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**SCALACS**

**May/June 2018**

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

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## Chair's Message

**"Life is Big!"**

**- Dr. Odile Madden, Getty Conservation Institute**

Moments of insight mostly come unannounced. Recently, I accompanied a group of ACS student members on a tour of the Getty Conservation Institute (GCI). Hunting down the mysteries in a Rembrandt painting using a handheld X-ray fluorescent (XRF) analyzer designed for use in the scrap metal industry was only the beginning. While the tour was amazing I was also reminded of what it is like to be on the verge of embarking on a voyage of discovery. The students' wonder and enthusiasm coupled with the passion of the GCI staff provided me with a personal reminder that there is always something new to explore. Also, it reinforces my resolve to promote our science through engaging chemists in all stages of their personal journey in chemistry.

I'm looking forward to celebrating the achievements of Jeffrey Zink at the Tolman dinner on May 1st. I am equally excited to join our student scholars who braved the Chemistry Olympiad at our educational awards banquet later in the month. Keep your eyes peeled for our fall programming including a one-day Western Regional Meeting "Chemistry is Out of This World" (co-hosted with CA Los Padres Section) on October 27. I wish you all many discoveries!

Thanks!

Robert de Groot, Chair  
rdegroot@oxy.edu



Dave Carson of the Getty Conservation Institute showing students the handheld X-ray Fluorescent (XRF) analyzer and its use at the museum.

## Southern California Section

### Educational Awards Banquet

**Friday, May 18, 2018**

**Mount Saint Mary's University Doheny Campus**

**Donahue Center**

10 Chester Place

Los Angeles, CA 90007

Awards will be presented to the top-placing students in the local High School Chemistry Olympiad, to their teachers, and to local ACS scholars.

6:00 p.m. Check-in

6:45 p.m. Dinner

7:30 p.m. Presentation of Awards

This year, we had about 1,000 students representing 39 high schools throughout Los Angeles County take the Local ACS Exam in March. Arcadia High School finished first overall while North Hollywood High School finished first for first year students. The winners of the local exam were invited to participate in the National Exam on April 21st at California State University, Dominguez Hills for a chance to be part of the 50<sup>th</sup> International Chemistry Olympiad (ICHO), which will be held in Bratislava, Slovakia and Prague, Czech Republic. These students, as well as the top performers and teachers from each school of 10 or more participants, will be honored at our annual Educational Awards Banquet.

**Reservations:** We will have an All American Cookout Buffet featuring all beef hamburgers and hot dogs, garden burgers and chicken breast served with baked beans, corn on the cob, green salad, potato salad and brownies and cookies for dessert. The cost of the dinner is \$20 per person or \$15 for students, cash or check at the door. Please email Nancy Paradiso at [office@scalacs.org](mailto:office@scalacs.org) or call 310 327-1216 by **Friday, May 4, 2018** for reservations.

**Directions:** The meeting will take place on the Doheny Campus in the Donahue Center in McIntyre Hall. For directions, please go to <https://www.msmu.edu/about-the-mount/maps--directions/>

## Southern California Section



Cabrillo Marine Aquarium

**DISCOVER**

### **Chemists Celebrate Earth Week—Dive Into Marine Chemistry!**

#### **Tour of Cabrillo Marine Aquarium**

3720 Stephen M. White Drive  
San Pedro, CA 90731  
310-548-7562

**Friday, May 11, 2018**

Meet at Information Booth at 1:45 pm

The tour starts at 2 pm sharp and lasts 1 hour. You are then free to explore until the Aquarium closes at 5 pm.

Join us for a tour and exploration of the Southern California marine environment at Cabrillo Marine Aquarium in San Pedro.

**About Cabrillo:** With its spectacular natural setting adjacent to Cabrillo Beach Coastal Park and the Port of Los Angeles, Cabrillo Marine Aquarium (CMA) is uniquely suited to its leadership role in marine science education, aquaculture research and community recreation. The historic Frank Gehry-designed aquarium displays the largest collection of Southern California marine life in the world. Since 1935, CMA has provided visitors with both a natural and interactive approach to learning about the marine environment of Southern California.

**Cost:** \$5 per person (please bring cash, small bills). Space is limited. Please RSVP to [office@scalacs.org](mailto:office@scalacs.org) by **Tuesday, May 8th**.

**Parking and Directions:** go to <http://www.cabrillomarineaquarium.org/visit-cma/directions-parking.asp>. The cost for parking adjacent to the aquarium is \$1 per hour. Street parking not guaranteed.

