ACS Chemistry for Life™

# SCALACS

May/June 2019

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

## Southern California Section

**The 2018**
**Richard C. Tolman**
**Award Dinner honoring**
**Prof. Clifford Kubiak,**
**University of California,**
**San Diego**
See Page 3

## Educational Awards Banquet

**Friday, May 17, 2019**
**Mount Saint Mary's University, Doheny Campus**
See Page 5

## San Gorgonio Section

**High School Student and Teacher Recognition Banquet**
**at California Baptist University**
**May 17, 2019**
See Page 11


# **In stock** in Gardena, CA


## Spectrum has your lab covered

- **Chemicals**
- **Laboratory Equipment & Supplies**
- **Glassware & Plasticware**
- **Gloves & More!**

**spectrum®**
CHEMICAL MFG CORP
Trusted Since 1971

800.772.8786
SpectrumChemical.com

ACS Chemistry for Life™

# SCALACS

A Joint Publication of the
**S**outhern **Cal**ifornia and San Gorgonio Sections of the
**A**merican **C**hemical **S**ociety

Volume LXXIV May/June 2019 Number 4

## SOUTHERN CALIFORNIA SECTION 2019 OFFICERS

**Chair:** Krishna Kallury
**Chair Elect:** Brian Brady
**Secretary/Treasurer:** Barbara Belmont
**Councilors:** Brian Brady, Robert de Groot, Virgil Lee, Sofia Pappatheodorou, Eleanor Siebert, Barbara Sitzman

## SAN GORGONIO SECTION 2019 OFFICERS

**Chair:** Ernie Simpson
**Chair-Elect:** Ralph Riggin
**Secretary:** David Srulevitch
**Treasurer:** Dennis Pederson
**Councilors:** Eileen DiMauro, Ernie Simpson

## TABLE OF CONTENTS



SCALACS (ISSN) 0044-7595 is published monthly March through May, September and October; and Bi-monthly January/February and November/December along with a special ballot issue once a year. Published by the Southern California Section of the American Chemical Society at 14934 South Figueroa Street, Gardena CA 90248. Subscription price is $12.00/year. Make checks payable to Southern California Section, ACS. Second Class postage paid at Gardena, CA 90247, email: office@scalacs.org.

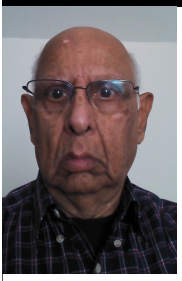
ADVERTISERS: Advertising rates on application. Mail COPY, CONTRACTS and CHECKS to Southern California Section, ACS, 14934 South Figueroa Street, Gardena, CA 90248.

CONTRIBUTORS: Send all copy to Editor, SCALACS, 14934 South Figueroa Street, Gardena, CA 90248, email: editor@scalacs.org.

POSTMASTER: Send change of address to SCALACS, 14934 South Figueroa Street, Gardena, CA 90248.

***Website address: www.scalacs.org***

# Southern California Section



## Chair's Message

Southern California is diverse and the minority groups constitute more than half of the total population. Our SCALACS members and the community at large may be wondering what we are doing to encourage the younger generation of these groups to pursue science education and careers. The SCALACS Executive Committee has been involved in Outreach programs for the student population, especially girls. Examples include the Expanding Your Horizons (EYH) which caters to middle school girls, collaborative efforts with LAUSD, TUSD and other school districts in our area, Earth Week celebrations, National Chemistry Week, Chemistry Olympiad and financial assistance under the SEED scholarship program. We have plans to extend the EYH model to high school girls and collaborate with the Youth Policy Institute of Los Angeles and with Pasadena City College, East Los Angeles Collegiate, California State University Dominguez Hills and other institutions with substantial minority populations.

