4 PM

Title: **ACYLOXYPHOSPHONIUM IONS AS VERSATILE BUILDING BLOCKS IN ORGANIC SYNTHESIS**
Presented by: **Dr. Socrates Munoz, Kansas State University**
Time: **2:00 - 3:00 PM**
Abstract:
This seminar will explore synthetic advances using carboxylic acids directly in both uncatalyzed and catalytic processes. Acyloxyphosphonium ions, derived from carboxylic acids stand as versatile intermediates useful to produce a range of compounds (ketones, aldehydes, acyl fluorides, etc.) through acylative cross-couplings. Additionally, we will examine complementary reactivity such as catalytic decarbonylations, related C–O bond activation and one-electron chemistry.

Prof. Munoz is currently Assistant Professor at Kansas State University conducting research that lies at the intersection of synthetic organic, organometallic chemistry and photoredox catalysis. He obtained his PhD in synthetic and physical organic chemistry at the University of Southern California and continued his postdoctoral studies at the USC's Loker Hydrocarbon Research Institute developing novel fluorination and fluoroalkylation methods. He then joined Caltech as a NIH Postdoctoral Fellow to work on developing enantioconvergent photoinduced Cu-catalyzed cross-coupling reactions.

Title: **QUANTITATIVE MASS SPECTROMETRY FOR UNDERSTANDING EPIGENETIC MECHANISMS**
Presented by: **Professor Benjamin A. Garcia, PhD, FRSC, Washington University School of Medicine**
Time: **3:00 - 4:00 PM**
Abstract:
This seminar will focus on recent advancements in high-throughput quantitative mass spectrometry for analyzing histone post-translational modifications (PTMs) and chromatin structure. We will explore how these technologies are used to study epigenetic reprogramming in malignant peripheral nerve sheath tumors (MPNSTs), an aggressive sarcoma linked to disruptions in the polycomb-repressive complex 2 (PRC2), a key histone-modifying complex involved in gene silencing.

Prof. Garcia joined the Washington University School of Medicine in St. Louis in 2021 to become the Raymond H. Wittcoff Distinguished Professor and Head of the Department of Biochemistry and Molecular Biophysics. He is presently also an Associate Editor of the Analytical Chemistry, and Mass Spectrometry Reviews journals; and serves on the editorial boards for the Molecular Omics, the Journal of Proteome Research and the Molecular and Cellular Proteomics journals. He also serves in the Executive Committee of the American Chemical Society (ACS) Analytical Chemistry Division. An ACS Fellow, Ben has been recognized with many honors and awards, notably the American Society for Mass Spectrometry (ASMS) Research Award, a National Science Foundation CAREER award, an NIH Director's New Innovator Award, and the Presidential Early Career Award for Scientists and Engineers (PECASE).

RSVP: scalacs.org

In celebration of Picture Perfect Chemistry, we have arranged for SCALACS members to enjoy a tour given by an outstanding Getty Center Gallery Educator of the PST ART: Art & Science Collide Exhibitions at the **Getty Center**
at 11:00 AM on Friday, October 25th.

Here is the link to wonderful exhibits:
https://www.getty.edu/calendar/pst-art-and-science-collide/

Getty Center Address:
1200 Getty Center Dr, Los Angeles, CA 90049

Arrival Time: 10:00 -10:30 AM
(**Note:** Transport trams will not be running due to undergoing repair work and delays for visitors to make their way from the bottom of the mountain to the top where the museum is located are expected.)

Parking Cost: $25 per vehicle

Tour begins at 11:00 AM sharp. Please do not be late.

Space is limited to 20 members for the tour.
Please RSVP to **office@scalacs.org.**

2024 NCW ILLUSTRATED POEM CONTEST
PICTURE PERFECT CHEMISTRY

The Southern California Local Section of the American Chemical Society (ACS) is sponsoring an illustrated poem contest for **students in kindergarten through 12th grade**.