**Co-hosted by the Southern California and  
Orange County Sections of ACS**

## **Southern California Section**

### **Call for Nominations SCALACS 2018 Election**

The Nominations, Elections and Awards Committee of the Southern California Section is soliciting nominations for the election of 2019 Section officers (Chair-Elect and Secretary), Members-at-Large of the Executive Committee, and Councilors.

If you wish to propose names (including your own) for consideration, send them to Nancy Paradiso in the Section Office at [office@scalacs.org](mailto:office@scalacs.org) by **June 1, 2018**. We offer you a great opportunity to network with other chemists and promote chemistry.

### **Save the Date!**

#### **Nano Western Regional Meeting Co-hosted with SCALACS and CA Los Padres Section**

Celebrating the National Chemistry Week Theme:  
"Chemistry is Out of This World"

**Saturday, October 27, 2018  
California Institute of Technology  
Pasadena, CA**

We will be accepting nominations for regional awards, including the Excellence in High School Teaching Award and the E. Ann Nally Award for Volunteer Service to the ACS.

Keep an eye on our website, [www.scalacs.org](http://www.scalacs.org), as we plan for this exciting event.

## Southern California Section

### **Congratulations to our National Award Recipients**

We would like to congratulate our local section members who received National Awards at the ACS National Meeting in New Orleans in March. The following awards were presented:

**ACS Award For Creative Work in Synthetic Organic Chemistry**

Brian M. Stoltz, California Institute of Technology

**Earle B. Barnes Award for Leadership in Chemical Research  
Management**

Margaret M. Faul, Amgen, Inc.

**Herbert C. Brown Award for Creative Research in Synthetic Methods**

Gregory C. Fu, California Institute of Technology

**Arthur C. Cope Late Career Scholars Award**

G. K. Surya Prakash, University of Southern California

**Arthur C. Cope Mid Career Scholars Program**

Heather D. Maynard, University of California, Los Angeles

### **Congratulations to Our Local Section Student Chapters**

The following Student Chapters received awards at the Spring ACS National Meeting in New Orleans:

**Outstanding Student Chapter**

Santa Monica College

**Commendable Student Chapter**

Pasadena City College

**Honorable Mention**

California State University, Northridge

College of the Canyons

East Los Angeles College

Mount Saint Mary's University

University of California, Los Angeles

**Green Chapter Awards**

Santa Monica College

University of California, Los Angeles





### Insights Into IP Law

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

The previous edition of this column discussed whether a newsgroup post on the Internet could count as a “printed publication” that can render the subject matter in a later-filed patent application unpatentable, and concluded that the answer is “yes.” But not all Internet materials qualify as printed publications.

In one recent case, a court considered whether a report co-authored and posted to the Internet by a graduate student at the University of Maryland Baltimore County (UMBC) qualified as a printed publication. The graduate student made the report available via a hyperlink on the personal webpage that she maintained while she was a student.

Noting that once an invention is in the public domain, it is no longer patentable to anyone, the court considered whether the report was sufficiently accessible to the public interested in the art—i.e., if it was disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, could locate it.

The patent challenger submitted testimony from one of the co-authors of the report stating that the report was publicly available, and the Court assumed that the report was available online on the graduate student’s personal webpage. But the challenger failed to point to any evidence indicating that the report was actually viewed or downloaded by anyone. Nor did the challenger proffer any testimonial evidence that a person interested in the subject matter of the report (e-commerce and peer-to-peer marketing, in this case) would have been independently aware of the web address for the graduate student’s personal web page. There was no evidence that an ordinarily skilled artisan would even have known that the webpage existed, let alone known its web address.

The challenger argued that an Internet search engine would have been able to locate the report. But the record was devoid of any evidence that a query of a search engine, using any combination of search words, would have led to the report appearing in the search results. The challenger also argued that a published article would have directed interested readers to the report, but the article contained no citation to the report. And even if the article would have led a reader to the UMBC Department website, there was no evidence that the department website provided a link to the graduate student’s webpage. Accordingly, the report did not qualify as a printed publication.

\* 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

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

I received recently from a reader a "Family heirloom" perhaps originating from the reader's mother-in-law. It is a laboratory manual entitled "Progressive Chemistry; Laboratory Manual" subtitled "Practical Experiments for Secondary Schools". The manual was prepared by "Teachers of Chemistry in the High Schools of Minneapolis, Minnesota". The copy I was sent was printed by Riverside Press, and is copyrighted 1922. It apparently belonged to Myrtle Hanrahan who annotated some of it very neatly in pencil, and included excellent sketches of experimental apparatus for some of the experiments. The manual includes 46 experiments but apparently only the first ten were included in Ms. Hanrahan's course (perhaps just a one semester course). I found this book interesting as indicating the content of a beginning high-school chemistry course early in the twentieth century.

