



### November/December 2018

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

# Southern California Section



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# **SCALACS**

A Joint Publication of the **S**outhern **Cal**ifornia and San Gorgonio Sections of the

American Chemical Society

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Number 7

#### SOUTHERN CALIFORNIA SECTION 2018 OFFICERS

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### **Chair's Message**

Great Chemists for All Seasons!

I am simultaneously amazed and pleased how much time, effort, and passion our local section members devote to doing Great Chemistry! I am reminded of a quote from the World War II hero and California native James Doolittle – "There's nothing

stronger than the heart of a volunteer." SCALACS members continue to live up to this even in a time with increasingly busy schedules and other distractions.

It is our honor to recognize Michael Morgan who is the 2018 recipient of the Agnes Ann Green Distinguished Service Award. Michael is an inspiration in and out of the classroom. He has served as SCALACS chair and for many years has facilitated the annual meeting for high school chemistry teachers. The next meeting is on Saturday November  $3^{rd}$  at Occidental College.

Thank you all for an extremely successful nano Western Regional Meeting on October 27<sup>th</sup>. We had over 200 in attendance with 54 student research posters. We had six breakout sessions featuring topics such as solar chemistry and space materials. SCALACS members Michael Morgan, Chanda Strom, Barbara Sitzman, and Debbie Bennett facilitated sessions. Brian Brady gave a plenary talk about propellant chemistry. We had amazing support from Eleanor Siebert, Nancy Paradiso, Chris Brazier, and Thomas Matthew. Caltech's Beckman Institute and Division of Chemistry and Chemical Engineering provided all the basics for us including a wonderful facility, chairs & tables, and poster boards. If you would like to learn more about the meeting a .pdf of the program is available on the SCALACS website. Finally, I would like to thank the co-chair for this meeting Dr. Phil Hampton from CALPACS who worked with us on this very successful inter-section collaboration.

I wish you all the best for a great holiday season. During a reflective moment in the waning days of 2018 consider joining us in 2019 for all of the wonderful activities that Krishna Kallury (Chair 2019) has in store for us.

Good Health and Prosperity in 2019! Bob de Groot rdegroot@oxy.edu



# Announcing the 2018 Agnes Ann Green Award Recipient for Distinguished Service to the Section: Michael Morgan

We are pleased to announce that Michael Morgan has been selected to receive our Section's Agnes Ann Green Award. Details about the dinner will be announced on our website.

**Biography:** Michael Morgan is currently the Honors and Advanced Placement Chemistry teacher at Francisco Bravo Medical Magnet High School. He received his degree at UC Santa Cruz under the direction of Professor Frank C. Andrews. Since UCSC he has become heavily involved in the field of Chemical Education serving twice as a fellow of the Institute for Chemical Education at the University of Wisconsin working for Professor John W. Moore.

For many years Mr. Morgan wrote a regular column entitled "Ideas From the Coast" for the now defunct journal "Connecting with Chemistry" and in 2015 he became a featured contributing author for the journal ChemEdx.org. He has served as a member of the editorial board for the Journal of Chemical Education: Software. Over the past 25 years he has presented over 100 workshops, conferences, and lecture demonstration shows on topics ranging from "Chemistry in our Everyday Lives" to "Chemical Philately: A Perforated History of Chemistry."

Since the early 1990's Mr. Morgan has been working with the ACS in a variety of activities. On the national level he serves on the advisory board for the ACS Chemistry Clubs program and is also a member of DIVCHED's "Precollege Chemistry Committee". He currently plans and hosts the AACT's yearly "Update for Chemistry Teachers" meeting held at Occidental College. He serves on the SCALACS Executive Committee and was Chair of the Southern California Section in 2016. He has also chaired the Education Committee for several years coordinating the annual High School Teachers Meeting, the Paul Shin Memorial High School Teacher of the Year Award and co-hosting the Educational Awards Banquet.

In the last three years he has served AACT as a Regional Representative, been a candidate for President, and presented workshops at the National level for AACT. Mr. Morgan has been the recipient of the Southern California ACS Teacher of the Year Award and has received the 2013 Western Regional Award for Excellence in High School Teaching.

# 2018 Occidental College High School Chemistry Teachers Meeting

This is a meeting for Chemistry Teachers by Chemistry Teachers!