ACS Orlando National Meeting (March 31-April 4, 2019) by the numbers (reference: C&E News 2019, April 8th issue; Vol. 97, #14):

- Attendance: 15,605 (as of April 2)
- Papers presented: 12,830
- Exhibiting companies: 235
- Job seekers at the ACS Career Fair: 524
- Employers at the ACS Career Fair: 35
- Positions advertised at the ACS Career Fair: 119

The theme of the Orlando meeting was "Chemistry for New Frontiers" in celebration of the 50th anniversary of the Apollo moon landing. Indeed, there were many sessions that pushed the boundaries in areas of the chemical enterprise as varied as food, environmental, computational, and medicinal chemistry. There were plenty of activities on space chemistry too. The most high profile was a 2-day symposium titled "Chemistry for Humanity's Next Giant Leap" organized by the Chemical Marketing and Economics Group of the ACS New York Section.

At the council meeting on April 3, the Committee on Budget and Finance reported that in 2018, total revenues were $571.6 million, up $34.2 million (6.4%) over 2017. Net contributions from operations totaled $41.1 million, which is $13.3 million higher than in 2017. Total expenses totaled $530.5 million, which was $20.8 million (4.1%) higher than in 2017.

This year SCALACS has nominated three candidates for the Fellows of the ACS awards. We wish them success. We are also planning to organize three seminars, one or two field trips and celebration of the 150th anniversary of the discovery of the Periodic Table. We will keep you posted on the dates.

Krishna Kallury, Chair , [kkallury@socal.rr.com]

## Richard C. Tolman Award Dinner Honoring

## Professor Clifford Kubiak
## University of California, San Diego

**Monday, May 20, 2019**
7:00—hosted cocktail hour
8:00—Dinner
8:30—Presentation

**University of California San Diego**
**Ida and Cecil Green Faculty Club**
**Atkinson Pavilion**
9500 Gilman Drive
La Jolla, CA 92093

## Tolman Address: "If you make a fuel from air, water, and sunlight, what should it be?"

**Abstract:** Catalysts for the reduction of $CO_2$ are of interest in the production of solar fuels, and as a means of mitigating atmospheric $CO_2$. The question of which solar fuels should be made from $CO_2$ is an important one. Unlike water splitting ($H_2O$ ® $H_2$ + ½ $O_2$) where a single reduced product ($H_2$) is obtained, the reduction of $CO_2$ can produce a variety of different chemical reduction products, CO, HCOOH, $H_2CO$, $CH_3OH$, $CH_4$, to name a few, as well as $C_2$ and higher products. Which product(s) will be produced from solar energy, and then be used as building blocks to manufacture higher fuels and specialty chemicals is not presently known. Indeed, the question of whether $CO_2$ should be reduced electrochemically to an organic molecule, or instead, hydrogen produced by water splitting should be used to *hydrogenate* $CO_2$ to organic products, is not clearly understood at this time. There are very few known catalysts for the efficient hydrogenation of $CO_2$, so whether electrochemical reduction or hydrogenation of $CO_2$ is ultimately practiced on an industrial scale, the development of new catalysts will be required to enable new technology. Results from several recent approaches to producing higher value solar fuels from $CO_2$ including synthetic biology and tandem catalysis are presently under investigation. Several recent accomplishments in the activation and electrochemical reduction of $CO_2$ have been achieved. These include the use of earth-abundant metals including manganese, in place of rhenium and ruthenium, and the use of artificial co-factors to promote catalysis.
*(Continued on Page 4)*

## Clifford Kubiak Abstract (Continued from Page 3)

Other recent approaches to developing catalysts for the reduction of $CO_2$ include the deployment of proton relays in associated ligands to manage proton transport, introduction of new systems in which proton coupled electron transfer for efficient H-atom transfers can be effected, supramolecular catalyst assemblies that use non-covalent interactions to direct catalyst centers toward substrate activation, and artificial metalloprotein electrocatalysts. The general properties of molecular catalysts on conducting substrates under bias as probed by surface spectroscopies pose challenges to researchers attempting to do catalysis at an electrified interface. Surface spectroscopies can provide detailed information about the electronic structure and environmental effects of catalysts operating within the diffusion layer of an electrode under bias. Recent results of achieving highly active hybrid electrocatalyst materials based on molecular catalysts and graphitic carbon supports for selective reduction of $CO_2$ in water at neutral pH will be highlighted.