Contest Deadline: Sunday, October 27 by 4:00 PM
Contact: Veronica Jaramillo (vijaramillo@pasadena.edu)
Prizes:

3 IN 1 LEGO SET
(For K-2, 3-5, 6-8)

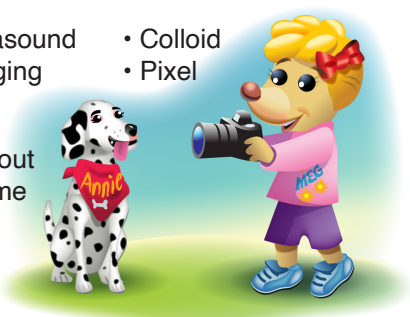
LEGO® POLAROID ONESTEP SX-70 CAMERA
(For 9-12)

Winners of the Southern California Local Section's Illustrated Poem Contest will advance to the National Illustrated Poem Contest for a chance to be featured on the ACS website and to win prizes!

Write and illustrate a poem using the NCW theme, "Picture Perfect Chemistry." Your poem must be **no more than 40 words** and in the following styles to be considered:
• Haiku • Limerick • Ode • ABC Poem • Free Verse • End Rhyme • Blank Verse

Possible topics related to the theme include:

• Chemical reaction	• Molecules	• Transparent	• Ultrasound	• Colloid
• Film	• Filters	• Lens	• Imaging	• Pixel



Entries will be judged based upon:
• Artistic Merit - use of color, quality of drawing, design, and layout
• Poem Message - fun, motivational, inspiring about yearly theme
• Originality Creativity - unique, clever and/or creative design
• Neatness - free of spelling and grammatical errors

Contest rules:
• All poems must be no more than 40 words, and in one of the following styles to be considered: Haiku, Limerick, Ode, ABC poem, Free verse, End rhyme, and Blank verse.
• Entries are judged based upon relevance to and incorporation of the NCW theme, word choice and imagery, colorful artwork, adherence to poem style, originality and creativity, and overall presentation.
• All entries must be original works without aid from others. Poems may be submitted by hand on an unlined sheet of paper not larger than 11" by 14" or scanned and sent via email. Illustrations may be created using crayons, watercolors, other types of paint, colored pencils, or markers. The illustration may also be electronically created by using a digital painting and drawing app on a computer, tablet, or mobile device.
• The text of the poem should be easy to read and may be typed before the hand-drawn or digital illustration is added, or the poem may be written on lined paper, which is cut out and pasted onto the unlined paper with the illustration.
• No clipart or unoriginal images can be used.
• Only one entry per student will be accepted; all entries must include an entry form. If the illustration is created using a digital painting or drawing app, the name of the program must be included on the entry form.
• Acceptance of prizes constitutes consent to use winners' first name, and entry for editorial, advertising, and publicity purposes.
• Do not place participant names on the front of your poem.

ACS Chemistry for Life®
American Chemical Society

PICTURE PERFECT chemistry

October 20-26, 2024 #NationalChemistryWeek

NATIONAL CHEMISTRY WEEK

SCALACS Virtual Presentation in Celebration of National Chemistry Week. Funded By LSAC-IP Grant.

MORE THAN PRETTY PICTURES

Presented by FELICE FRANKEL

OCTOBER 23, 2024 | 3:00-4:00 PM

Abstract:
Graphics, images and figures — visual representations of scientific data and concepts — are critical components of science and engineering research. They communicate in ways that words cannot. They can clarify or strengthen an argument and spur interest into the research process. Just as important, the process of creating a visual representation requires you to clarify your own thinking and improve your ability to communicate with others. Unfortunately, little attention is paid to teaching this component in a researcher's education. In this talk, the speaker will show her own approach to creating depictions in science and engineering—the successes and failures. Included will be a discussion about how far can we go when "enhancing" science images.

Sign up for this free virtual seminar here:

scalacs.org

ACS Local Section
Southern California

Felice Frankel is a Research Scientist at the Massachusetts Institute of Technology in the Department of Chemical Engineering with support from Mechanical Engineering.