# November 3, 2018

### **Occidental College**

1600 Campus Road Los Angeles, CA 90041 Mosher Room 1

### Registration opens at 8 AM, Program 9 AM to 3 PM, Lunch Included Free parking on campus

### Featuring presentations by: Steve Sogo from Laguna Hills High School, Mario Martinez from SOCES and Michael Morgan from Bravo High School and more...

The fee is \$30 (nonrefundable) payable to SCALACS. Pre-service teachers can attend for just \$5! Paypal registration is now available. To register and pay by Paypal, please go to https://goo.gl/forms/xcYxZU1XiYVgFJsV2. Please remember that your registration is not complete until you pay. You will receive a confirmation from Paypal.

via Reservations can be made email to Nancy Paradiso at The registration link is available on our website. office@scalacs.org. www.scalacs.org. Questions about the program or to volunteer to give a contact presentation. Michael A. Morgan (Education Chair) at mmorgan@lausd.net.

Sponsored by the Southern California Section of the American Chemical Society and the Occidental College Department of Chemistry



### Call for Nominations 2018 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 **2018** award. There is no official nominating form for this award; 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, 2018.* Inquiries should be directed to the Chairperson via e-mail at office@scalacs.org. A list of winners appended here demonstrates the caliber of awardee sought by the committee.

1973 Howard Reiss1993 Charles L. Wilkins1974 John D. Roberts1994 Jacqueline K. Barton1975 Corwin Hansch1995 Christopher S. Foote1976 F. Sherwood Rowland1996 Larry R. Dalton1977 Sidney W. Benson1997 Ahmed H. Zewail1978Thomas C. Bruice1998 Kendall N. Houk1970 Density1998 Kendall N. Houk
1979 Harry B. Gray 1999 Peter Dervan

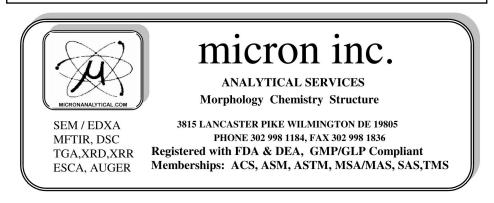
2000 William A. Goddard III 2001 Peter M. Rentzepis 2002 Robert H. Grubbs 2003 Arieh Warshel 2004 Christopher Reed 2005 Fred Wudl 2006 G. K. Surya Prakash 2007 Barbara Finlayson-Pitts 2008 Joan S. Valentine 2009 Richard B. Kaner 2010 Dennis Dougherty 2011 Karl O. Christie 2012 John E. Bercaw 2013 Mark E. Thompson 2014 William J. Evans 2015 Michael E. Jung 2016 Paul S. Weiss 2017 Jeffrev I. Zink

### Second 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 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 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, 2018**. Please feel free to contact Michael Morgan of the Educational Affairs Committee at mmorgan@lausd.net if you have any questions.





# Insights Into IP Law Keith Orso\*, Irell & Manella LLP

KOrso@irell.com

The "public use" of an invention prior to the filing of a patent application can constitute "prior art" that prevents the issuance of a patent or renders the claims of any resulting patent invalid. The idea is that the invention is abandoned to the public upon such use, and once abandoned, the invention cannot then be withdrawn from the public domain.

Last month, this column contemplated whether the unrestricted use of a concealed invention—for example, a small element like a spring hidden in a larger article such as a corset—can constitute a "public use." The question this month is what happens when public use of a potential invention is necessary in order to test whether there is anything worth patenting?

In 1848, Samuel Nicholson constructed a 75-foot stretch of pavement comprising wooden blocks and gravel over which melted tar or pitch was poured to provide a permanent and durable wooden pavement protecting against the slipping of horses' feet, against noise, against unequal wear, and against rot and consequent sinking from below. Mr. Nicholson laid the pavement at his own expense on a public avenue in Boston called "Mill-dam," and visited the site almost daily to examine the pavement. He would often walk over the pavement, with his cane in hand, striking the pavement with the cane and assessing its condition. Over time, he asked a nearby toll collector many questions about the pavement and how travelers liked it.

Six years after installing the pavement, Mr. Nicholson applied for a patent. The patent issued, and when Mr. Nicholson filed a patent infringement suit, the defendant contended that the invention was invalid for prior public use. The case made its way to the Supreme Court, which acknowledged that that the use of the pavement in question was undoubtedly public in a sense, but nonetheless concluded that it was not a "public use" within the meaning of the patent laws.

