



SCALACS

October 2014

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



Southern California Section National Chemistry Week October 19-25, 2014

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High School Chemistry Teachers Meeting at Occidental College November 1, 2014

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Southern California Section

Chair's Message



We kicked off our Section fall activities with a celebration for our 50/60 year members and honoring our Outreach Volunteer of the Year, Dr. Henry Abrash.

From October 19th to 25th, we will have **National Chemistry Week (NCW)** Activities at the California Science Center and Pasadena Community College. The theme is "The Sweet Side of Chemistry—Candy!" (please check Page 4 for more information). On November 1, we will also have the **High School Chemistry Teacher Meeting at Occidental College** (please see Page 3). There are more events planned this year so please check out our website (www.scalacs.org) or follow our Facebook, LinkedIn or Twitter (@scalacs1) for more information.

The section is preparing for its annual election of officers and Councilors. I am excited to announce that this year's elections will be conducted by **electronic balloting**. While this should make it easier for most members to participate in the election process, paper ballots will be provided upon request to those members who do not have internet access. I encourage everybody to review the statements of the candidates and to vote for the most qualified representatives of the section. I want to thank Virgil Lee for spearheading the effort to move the Section to the electronic age!

Finally, it is not too early to plan to attend the **2015 Western Regional Meeting** which will take place on the campus of California State University, San Marcos from November 6 to November 8, 2015. So please mark your calendars now. For more information on the expo, vendors or sponsorship, contact WRM2015Chair@gmail.com.

Best,
- Yumei Lin, Chair
yumei.lin@Amway.com

Southern California Section

SCALACS High School Chemistry Teacher Meeting

Occidental College

1600 Campus Road
Los Angeles, CA 90041

Saturday, November 1, 2014

9:00 a.m. to 3:00 p.m. (lunch included)

**2014 theme of National Chemistry Week is
“The Sweet Side of Chemistry—Candy!”**

For many years the Occidental Chemistry Teachers Meeting sponsored by the Southern California Section was the premier place in Los Angeles for teachers to learn from teachers. Please consider coming and sharing your favorite lesson, demo, or trick with us. Already confirmed speakers include Paul Groves, Richard Erdman, Larry Quimby, Caroline Morgan, Dave Kukla, Michael Morgan, and more! Anyone interested in presenting, please contact the program chair, Michael Morgan at mmorgan@lausd.net. A detailed presentation of the reworked AP Chemistry courses will be included.

Cost: There is a \$25 cost for the program which includes lunch (cash or check). For pre-service teachers, the fee is \$5. There is free parking on campus.

Registration: The registration form is available at www.scalacs.org/2014OxyMeetingRegForm.pdf. **Please download the form and return it with the fee to: SCALACS, 14934 S. Figueroa Street, Gardena, CA 90248 by Thursday, October 30th.** You can also contact Nancy Paradiso at office@scalacs.org.

**Sponsored by SCALACS, Occidental College and
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Southern California Section



NCW Outreach Activities

October 19-25, 2014 (Varying Times) **National Chemistry Week Activities at the California Science Center**, 700 Exposition Park Drive, Los Angeles, CA 90037, website: www.californiasciencecenter.org. Join volunteers at the California Science Center for NCW activities throughout the week. The theme for NCW 2014 is “**The Sweet Side of Chemistry—Candy!**” For more information visit: www.acs.org/ncw. If you would like to volunteer or have questions, please contact Henry Abrash at: abrash8@aol.com.

National Chemistry Week Activities at Pasadena City College:

October 23, 2014: Mole Day – NanoMole Hunt on campus
“Spectroscopy at JPL” seminar by Dr. Brian Drouin

October 24, 2014: Chemistry Magic Show – Students will perform a Magic Show on Campus

October 25, 2014: Candy Making Workshop - Students will make sugar candy and discover the Chemistry of Candy making.

October 31, 2014: Outreach to Jefferson Elementary – teaching fifth graders about what makes up candy colors through Candy Chromatography.

Please see our website, www.scalacs.org for more events.

Southern California Section

Call for Nominations OUTSTANDING HIGH SCHOOL CHEMISTRY TEACHER OF THE YEAR 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. 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 at the National ACS level for the James Conant Bryant Award and the Western Regional High School Teacher of the Year 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 may be submitted via email to office@scalacs.org.** Note that signed documents that have been scanned are acceptable.

The deadline for nominations is **November 17th, 2014**. Please feel free to contact Michael Morgan of the Educational Affairs Committee at mmorgan@lausd.net if you have any questions.