Earlier, she was a Senior Research Fellow in Harvard University's Faculty of Arts & Science and a Visiting Scholar at Harvard Medical School's Department of Systems Biology. She developed and instructed the first online MOOC (Massive Online Open Course) for edX addressing science and engineering photography, "Making Science & Engineering Pictures: A Practical Guide to presenting your work."

In 2001, Felice founded the Image & Meaning workshops and conferences which purpose was to develop new approaches to promote the public understanding of science through visual expression. She was also the Principal Investigator of the National Science Foundation-funded program, "Picturing to Learn," an effort to study how making representations by students aids in teaching and learning science.

Some of her awards include Alfred Sloan and Camille & Henry Dreyfus Foundations, Distinguished Alumna at Brooklyn College, CUNY, Lennart Nilsson Award for Scientific Photography and Chancellor's Distinguished Visiting Fellow in the Arts & Sciences at UV Irvine. She is a Fellow of AAAS, a Guggenheim Fellow and a Loeb Fellow.

Wearable Diagnostic Biosensors: A 16-Year-Old Girl Contributes To What Could Be A Medical Breakthrough

~ by Krishna Kallury

Wearable biosensors are devices that can be worn on, inside, or near the human body to monitor biological signals, such as indicators of a patient's health. They provide continuous measurements of dynamic physiological parameters in real time, providing a digital output that can easily be interpreted and acted upon. They typically consist of a recognition region that detects the target signal, a transducer that converts that signal into a measurable parameter, and an electronic processor that enables a visual interface for the output of results.

Wearable biosensors work by detecting and measuring biological signals. The type of signal and how it is measured varies widely between different types of wearable biosensors. The bio-recognition region of the device, which is placed in contact with the body or bodily fluids, may contain biological molecules such as nucleic acids, enzymes, or antibodies. These molecules interact with relevant analytes in the bodily fluids or on the skin. They may also detect other signals, such as changes in light or heat, or the electrical activity of muscles when they contract.

When a signal is detected by the bio-recognition element, it is converted into a measurable signal by the transducer element of the device. The electronic circuitry of the biosensor transmits the signal to a visual display on the device itself or, in many cases, to a smartphone. This allows wearable biosensor users to monitor these signals continuously over time.

Grace Sun, a 16-year-old junior from **Lexington's Paul Laurence Dunbar High School** won the **$75,000 George D. Yancopoulos Innovator Award** at the **2024 Regeneron International Science and Engineering Fair**, the world's largest pre-college science, technology, engineering, and math (STEM) competition that took place in Los Angeles, CA at the Los Angeles Convention Center from May 11-17, 2024. The award was given for her research on building a better organic electrochemical transistor that could eventually be used to develop new electronic devices that could help detect and treat such serious illnesses as diabetes, epilepsy and organ failure. "To overcome the problems that have previously prevented such devices from working effectively inside the body, Grace developed a new way of chemically treating their organic components, which greatly improved their laboratory performance.

(Continued on page 8)


BUSINESS INSIDER

SCIENCE

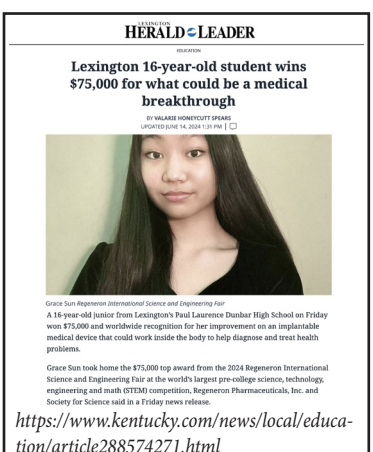
A 16-year-old took home $75,000 for her award-winning discovery that could help revolutionize biomedical implants

Morgan McFall-Johnsen and Jenny McGrath May 17, 2024, 4:14 PM PDT

Share Save

Grace Sun took home the Regeneron International Science and Engineering Fair's biggest prize for her work on OECT. Society for Science

https://www.businessinsider.com/teen-wins-isef-science-fair-grand-prize-discovery-biomedical-devices-2024-5