The evidence showed that Mr. Nicholson merely laid the patch of pavement as an experiment to test its usefulness and durability. The Court observed that the nature of street pavement is such that it cannot be experimented upon satisfactorily except on a highway, which is always public. The court wrote that use of an invention by the inventor himself, or of any other person under his direction, by way of experiment, could not be regarded as a public use even though the public may be incidentally deriving benefit from it. The Court found Mr. Nicholson's delay in filing for a patent to be occasioned by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended, and upheld his patent.

\* 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.

### Thanks to all 2018 Volunteers

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: Bob de Groot Chair Elect: Krishna Kallury Secretary/ Treasurer: Barbara Belmont

Elected Members of Executive Committee:

Alexander Alschuler Krishna Kallury Derek Marin Thomas Mathew Morgan McCarthy Edye Udell

### **Councilors**:

Brian Brady Bob de Groot Virgil Lee Sofia Pappatheodorou Eleanor Siebert Barbara Sitzman

#### Alternate Councilors:

Deborah Bennett Ana Gamboa Ralf Haiges Veronica Jaramillo Tom LeBon Alexandros Oxyzolou **Meeting Speakers:** John Pollard, University of Arizona Jeffrey Zink, UCLA

#### nWRM Speakers:

Brian Brady Lawrence Wade Maria Drout Tom Traeger Stephen Edberg Michael Morgan Debbie Bennett Barbara Sitzman Chanda Strom Gerald Voecks

### Expanding Your Horizons

Eleanor Siebert, Coordinator MSMU Sylvine Deprèle Evelyn Khamou Erika Lytle (CSUDH) Barbara Belmont Cari Meyer Joiner (Pierce) Akiko Arevalo (LAUSD) Jennifer Trochez (LAUSD)

MSMU WISH Students: Aisosa Adobor Mary Bakarian Amy Calderon

### MSMU WISH Students (Cont.):

Kaial Desai Illeana Dullas Kristen Fregoso Kelly Hernandez Juliette Jauregui Vivian Lee Melissa Martinez Minh Vy Nguyen Thuy Nguyen Patricia Perez Vanessa Ouintero Mary Safaeipour Magdalena Serrano Elizabeth Shokova Shannon Yang Leslie Ortiz (CSUN)

Educational Affairs—H.S. Teacher of the Year Michael Morgan, Chair Alexander Alschuler Richard Erdman Larry Walker

**Teacher's Meeting** Michael Morgan, Chair Deborah Bennett Chris Craney Richard Erdman Larry Walker (Continued on Page 9)

## Thank You List (Continued from Page 8)

High School Olympiad Gerald Delker, Chair Henry Abrash Barbara Belmont Deborah Bennett Ben Ku Michael Morgan Eleanor Siebert Barbara Sitzman

#### Community Activities: NCW, CCED & nWRM

Robert de Groot, Chair Henry Abrash **Jackie Barton** Barbara Belmont Debbie Bennett Brian Brady Chris Brazier Randy Burg, Spectrum **Bonnie Charpentier** Chris Cranev Gerald Delker **Dennis Dougherty** Jenny Du, CalPACS Harry Gray Phil Hampton, CalPACS **Rick Jackson** Veronica Iaramillo Derek Marin

### Community Activities: (Continued)

Thomas Mathew Michael Morgan Jean Osterman, CalPACS Sofia Pappatheodorou Armando Rivera Justin Russak, CalPACS Eleanor Siebert Barbara Sitzman

#### Organizations Supporting Section Community Activities: ACS Office of Science

ACS Office of Science Outreach Beckman Institute, Caltech Division of Chem. & Chem. Engrg., Caltech Spectrum Chemical California Science Center—Evelyn Serrano

### **ACS Student Chapters:**

- MSMU - CSUDH
- ELAC
- Pasadena City College
- Occidental College

Nominations & Elections Bob de Groot, Chair

#### **Project SEED**

Frank Gomez, Chair Michael Hayes Robert Vellanoweth Xin Wen Kirsten Woo, MASS High School

### Publication Committee

Harold Goldwhite Bruce Liu, SG Keith Orso Eleanor Siebert

**Social Media** Debbie Bennett

### Tolman Award

Dr. Frank Gomez, Chair. Confidential committee, but you know who you are!

### Webmaster

Barbara Belmont

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.