The experiments are all hands-on exercises carried out by the students apparently individually. The first experiment is entitled "Chemical Changes". The first exercise labelled "Analysis" is the classic Joseph Priestley reaction of heating mercuric oxide to generate oxygen, detected by a glowing splint. The following injunction occurs at the end of this part, printed in bold type: "Caution: Throw mercury and its compounds into the waste jar, never into the sink, as it spoils the metals used in plumbing." (!) The second exercise entitled "Synthesis" involves burning a strip of magnesium in air. The third, also a synthesis, is to observe the reaction between copper wire and sulfur vapor. The student is asked to report her observations and write equations for each reaction. While the observations are penciled in, the equations are not. I assume that a separate report was required by this student's teacher.

Experiment number 2 is the preparation of oxygen by heating potassium chlorate with a catalytic amount of manganese dioxide. The gas was collected over a pneumatic trough and its chemical properties were examined via reaction with glowing charcoal; with heated flowers of sulfur; and with heated steel wool. There is an accurate sketch of the preparatory method and again observational notes but no symbolic equations.

Experiment number 3, entitled hydrogen, raised my eyebrows. The first preparatory method involved dropping a small piece of freshly cut sodium (yes!) into a test-tube of water set in a rack. The evolved gas is tested with a blazing splinter. This process is then repeated with a fresh piece of metallic sodium. The solution in the test-tube is then tested by having the student rub a little of it between her fingers; she notes it feels "slimy"; and is also tested with red litmus paper which turns blue. The experiment continues by generating hydrogen by reaction between zinc and hydrochloric acid, collecting the gas in a pneumatic trough again. Once more the only chemical property of hydrogen examined is its  
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## This Month in Chemical History

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combustion in air. Twice in her observations Ms. Hanrahan notes that hydrogen explodes on combustion.

After that experiment 4, on water, seems anti-climactic. Water of crystallization is explored with alum; copper sulfate, and, interestingly, cobalt chloride a solution of which is used as "invisible ink". Written at the bottom of the page, in pale pink writing, is : Cobalt Chloride. When sugar is heated the water given off is described as water of composition. This experiment also covers efflorescence and deliquescence; supersaturation of sodium thiosulfate solution; and precipitation of silver chloride.

The remaining experiments of the first ten included simple distillation of a salt solution; testing acids, bases, and salts with litmus paper - and stashed away between the pages covering this experiment are a number of strips of red litmus paper; neutralization of bases including sodium, potassium, and ammonium hydroxides with hydrochloric, nitric, and sulfuric acids; the preparation of chlorine gas in the hood (Injunction: Do not inhale chlorine) and exploring some of its reactions; and finally preparation of hydrochloric acid gas by reaction between salt and concentrated (70%) sulfuric acid.

Unlike current general chemistry laboratory manuals, where the emphasis is on quantitative experiments, this 1922 version contains only 3 out of 46 quantitative experiments. One is the determination of the specific gravity (density) of concentrated sulfuric acid. The second one is the percentage of oxygen in air but removing it via the slow reaction (at least 24 hours) with iron filings. And the third one is the Babcock Milk Test. This is an important test in an agricultural region for the percentage of butter fat in milk; Minneapolis requires 3.5%. No low-fat milk need apply. The test uses sulfuric acid to produce curds of butterfat that coagulate and are centrifuged down. A special graduated cylinder is then used to assay the fat content.

I found this manual very interesting. It codifies differences between general chemistry then and now. But I can't help thinking that perhaps the pendulum has swung too far in one direction. A bit more descriptive chemistry in our curricula might be a good thing. Just keep your students away from mercury and sodium!

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## San Gorgonio Section



### Chair's Message

I happen to have had two super star classmates in college. They were top gold medal winners in the International Chemistry Olympiad in the early 1990s. I was truly impressed by their essentially perfect scores in every single chemistry exam.

As the year winds down for high school students some of the top chemistry students will be receiving recognition for their performance on the Local Section Chemistry Olympiad Examination. In the San Gorgonio Section again this year over 300 students participated and on April 21 ten of them sat the 2018 National Examination. This year's nominees for the National Examination are:

**Ruben S. Ayala High School**

Alex Chen\*  
Yi Lin Wang

**Diamond Bar High School**

Hamlin Wu\*  
Keng Chit Lam

**Etiwanda High School**

Earl Lee

**Martin Luther King School**

Justin Blanford\*

**Riverside STEM Academy**

Michael Lee

**Walnut High School**

Aaron Chang\*  
Alice Zhang\*

**Glen A. Wilson High School**

Joshua Leung\*

The San Gorgonio Local Section Examination is also used to select students to receive the annual Section scholarships. The students whose names are marked with an asterisk are among the 2018 scholarship winners. These ten students together with the top performing student from each of the other participating schools and the chemistry teacher from each school will be honored at our annual High School Recognition Dinner on Friday, May 18. Details regarding the dinner are provided on page 11.