LEXINGTON HERALD-LEADER

EDUCATION

Lexington 16-year-old student wins $75,000 for what could be a medical breakthrough

BY VALARIE HONEYCUTT SPEARS

UPDATED JUNE 14, 2024 1:31 PM

Grace Sun Regeneron International Science and Engineering Fair

A 16-year-old junior from Lexington's Paul Laurence Dunbar High School on Friday won $75,000 and worldwide recognition for her improvement on an implantable medical device that could work inside the body to help diagnose and treat health problems.

Grace Sun took home the $75,000 top award from the 2024 Regeneron International Science and Engineering Fair at the world's largest pre-college science, technology, engineering and math (STEM) competition, Regeneron Pharmaceuticals, Inc. and Society for Science said in a Friday news release.

https://www.kentucky.com/news/local/education/article288574271.html

2024

Grace Sun, Paul Laurence Dunbar High School, KY, United States of America

Grace Sun, 16, of Lexington, Kentucky, won first place and received the $75,000 George D. Yancopoulos

https://www.societyforscience.org/isef/awards/yancopoulos-innovator-award/

Grace Sun was featured in multiple publications. You can also view her interview here: https://www.youtube.com/watch?v=n4Izzui7Erg

(Continued from page 7)

Grace also won first place in the materials science division, adding another $5,000 to the $75,000. The type of transistor Grace worked with can detect signals that naturally occur in the body — then amplify them. She said an implanted version could one day help regulate heartbeat or monitor blood-sugar levels. Bioelectronic devices have been under development for years but aren't for sale yet because of their current performance issues. They've proven unstable in the body and slow to move electrical signals. Grace added a salt to the polymer that makes up the device, which changes the molecular structure and properties of the polymer. And, that greatly improved the device's performance. Because these electrical devices are so cost-effective, and versatile, they can provide more accurate, safer, as well as cheaper medical diagnostics and treatment for a variety of diseases.

Grace's work was completed under the supervision of Alexandra F. Paterson, assistant professor of materials and electrical engineering at the University of Kentucky Pigman College of Engineering, and her research team in the Organic Materials and Devices Laboratory at the Center for Applied Energy Research. The organic electronic materials used for the work were synthesized by Professor Iain McCulloch at Princeton University.

Grace Sun is scheduled to give the valedictory address at the **SCALACS High School Students Research Symposium** on **November 2, 2024**. To meet and get to know Grace, please register at **www.scalacs.org** by **October 31.** See **page 10** for more details.

Call for Nominations for the Paul Shin Memorial Outstanding High School Chemistry Teaching Award

If you know of a local high school chemistry teacher who is making a difference, please make the effort to show how important his/her work is to you and the students. Self-nominations from those who feel they fit the requirements are accepted as well. It's teachers like the recipients of this award who make learning chemistry rewarding.

The winner of the Section Award will also be entered at the National ACS level for the Western Regional High School Teacher of the Year Award and the 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.). Seconding letters are not essential, 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.

The deadline for nominations is **November 15th, 2024.** Please feel free to contact **Michael Morgan** of the Educational Affairs Committee at **mmorgan@lausd.net** if you have any questions.

Background Checks Now Required For All ACS Volunteers Working with Youth

Effective May 2024, ACS national headquarters requires all volunteers working with youth at an ACS-organized event to pass a criminal background check. This new policy is triggered by new requirements from liability insurance providers, not by complaints of dastardly deeds perpetrated by ACS volunteers upon youth.

In preparation for this new policy, our local ACS section has developed a document titled "Guidelines for Volunteers Working with Youth," in which common-sense best practices are spelled out to make clear what is and is not appropriate behavior for adult volunteers working with youth. To be on the safe side, we are defining youth as people 25 and younger. The document also includes the procedure for qualifying to work with youth on behalf of ACS, circumstances under which a volunteer will be disqualified from working with youth, requirements for parental permission for participation by minors, procedures for filing incident reports (accident, injury, suspected abuse), and what constitutes a Mandated Reporter here in California.