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 recent columns I mentioned my recent purchase of a textbook, "Kane's Chemistry edited by Draper" published in 1845. I also described the careers of these two eminent mid-19<sup>th</sup>. century scientists. In this column I will conclude the examination of chemistry in 1845 as described in the 700 pages of small print in this comprehensive text.

One of the more challenging questions of mid-19<sup>th</sup>. century chemistry was that of chemical affinity. Why do certain substances react together while others are completely indifferent? Beginning in the 18th. century chemists including Geoffroy and Bergman had compiled extensive lists of substances in order of their affinity their reactivity – towards a standard reagent. Elaborate examinations had been made of many acid/base reactions; reactions of metals with acids etc. The compiled results were used to construct large Tables of Affinities which were as prominent in lecture rooms of the 18<sup>th</sup>. century as are Periodic Tables today. There was much discussion as to whether affinities were absolute, or affected by external parameters such as temperature and concentration. Berthollet was one of the team of scientists and archaeologists that was brought to Egypt by Napoleon early in the 19<sup>th</sup>. century after his campaign in that country. (This was the birth of modern Egyptology). Berthollet made an interesting observation on the shores of the saline Lake Natron. He found deposits of sodium carbonate. The rocks surrounding the lake were limestone, calcium carbonate. Berthollet knew that in the laboratory if solutions of sodium carbonate and calcium chloride were mixed a precipitate of calcium carbonate was formed. On the shore of Lake Natron he observed the reverse reaction; the calcium carbonate of the limestone had reacted with the sodium chloride of the saline lake water to produce an evaporated deposit of sodium carbonate on the lake shore. Berthollet looked for other examples of similar (Continued on Page 11)

### This Month in Chemical History (Continued from Page 10)

phenomena and in his book "Essai de Statique Chimique" he argued that affinity could not be absolute but might well depend on concentration. He had a glimmer of the Law of Mass Action, which was not announced for another 50 years, but his work was largely ignored.

Kane's book concedes that "the chemical action of two bodies does not arise simply from their chemical affinities, but results from the combined influences of heat, electricity, cohesion, and other physical agencies ...". The remarkable discoveries of electrochemistry, unknown, of course, to Berthollet when he wrote his Essai, had shown how electricity could overcome even the strongest affinities. There are many admiring references to Berthollet's work in Kane's chapter on affinity, but Berthollet's stance rejecting the Law of Definite Proportions (Constant Composition) – which deserves a whole column to itself – led to much of his other work being neglected.

Kane's "Elements of Chemistry" is a comprehensive text, and a third of the book covers subjects related to organic chemistry. Space and time do not permit a full examination of this material, but let me give you an idea of the subjects covered. They include what we would now call biochemistry. Thus we have chapters on carbohydrates and their decomposition by acids and alkalis; the alcoholic and acetic fermentations; essential oils, camphors, and resins; saponifiable fats and oils; organic acids (which do not pre-exist in plants [! HG]) including tartaric, citric, malic etc.; coloring matters; vegetable alkalis [alkaloids]; the decomposition of wood; and animal chemistry.

If the mid-19<sup>th</sup>. century student studied and mastered this text he (or, in a regrettably few cases she) would have a far- ranging understanding of contemporary chemistry, and be ready to move into a chemically-related profession.



# **Chair's Message**

Congratulations to Dr. Ernie Simpson on receiving the 2018 Western Regional E. Ann Nalley Award for Volunteer Service to the ACS!

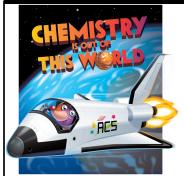
Congratulations to Mt. SAC and UCI on receiving the 2018 Western Region Partners for Prosperity and Progress (P3) Award!

2018 has been a great year for the ACS San Gorgonio Section. Besides the above awards, we also held several successful events. In addition, we have been experimenting on utilizing social media for improving communications. I am truly thankful to our board members Dr. Dennis Pederson, Dr. Eileen DiMauro, Dr. Ernie Simpson, Dr. David Srulevitch, and Ms. Emily Viggers. I also want to thank Mr. Tarquinus (Tark) Bunch, Dr. Jingsong Zhang of UCR Chemistry Department, Dr. Jefferson Wang of Western University of Health Sciences, and many other friends for their strong supports.

The holiday season is around the corner and we still have two more important events to go this year.