**Dinner:** There will be a Mediterranean Buffet including Greek Salad, Vegan Bulgur Wheat Salad , Citrus Baked Salmon with Lemon Caper Herb Sauce, Chicken Tapenade with a Olive Tomato Caper Relish, Roasted Seasonal Vegetables and Rosemary Roasted Potatoes.

**Cost:** $65 per person including cocktail hour, buffet, wine or beer with dinner and tax and tip.

**RSVP:** There is an EventBrite link set up to make reservations and pay: **https://www.eventbrite.com/e/the-scalacs-richard-c-tolman-award-dinner-meeting-tickets-60283359150. Please RSVP by Friday, May 10th.**

**Directions:** Please see the UCSD website for directions and parking information at https://facclub.ucsd.edu/directions/index.html.

## Call for Nominations
## SCALACS 2019 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 by **June 1, 2019**. We offer you a great opportunity to network with other chemists and promote chemistry.

# Educational Awards Banquet

## Friday, May 17, 2019

## 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 932 students representing 38 high schools take the local Olympiad exam. Arcadia High School finished first overall while North Hollywood High School finished first for first year students. Fifteen students representing ten schools were invited to participate in the National Exam on April 27th at California State University, Dominguez Hills for a chance to be part of the 51st International Chemistry Olympiad (ICHO), which will be held in Paris, France. 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 Asian Take-out Buffet featuring Orange Chicken and Garlic Pan Fried Noodles with Vegetables and Tofu served with Mixed Vegetable Stir-fry, fried and steamed rice, and almond and fortune 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 or call 310 327-1216 by **Friday, May 3, 2019** 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/

## Conversion of polypropylene/plastics into fuels

About six billion tons of plastic waste have been generated over the past 50 years globally. The majority (76%) of the waste was landfilled, 12% was incinerated and 3% ended up in the oceans. Current global recycling rates show that only 9% of the total plastic waste is recycled. At the current rate, the planet will have 12 billion tons of plastic waste in landfills or the natural environment, leading to more plastics than fish in the oceans by 2050. Huge gyres of floating plastics trash (twice the size of Texas) are already circulating in the world's oceans. Annually mismanaged plastic waste released to land is 23 times that released to oceans. Most plastics take hundreds of years to degrade in the environment. As they degrade slowly, they release toxic particles and chemicals into the environment, causing contamination of surface water, groundwater, and the oceans. This pollution poses serious threats to our ecosystems, drinking water, food supply, and human health.

Consignment to landfills has been the least costly and financially preferred method for waste plastic disposal. The low recycling rate is mainly due to the fact that only 14% of the plastic waste was collected and a significant fraction of the collected mixtures is too complex to be economically recycled as most of the current collection systems result in mixtures of various types of plastic waste. The options for making high-value products using the complex mixtures are limited. Incineration is the most mature method of reducing the amount of plastic waste but less preferred financially than landfilling. It can accept mixed plastics but produces carcinogenic products and releases environmental pollutions. For these reasons, the total amount of waste incinerated is only 12% to date.

Polypropylene (PP) waste accounts for about 23% of the total plastic waste. Converting PP waste into useful products can reduce the accumulated waste and associated risks to the environment and human health. Scientists at the Purdue University, Indiana, developed a hydrothermal treatment process using super-critical water to convert polypropylene into oil in up to 91% yield at 450$^{o}$ C in 0.5-1.0 hour in a batch reactor. The oil products consisted of olefins, paraffins, cyclics, and aromatics. About 80–90 wt % of the oil components had the same boiling point range as naphtha (25–200 °C) and heating values of 48–49 MJ/kg. Preliminary analyses indicate that this conversion process is net-energy positive and potentially has a higher energy efficiency and lower greenhouse gas emissions than incineration and mechanical recycling. The oil derived from PP has the potential to be used as gasoline blendstocks or feedstocks for other chemicals.
For full details, visit ACS Sustainable Chem.Eng. 2019, **7**, 3749-3758 at the website acs.org.