From now on, volunteers at any event that SCALACS organizes that involves youth will need to read and acknowledge the guidelines document and pass a background check. The background check is good for a year, and ACS pays for it. Examples of SCALACS events that will require this are all phases of the High School Chemistry Olympiad and virtual or in-person high school or college research conferences. This rule does not apply to non-SCALACS events such as staffing a demonstration table at City of STEM, serving as an invited panelist for a school career day, or serving as a judge at a science fair. For such outside events, the organizing entity will have rules that you must follow instead.

We encourage anyone who is inclined to volunteer for our events that work with youth to get qualified in advance. Here are the steps:

1. **Read the Working With Youth document:**
   https://tinyurl.com/bdzjhyw9
2. **Acknowledge that you read the document and agree to its guidelines:**
   https://forms.gle/12DTKUdYjhZz8BVF7
3. **Sign up for a background check:**
   https://tinyurl.com/4usscu2b
4. **Email results of background check to:**
   volunteer-coordinator@scalacs.org

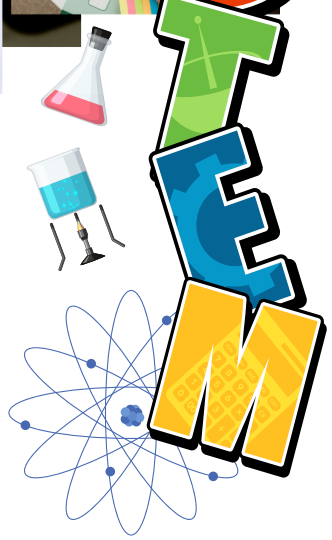
If you will be lead volunteer for a specific event and are not yet trained as a Mandated Reporter, request free training from volunteer-coordinator@scalacs.org

Questions? Email volunteer-coordinator@scalacs.org

SCALACS is proud to host a virtual **Research Symposium for High School Students**, made possible by the ACS LSAC-Innovative Projects Grant. This event offers a glimpse of what STEM research is about to students aspiring to become leaders in future innovations. Award winners at the 2024 ISEF will join local students in describing how their research projects were planned, executed in the lab, how their collected data were analyzed, and how resulting conclusions supplement current knowhow in solving real-world problems. Students are invited to choose any STEM-related topic and deliver a 15-minute presentation via Zoom. There will be 23 presentations delivered in two sessions. Teachers, please encourage your students to attend. The Symposium will be held on Saturday, November 2nd from 9 am to 4pm with a one-hour break at noon. Please register at www.scalacs.org by **October 31.**

HIGH SCHOOL STUDENTS RESEARCH SYMPOSIUM

ACS Local Section
Southern California



Date: **Sat., November 2nd, 2024**
Time: **Morning session: 9 am - 12 noon PT**
Afternoon session: 1:00 - 4:00 pm PT
Topic: **Any topic area related to STEM**
Duration/Mode of Presentation: **15 minutes/Powerpoint via Zoom**

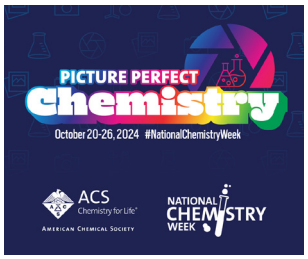
Teachers and students are encouraged to attend.
Please RSVP online at **www.scalacs.org.**
Attendee Registration closes: **October 31**
The Zoom link for the event will be emailed to you prior to the event.

To attend, register at: **scalacs.org**

This event is made possible by the ACS LSAC-Innovative Projects Grant.