I wish to acknowledge and express my thanks to Dennis Pederson, Eileen DiMauro and David Srulevitch who made it possible to hold this successful event. Special thanks also to the Chemistry Department at the University of California Riverside for providing the site for the National Examination  
*(Continued on Page 12)*

# San Gorgonio Section

## May 2018 Dinner Meeting

### Student Scholarship and Awards Recognition Banquet

Friday, May 18, 2018

#### Lotus Garden

111 E Hospitality Lane  
San Bernardino, 92408  
Phone: 909-381-6171

Social and Check-in: 6:15 PM

Dinner: 7:00 PM

Awards/Recognition Program: 7:45 PM

In March, over 300 high school students in the San Gorgonio Section region took an examination to qualify for the National Chemistry Olympiad. Our section also uses this examination to choose the recipients of section-sponsored college scholarships. Please join us in honoring these truly remarkable students and their teachers at this meeting. As those of us who teach chemistry know, chemistry plays a fundamental role in our understanding of many other areas including medicine, the environment, food science, cosmetics, and more. For this reason chemistry has earned the label "The Central Science". Through a number of short presentations we will have the opportunity this evening to explore some of these areas. Presenters will be from different fields and their stories will illustrate some of the many career paths open to those who find chemistry exciting.

**Dinner, Cost, and Reservations:** The Chinese dinner will feature three appetizers, soup, six entrees, fried and steamed rice, and hot tea, iced tea or soda. The cost will be \$15 for ACS Members, \$20 for non-members, \$10 for seniors & retirees, and \$8 for students. (Cash or check (made out to San Gorgonio ACS) at the door.) No charge for student honorees and their teachers. Please make your reservations no later than Tuesday May 15<sup>th</sup> noon by contacting Dennis Pederson, Olympiad Coordinator, [dennis.pederson@gmail.com](mailto:dennis.pederson@gmail.com), phone 909-886-2196 or David Srulevitch, Secretary [srulev@charter.net](mailto:srulev@charter.net), phone 909-594-3070. Include names and number of persons. Please be certain to honor your reservations.

**Directions:** From the east or west, take Interstate 10 to the Waterman exit (Exit 73 westbound, 73B eastbound) in San Bernardino. Drive north on Waterman to the main intersection, turn left onto Hospitality Lane and go about 0.5 miles, the Lotus Garden will be on the left. Due to the restricted bus lane you will need to  
(Continued on Page 12)

## San Gorgonio Section

### Chair's Message (Continued from Page 10)

and to Dr. Kerry Hanson for arranging the specific details. And last, but certainly not least, my sincere gratitude and admiration to the dedicated high school teachers who took the time to coordinate the participation of their students in the 2018 Chemistry Olympiad Examination.

We don't have events scheduled in summer, but we will have the following from September:

- "The Science behind Harry Potter" A Science Café in September
- Recognition luncheon for senior ACS members in September
- Western Regional Meeting on Oct 27
- National Chemistry Week in October
- Annual meeting in November

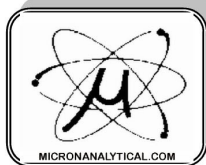
Again, please feel to contact me (cell: 515-306-6855, email: [bruce@acbscitech.com](mailto:bruce@acbscitech.com)) if you have ideas or would like to volunteer.

-Bruce Liu, Chair

### Student Scholarship and Awards Recognition Banquet Directions (Continued from Page 11)

continue to the light and make a U-turn to get on the south side of the road. The meeting room will be on the right as you enter the restaurant

**Attention Chemistry Professors:** Please bring any extra science or chemistry textbooks that you may have to this SGS Dinner Meeting so that we may donate them to the students and high school libraries.



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Contains Dated Meeting Announcement

**PERIODICAL**

**Bi-Section Chemists' Calendar**

For more information on these events, please check our website at  
[www.scalacs.org](http://www.scalacs.org)

**May**

- 1 SC Tolman Award Dinner at UCLA honoring Prof. Jeffrey Zink—  
see April issue
- 11 SC/OC Tour of Cabrillo Marine Aquarium—see page 5
- 18 SC Educational Awards Banquet at MSMU—see page 3
- 18 SG Student Scholarships and Awards Recognition Banquet—see  
page 11

**Have a great summer!**