# Insights Into IP Law

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

Although an inventor's unrestricted and uncontrolled use of an invention in public before filing a patent application may imperil his or her patent rights, an inventor's public use of an invention by way of experiment to determine if the invention works for its intended purpose will not necessarily defeat patentability. The November-December 2018 edition of this column told the story of Samuel Nicholson, for example, and how his public experimentation with wooden street pavement in Boston did not invalidate his patent.

The April 2019 edition of this column introduced a case about a surgeon who obtained a patent on a system and method for aligning vertebrae to treat aberrant spinal column deviations. Though the surgeon used his invention in three surgeries over about a two-month period, a jury decided that the surgeries were not invalidating public uses. The court upheld the verdict, finding that there was sufficient evidence for the jury to find that the invention was not accessible to the public, as previously discussed.

The court also addressed whether the surgeries, for which the inventor was paid, defeated patentability even though they were kept secret, or whether they instead constituted experimental uses. The evidence showed that the surgeon was not sure that the invention would work on different types of scoliosis, so he performed the surgeries on three main types. The surgeon earned no more from the surgeries than he would have earned had he used preexisting surgical methods. And he did not surrender control of the invention, but rather kept control through the expectation of secrecy binding the other medical professionals present at the surgeries and through the other circumstances that supported the jury's determination that he did not make the invention publicly accessible.

The accused infringer argued that the collection of fees by the surgeon defeated experimental use, but the court ruled that receipt of payment, if sufficiently incidental to an experiment, is not automatically disqualifying. The surgeon did not charge more than he otherwise would have for the surgeries and did not attract his three patients based on use of the inventive method. On those facts, the court held, his fee could be viewed as merely incidental to the experimental work. The accused infringer also argued that the use was not experimental because the surgeon did not inform his patients that he was testing his particular technique. But the surgeon had so informed others, and he never surrendered control of the invention because no person learned the method without an obligation of confidentiality. The court ruled that the surgeries fell within the experimental use exception.

* 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 have just finished reading a fascinating book that is a part of chemical history in the United States. It's entitled "The Poison Squad". The author is Deborah Blum who directs a Science Journalism program at MIT and is a Pulitzer Prize winner for a series of articles on primate research. "The Poison Squad" is subtitled "One chemist's single-minded crusade for food safety at the turn of the twentieth century."

In a column I wrote some time ago I discussed the career of Frederick Accum who published in 1820 "A Treatise on Adulterations of Food, and Culinary Poisons" (popularly known as "Poison in the Pot" ) that was perhaps the first book by a chemist pointing out the sometimes literally poisonous additives unscrupulous vendors were adding to food to improve its color or flavor or longevity on the grocer's shelf: "our pickles are made green by copper; our vinegar rendered sharp by sulphuric acid….". Eventually this and similar revelations led 40 years later to the passage of the first British legislation imposing (modest!) fines on those found guilty of such adulterations.

While there were voices raised in the United States against similar practices there were no laws banning them at the beginning of the twentieth century. Enter Dr. Harvey Washington Wiley. He was a Professor of Chemistry at Purdue who had an M.D. from Indiana Medical College but found chemistry more to his taste than medicine, and so went on to get a degree in chemistry from Harvard. Purdue appointed him as its first Professor of Chemistry, and he later spent a sabbatical year in Europe, mostly in Germany, working in food-quality laboratories and attending the lectures of August Wilhelm von Hoffmann. Returning to Purdue he was asked by the Indiana State Board of Health to examine the quality of commercial sweeteners sold as "honey" and "maple syrup". Some 90% of the samples he tested were fraudulent, mostly made of corn syrup with coloring added, or fake additives (paraffin posing as honeycomb). He published his findings in "Popular Science" delighting some bee-keepers and maple sugar providers, but angering the growers and processors of corn syrup.