UPCOMING EVENTS

October 3, 2024, 2:00 - 4:00 PM
National Hispanic Heritage Month Virtual Symposium
Featuring a free virtual symposium with presentations by two esteemed professors, Dr. Socrates Munoz, Kansas State University, and Prof. Benjamin A. Garcia, PhD, FRSC, Washington University School of Medicine, funded by the ACS LSAC-DEIR Grant. To attend, register now at scalacs.org.



October 20-26, 2024
National Chemistry Week 2024
Theme: Picture Perfect Chemistry
Visit the ACS website for more information and resources:
https://www.acs.org/education/outreach/ncw.html

October 23, 2024, 3:00 - 4:00 PM
"More Than Pretty Pictures"
A free virtual seminar presented by the renowned researcher and photographer of scientific images, Felice Frankel, funded by the American Chemical Society's LSAC-Innovative Project Grant (IPG). To attend, register now at scalacs.org.

October 25, 2024, 11:00 AM
Picture Perfect Private Tour at Getty Center
FOR MEMBERS ONLY. Limit 20 spaces.
RSVP to office@scalacs.org

2024 NCW Illustrated Poem Contest
Picture Perfect Chemistry
(For students in kindergarten through 12th grade)
Submission Deadline: **October 27, 2024**
Email to: **vijaramillo@pasadena.edu**

November 2, 2024, 9:00 AM - 4:00 PM
High School Students Research Symposium
A virtual Research Symposium event for high school students hosted under ACS LSAC-Innovative Projects Grant (IPG).
To attend, register now at scalacs.org.
Registration Deadline: **October 31.**

For updated information on SCALACS event visit our website at www.scalacs.org

BY

KEITH ORSO
Irell & Manella LLP
KOrso@irell.com

The doctrine of double patenting is designed to prevent patent applicants from patenting the same invention over and over again. There are two types of double patenting. The previous edition of this column discussed the first type, which is statutory double patenting. The second type is called "obviousness-type double patenting."

In contrast to statutory double patenting—which is based on a statute, as its name implies—obviousness-type double patenting is a judicially-created doctrine introduced by courts to address situations where two patents do not claim the same invention but rather claim obvious variations of the same invention. For example, suppose someone invents a revolutionary new cough syrup formulation that suppresses coughing for 48 hours after a dose of only one tablespoon. The person files a patent application and obtains a first patent claiming the cough syrup formulation. Later, the same person obtains a second patent claiming the same cough syrup formulation but with added dyes and flavoring (e.g., purple dye and grape flavor) to make it more appealing to take.

Is there statutory double patenting? No, the two patents do not claim the same invention under the test articulated in the previous edition of this column because the claim of the first patent can be literally infringed without literally infringing the second patent. A plain and colorless version of the formulation, for instance, would literally infringe the claim of the first patent but not the claim of the second patent, which also requires both coloring and flavoring.

But should the patent system reward inventors for coming up with minor variations of their inventions? Should the government award a second patent to an inventor based on a small change to the original invention? Courts have said "no." If the second patent claims an obvious variation of the invention claimed in the first patent, then the claim is invalid under the doctrine of obviousness-type double patenting.

In the example above, it would have been obvious to add to a novel cough syrup formulation a dye and flavoring to make the medicine more palatable. Assuming that the second patent does not claim a special new dye or flavoring, but simply claims the same formulation that the first patent does but with the addition of any off-the-shelf dye and any flavoring, the claim of the second patent is invalid for obviousness-type double patenting. The next edition of this column will address how to mitigate obviousness-type double patenting.

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
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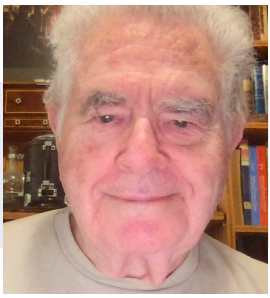

A few weeks ago, I marked my retirement from the Cal State, Los Angeles teaching faculty, after 62 years, by clearing out my office. I came across a few books that I plan to include in my series of columns on great chemistry books of the 20th Century. Since one of these that I plan to cover in my next month's column is by a distinguished chemist, now largely forgotten or overlooked, and almost certainly unknown to most of my readers, I am devoting this month's column to that chemist: Nevil Sidgwick.