American Association of Chemistry Teachers (AACT)

Supporting the teaching and learning of chemistry has been a critical aim of the American Chemical Society (ACS) since its inception over 138 years ago. Continuing that tradition, the **American Association of Chemistry Teachers** will support K–12 teachers of chemistry by providing a professional home that offers specialized resources, opportunities for networking and interaction, and a means of interfacing with the broader ACS community. **AACT's Goals:**

- Membership is inclusive and open to anyone with an interest in chemistry education; however, AACT will primarily serve K–12 teachers.
- Serve as a trusted source of chemistry teaching resources
- Provide networking opportunities
- Disseminate effective teaching and learning practices at the K–12 level

AACT officially launched in September. If you know a K-12 teacher, please let them know about AACT. They can sign up to receive updates on the latest AACT news by emailing us at aact@acs.org.

Southern California Section

Call for Nominations 2014 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 of the American Chemical Society and the Tolman Award Committee are now seeking nominations for the 2014 award. There is no official nominating form for this award; nominations are accepted from any member of this Section or of cooperating 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, 2014.** Inquiries should be directed to the Chairperson at (310) 327-1216 or via e-mail at office@scalacs.org. A list of winners appended here demonstrates the caliber of awardee sought by the committee.

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



Insights Into IP Law

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

As discussed generally in the September installment of this column, conception is the touchstone of inventorship in patent law, and conception is complete only when an idea is so clearly defined in the mind of the inventor (or the minds of multiple inventors) that only ordinary skill would be necessary to make and use the invention without extensive research and experimentation. This installment of the column addresses conception in the context of chemical inventions in particular.

Cases explain that conception of a chemical compound requires the ability to define the compound so as to distinguish it from other materials, and to describe how the compound can be obtained. Conception in the chemical arts has not occurred if a would-be inventor does not have a mental picture of the structure of the chemical, or is unable to define it by its method of preparation, its physical or chemical properties, or whatever characteristics sufficiently distinguish it from other compounds.

If the chemical compound is expected or believed to have a particular biological property, such as inhibiting binding between a molecule and a receptor for example, it is not sufficient to describe the compound solely by that biological property. An idea for a chemical compound having no more specificity than a description of its biological properties is not conception of an invention; it is simply a wish to know the identity of materials having such properties. Articulating the idea of a chemical compound that cures cancer is not the same thing as actually discovering a chemical that cures cancer. In Europe, patent claims that cover such aspirations are commonly referred to as “desiderata” or “free beer” claims because they are directed to a result everyone in theory wants to achieve (e.g., drinking free beer) without disclosing how such a result can be obtained.

Although aspirational ideas do not qualify as inventions, an inventor need not actually know that his or her invention will work in order for conception to be complete. An inventor need only show that the idea is clearly defined. Confirmation that the idea actually works is part of reduction to practice. Inventorship will be addressed further in the next column. As always, please email me at korso@irell.com with any questions or issues that you would like to see addressed in future editions.

* The author earned engineering and chemical engineering under-graduate 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

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

Kevlar, a synthetic fiber that has saved many lives, was discovered in the early 1960s by the subject of this column, Stephanie L. Kwolek. Ms. Kwolek was born in 1923 in a suburb of Pittsburgh, PA to Polish immigrant parents. Her father was a keen amateur naturalist. Though he died when she was only ten years old, Stephanie credited him with developing her interest in the natural world and in science. She originally hoped to go to medical school, but the family could not afford the tuition and so she enrolled in Margaret Morrison College of Carnegie Mellon University and graduated with a degree in chemistry in 1946. She still hoped to enter medical school and decided to take a temporary job in the chemical industry to earn the necessary funds. Jobs for women in chemistry were scarce but she was fortunate to be offered a position at DuPont's plant at Buffalo, NY. Her association with DuPont turned out to be anything but temporary. She was with the company for over 40 years!

Kwolek moved to the Wilmington, Delaware DuPont headquarters in 1950. There she worked with a polymer fiber group on researching new fibers and improving DuPont's established fibers. (Nylon was discovered by DuPont chemist Carothers in the 1930s). In 1959 the ACS recognized her popular publication on The Nylon Rope Trick by an award. I'm sure that most of my readers have either performed or seen a demonstration of this interfacial polymer-forming experiment to produce a nylon fiber. In the early 1960s, searching for strong but lightweight fibers to reinforce tire walls, Kwolek began investigating polybenzamide, poly-p-phenylene terephthalate (which could not be spun in the melt below 200 degrees C) and eventually the copolymer poly-paraphenylene terephthalamide. The latter gave what was determined to be a liquid crystal in solution – cloudy, opalescent, and unpromising. Still she did have it tested by the spinnaret technician, and it produced a fiber that was not only stronger than nylon, but weight for weight was five times as strong as steel. Kevlar was born.