*(Continued on Page 9)*

## This Month in Chemical History

*(Continued from Page 8)*

In 1883 Wiley was appointed chief chemist of the United States Department of Agriculture and began using the rather limited resources of his new department to investigate cases of adulteration of food and drink. Of particular concern was the purity of milk. This "healthful" beverage, consumed mainly by children, was adulterated by being watered, or by having formaldehyde added to it to prolong its shelf life. Wiley recruited a group of young men as volunteers who became known as "The Poison Squad" and they began tasting the dubious food items that the group was investigating. They occupied their own dining room in the USDA cafeteria, emblazoned with the slogan "Only the Brave Dare Eat the Fare".

Wiley had allies including Fanny Farmer, author of a famous cookbook; Upton Sinclair, novelist, and author of "The Jungle", an expose of conditions in the Chicago stockyards; and Henry Heinz, proprietor of the food company that still bears his name, and who was a passionate advocate for pure foods. It was still an uphill battle because of vigorous lobbying from many segments of the food and grocery industries, but persistence won out in the end. In 1906 Congress passed, and President Theodore Roosevelt signed, two landmark bills: The Meat Inspection Act, and The Food and Drug Act, putting into law some of the safeguards that had been urged by Wiley. To some The Food and Drug Act became known as Dr. Wiley's Law.

Wiley continued his work at the USDA under a Department Chief who was not very supportive, studying ketchup, cola beverages, corn syrup, bleaching agents for flour, etc. But the constant battles to have his views heard and published were taking their toll. In March 1912 Wiley resigned from the USDA after 29 years of dedicated service to the health of the citizens of our country. He took a position on the staff of the magazine "Good Housekeeping" and continued his campaign against food, drug, and beverage adulteration from that "bully pulpit". Harvey Wiley died in 1930 at the age of 86 fighting for his causes to the end. He had just completed his autobiography, but its publication came just too late for him to hold a copy in his hands.

# San Gorgonio Section

## Chair's Message

Our San Gorgonio Section May meeting has for many years been our High School Chemistry Olympiad Test Participants' Recognition Night where we give some $3000 in Scholarships to the best performers on the test. This year our event will be on Friday, May 17 at Cal Baptist University. Please see our meeting notice for details. **Congratulations to our scholarship winners and National Exam qualifiers:**

| | |
|---|---|
| Yu Liu | Chaparral High School |
| Hamlin Wu | Diamond Bar High School |
| Jay Siri | Diamond Bar High School |
| Douglas Li | Eleanor Roosevelt High School |
| Richard Phan | Etiwanda High School |
| Gavin Zhang | Martin Luther King High School |
| Gary Song | Martin Luther King High School |
| Shin Choi | Rancho Cucamonga High School |
| Michael Lee | Riverside STEM Academy |
| Sami Siddiqui | Santiago High School |
| Lucien Tsai | Walnut High School |
| Evan Huang | Walnut High School |

**And congratulations to the outstanding educator:**

| | |
|---|---|
| Garret Lim | Walnut High School |

Besides thanking and recognizing our HS students and their teachers, I want to especially thank Dr. Dennis Pederson, Eileen Di Mauro, and Dr. David Srulevitch for making our Olympiad testing happen and our May meetings so special for so many years. Dennis (retired CSUSB) is our Treasurer, Board member, and past Chair. He has helped administer, deliver, grade the tests and after the first round he has coordinated the laboratory portion of the test which determines which SGS HS students are eligible for the National Chemistry Olympiad. He is also our main contact person for our scholarship winners to collect their scholarship money once they have enrolled at a University. Eileen (retired Mt. SAC Professor) is our current SGS Councilor, along with myself, and is a Board member and fill-in wherever needed (Chair, Chair-elect, etc.). She has provided key help with our CHM Olympiad effort for the past decade. Also, David, Mt. Sac Professor and CPP alumnus, has been our supreme SGS secretary and provided a lot of help with our Olympiad for several years.