Sidgwick was born in May 1873 in Oxford, England. His father was an academic. He was educated at the famous private Rugby School (where the game of rugby was invented!) and earned a scholarship to Christ Church College, Oxford. His tutor there was Vernon Harcourt, a pioneer in chemical kinetics. He earned first class honors in both science and "Greats" (a mix of classical Greek and Latin literature, philosophy, etc.), a quite rare distinction. He followed his first love, science, by spending a short time in Ostwald's laboratory, but illness forced him to go back to England. After he recovered, he travelled to Tübingen and worked for two years in the laboratory of Hans von Pechmann. His dissertation on acetone-dicarboxylic acid earned him a D.Sc. in 1901. On the strength of this achievement, he was elected to a Fellowship at Lincoln College Oxford. He took up this appointment in Fall 1901 and remained a Fellow of Lincoln until his death in March 1952.

Sidgwick devoted his career to the study of chemical valence and the chemical bond. He wrote several books on this and related subjects. Three of these books are "The Organic Chemistry of Nitrogen" (1910), "Electronic theory of Valency" (1927), and "The Chemical Elements and their Compounds" (1950, 2 volumes), which I regard as among the great chemistry books of the 20th Century. Quite remarkably two of them were published forty years apart.

Sidgwick was very active professionally. He was sent as a representative of the British Association for the Advancement of Science to its meeting in Australia in 1914. A fellow passenger on the outward voyage was Sir Ernest Rutherford and the two became friends. On the return journey Sidgwick became acquainted with another famous scientist, Professor Arthur Eddington, astronomer, cosmologist, and extraordinary science writer. (I recommend Eddington's book "The Nature of the Physical World"). Sidgwick was elected as a Fellow of the Royal Society in 1922. He spent a semester at Cornell University in 1931 and presented the Baker Lecture series for that semester on "Physical Properties of the Covalent Link in Chemistry." A rare "double" at Cornell, Sidgwick was invited back in 1950 to share a lecture series with Schlesinger on "The Hydrides of Boron"–Schlesinger for the experimental aspects and Sidgwick for the state of then-current theory. Sidgwick was elected president of The Faraday Society (the physical chemists' society in the U.K. at that time) for 1932-34; vice-president of the Royal Society for 1935-37; and President of The Chemical Society for 1935-37.

Sidgwick was a chemical theoretician who made important contributions to the understanding of chemical bonding, including the effects of hydrogen bonding on physical properties. His biographical memoir, published by the Royal Society, is written by Henry Tizard, an Oxford chemist and inventor. It covers 26 pages, lists well over 100 publications, and does full justice to the life and career of this important 20th Century chemist.

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PERIODICALS

ATTENTION SCALACS MEMBERS!

Beginning January 2025, the *SCALACS Magazine* will be going 100% digital as the default delivery mode. *SCALACS Magazine* has been available in digital form since 2010, but we continued to send print issues to a subset of members. If you are currently receiving a printed version of the *SCALACS Magazine* and wish to continue receiving the SCALACS Magazine in this form, please e-mail **office@scalacs.org** by **November 15, 2024.**

LOOK OUT FOR THESE UPCOMING SCALACS EVENTS

OCTOBER

- Science Fair at a high school in Torrance in support of the local school science teachers
- National Hispanic Heritage Month Virtual Seminar, **Oct. 3**
- SCALACS Election candidate nomination deadline, **Oct. 15**
- National Chemistry Week, **Oct. 20-26**
- "More Than Pretty Pictures" virtual seminar, **Oct. 23**
- Private Tour at Getty Center, **Oct. 25**
- 2024 NCW Illustrated Poem Contest submission deadline, **Oct. 27**

NOVEMBER

- High School Students Research Symposium, **Nov. 2**
- Tolman Award nomination deadline, **Nov. 15**
- Paul Shin Award nomination deadline, **Nov. 15**

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