DuPont spent \$500 million to develop this laboratory discovery into a marketable product. Initially designed as a tire reinforcement it soon became clear that there were many other potential, and profitable, applications for Kevlar. By 1975 fabrics made of the tough polymer were being used in vests for the protection of police – so-called bullet-proof vests. The military soon followed. Vests including many layers of Kevlar

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This Month in Chemical History

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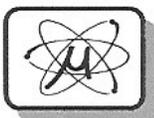
fabric plus ceramic plates are now standard military supplies. The polymer has a myriad of other uses including sports equipment, and musical and audio equipment.

Stephanie Kwolek's achievements have been recognized by many awards. The DuPont company awarded her the Lavoisier medal. She was the leader of DuPont's polymer research division until she retired in 1986. She was inducted into the National Inventors Hall of Fame, the National Women's Hall of Fame, and the Plastics Hall of Fame. Her inspiring story was the subject of a children's book by Edwin Brit Wykoff, published in 2013, entitled "The Woman Who Invented the Thread That Stops the Bullets: The Genius of Stephanie Kwolek." She is also one of the subjects of the Chemical Heritage Foundation's "Women in Chemistry" videos which you can access through the chemheritage.org website.

After her retirement Kwolek began tutoring high school students, encouraging more young women to seek careers in science. She died earlier this year in June 2014.

Two personal announcements:

- I am a co-author with Cathy Cobb and Monty Fetterolf of a new book "The Chemistry of Alchemy: From Dragon's Blood to Donkey Dung; How Chemistry was Forged" published by Prometheus Books in July 2014; it is available both as a hardback and an ebook.
- I will be teaching Chemistry 480: History of Chemistry (4 quarter units) at Cal. State, Los Angeles in Winter Quarter 2015, starting in early January. The course will be offered from 6 to 8 p.m. on Monday and Wednesday evenings for 10 weeks. Get in touch by email for further details.



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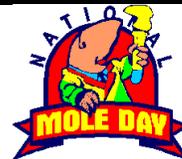
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San Gorgonio Section



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Questions: Please contact Eileen DiMauro at edimauro@mtsac.edu.

**Sponsored by Mt. SAC Chemistry Department,
Chemistry Club, & APPLE Club
San Gorgonio Section of the American Chemical Society**

San Gorgonio Section

San Gorgonio Section Luncheon Meeting
Saturday, October 25, 2014
Recognition of 50-Year and 60-Year
ACS Members
College and University Chemistry Clubs

Magdaleno's Banquets & Catering

220 N. Central
Upland, CA 91786

Check-in and Social: 11:30 am

Luncheon: 12:00 pm

Program: 12:30 pm

This gathering showcases American Chemical Society members with the longest and shortest tenures in the organization. The San Gorgonio Section currently has fifty-six chemists with fifty or more years of ACS membership. This year, seven Section members have achieved the major milestones of 50 years or 60 years of ACS membership. Please join us in celebrating these remarkable accomplishments!

50 Year Members

Dr. Barbara Ann Burke
Dr. Curtis Russell Keedy
Mr. Jerry Lloyd Kinkade
Dr. Dennis M. Pederson

60 Year Members

Mr. Douglas Roy Burns
Dr. Lee Harry Kalbus
Dr. Walter Maya

At the other end of the spectrum, many newer members of ACS have taken advantage of undergraduate and graduate student plans, sometimes through Student ACS clubs. We have invited representatives from Section college and university Chemistry Clubs to share their activities. Please help us welcome our newer members!

(Continued on Page 12)

San Geronio Section

Luncheon Meeting (Continued from Page)

This is the perfect gathering to share information and experiences. Speed networking will be used to maximize interactions. Information will be available for anyone interested in starting a club, whether for students or more seasoned chemists.

Lunch: Served buffet style. Assorted deli meat platter, assorted cheese platter, assorted bread basket, lettuce, tomato, mayo, mustard, pasta salad, potato salad, and a green salad. Coffee, iced tea and water are included. Wine and soda are available for purchase.

Cost and Reservations: The cost (meal, tax and tip) is \$15.00 members, \$20.00 non-members, \$10 seniors and retirees, \$10 students, free for ACS members receiving their 50-year and 60-year certificates. Cash or checks only please, at the door.

Please make your reservations no later than **Saturday, October 18, 2014 by 12:00 noon** by contacting Eileen DiMauro (edimauro@mtsac.edu, 909.274.4533). Include your contact information (phone number and email address) and names of persons attending. Please be certain to honor your reservation.

Directions: Magdaleno's Banquets and Catering is most easily accessed from the 10 Freeway. Exit Central Avenue, EXIT #49. Go north for approximately 1 mile to the restaurant. Here is the link to the map on the facility's website: <http://www.magdalenos.com/#!location/c2q4>. Parking is free in the adjoining parking lot.

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***IMPORTANT
Do Not Delay!***

Contains Dated Meeting Announcement

PERIODICAL

Chemists' Calendar

For more information on these events, please check the SCALACS website at www.scalacs.org

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