- Family Science Festival, Saturday, November 3<sup>rd</sup>, Mt. San Antonio College
- Annual Meeting and Chemistry Career Workshop, Saturday, November 17th at UCR
- It is also the time to elect new section officers. At this time, we still have the following two positions without candidates.
- Chair-Elect
- Secretary

Please contact us if you are interested in these two or other positions. Please cast your vote as well. If you need more information, please follow us via the follow channels. *(Continued on Page 15)* 



Mt. San Antonio College Chemistry Department Presents

**Family Science Festival!** 

Saturday, November 3, 2018 10:00 AM to 2:00 PM

> Mt. San Antonio College Natural Sciences Complex (Buildings 7, 60, 61)

FREE Science activities, games and crafts for the whole family!

Hands-on Activities! Chemistry Demonstrations! Meek Museum Tours! Science Exploratory Center Tours! Robotics Demonstrations!

**Parking:** Park in Lot D. Purchase a parking permit for \$4 from the dispenser.

**Directions and Map:** www.mtsac.edu/maps

**Questions:** Contact Jenny Leung, 909-274-6311 or jleung@mtsac.edu.

## San Gorgonio Section Annual Meeting and Chemistry Career Workshop

## Saturday, November 17, 2018 12:00 – 3:30 p.m.

### **Chemical Sciences Bldg, Room 231**

University of California, Riverside 900 University Avenue Riverside, CA 92521

In addition to our normal annual meeting activities, this year's program will include a workshop focused on some of the career opportunities available to chemistry graduates. Representatives from areas such as environmental, pharmaceutical, and forensics wll be available to talk with students. Students also will be given insight into resume writing and job interviewing. During the annual meeting Manny Medrano, our Project SEED participant this year will describe his project and we will discuss the future of this successful program. The Chemistry program at UCR continues to expand and an update will be given. The upcoming election for 2019 officers will be discussed and additional nominations solicited. Food (sandwiches, fruit, cheeses, water, and soda) will be provided. There will also be drawings for a variety of door prizes. Come help celebrate this year and help plan the new year!

### **Program Agenda:**

	Welcome		
	Chemistry Career Workshop	12:00 – 1:30 pm	
	Lunch Break	1:30 – 2:00 pm	
	Annual Meeting	2:00 – 3:30 pm	
	Manny Medrano, Project SEED participant		
	What's new in Chemistry at UCR		
	Overview of planned 2019 Section activities		
High School National Chemistry Olympiad			
	Project SEED		
	National Chemistry Week		
	Celebration of the 70 <sup>th</sup> Anniversary o	f the San Gorgonio Section	

(Continued on Page 15)

# Annual Meeting (Continued from Page 14)

Brainstorming: What are possible future directions and activities for the Section? Upcoming election of officers for 2019 Adjournment

**Reservations:** Please RSVP to <u>dpedersn@csusb.edu</u>, **no later than** Wednesday, November 14. There is no cost, but we need to know how much food to buy! We must also submit names of anyone who will need a parking pass for the meeting.

**Parking:** The UCR Chemistry Department will pick up the parking cost for participants at this meeting; THANK YOU! Carpools are encouraged. Get to the campus and go to the information kiosk at the main entrance on West Campus Drive. Tell the parking person that you are a participant in the ACS meeting in the Chemical Sciences Bldg and obtain a parking permit and directions to the meeting site, the Parking Lot where you are to park, and a campus map.

**Directions:** UCR is located off the 215/60 freeways in Riverside at the University Avenue exit. Consult the campus website for a detailed area map, showing various ways of getting to the campus. http://campusmap.ucr.edu/imap/index.html.

## Chair's Message (Continued from Page 12)

- LinkedIn Group: https://www.linkedin.com/groups/13509132
- Facebook Page: https://www.facebook.com/SGSACS/
- Facebook Group: https://www.facebook.com/ groups/306580863196707/

Last but not the least, I wish everyone happy holidays and prosperous new year!

-Bruce Liu, Chair cell: 515-306-6855, email: bruce@acbscitech.com

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### IMPORTANT Do Not Delay!

**Contains Dated Meeting Announcement** 

# PERIODICAL

# **Bi-Section Chemists' Calendar**

# For more information on these events, please check our website at www.scalacs.org

### <u>November</u>

- 3 SC High School Teacher's Meeting at Occidental College see page 4
- 3 SG Family Science Festival at MtSAC—see page 13
- 17 SG Annual Meeting and Chemistry Career Workshop—see page 14

### Happy Holidays!

Hope to see you at an event in 2019!