(Continued on Page 11)

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

Eileen and I attended the Orlando ACS Meeting as our SGS Councilors. The Council Meeting and other governance activities led to following key results: 15,605 attendees; ACS membership grew slightly (0.1%) for the first time in almost a decade; ACS finances are very sound; 2020 dues will remain at $175; H.N. Cheng and Carol A. Duane were selected as candidates for 2020 President -Elect; ACS is a leader among scientific societies in developing/strengthening policies regarding sexual harassment and professional conduct at ACS meetings; and a healthy discussion on "ACS Relevance to Current and Future Members: Challenges and Opportunities".

Looking ahead for the rest of 2019, we are planning to have a picnic-type Event in our Section's namesake – San Gorgonio Wilderness, during July/ August with a chemistry theme/speaker. We will also be planning three more events involving the 70th Anniversary of our SGS including National Chemistry Week, recognition of our 50, 60, and 70-year members and continued mentoring/networking for chemists of all ages, and section officers' elections.

I want to thank Dr. "Shekar" Sonwane for his work as our SGS Coordinator for Chemists Celebrate Earth Week (CCEW) and other volunteer activities, Dr. Ralph Riggin, our Chair-Elect, who has been working on activities that can attract more chemists from industry, government agencies, and small chemical companies to SGS, and Emily Viggers who is leading our efforts to attract more younger chemists to our SGS. As SGS Chair, I realize that the SGS Board is a "team effort" and I thank all of our Board over the past decade and thank all of our members & non-members who have attended our events.

Finally, a friendly suggestion that we keep encouraging our younger folks to please consider:

- Becoming middle-school/HS Chemistry teachers
- Going into sports-officiating, as I did, starting at age 18 for almost 60 yrs, as a a way to give back to their favorite sport and making some friends and money to help reduce their college debt/expenses.

Please email me with any comments/feedback: jesimpson@cpp.edu

Ernie Simpson, Chair

# San Gorgonio Section

## May 2019 Dinner Meeting

## Student Scholarship and Awards Recognition Banquet

## Friday, May 17, 2019

## California Baptist University

8432 Magnolia Ave.
Riverside, CA 92504

Social and Check-in: 6:15 PM
Dinner: 7:00 PM
Awards/Recognition Program: 7:45 PM

In March, nearly 400 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". Presentations by Professor Thomas Ferko (California Baptist University) and Professor Ludwig Bartels (University of California, Riverside) will highlight some of the exciting areas having a chemistry foundation.

**Dinner, Cost, and Reservations:** The Buffet dinner will feature two entrees (Herb Roasted Chicken, Vegetarian Manicotti), Spinach Salad (with diced cherries, feta, red onion, cucumber, red wine vinaigrette) Rice Pilaf, Roasted Fingerling Potatoes, Peach Crisp, and Iced Tea. 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 Monday May 13th** by contacting Dennis Pederson, Olympiad Coordinator, dennis.pederson@gmail.com, phone 909-886-2196 or David Srulevitch, Secretary at srulev@charter.net, phone 909-594-3070. Include names and number of persons. Please be certain to honor your reservations.

**Directions**: California Baptist University is located at 8432 Magnolia Avenue in Riverside off the 91 freeway. https://calbaptist.edu/about/map-directions.
*(Continued on Page 12)*

## Awards Recognition Banquet (Continued from Page 12)

**TRAVELING VIA I-10 (East or West):** Take I-10 to I-215 S to Hwy. 91 W (Beach Cities). Exit Hwy. 91 at Adams Street (Exit 59) and turn right. Proceed to Magnolia Avenue and turn left.

**TRAVELING ON HIGHWAY 60 (East or West):** Take Hwy. 60 to CA Hwy. 91 W (Beach Cities). Proceed west on Hwy. 91 to Adams Street (Exit 59). Exit at Adams Street and turn right. Proceed to Magnolia Avenue and turn left.

**TRAVELING EAST ON HIGHWAY 91:** Take 91 E to Adams Street (Exit 59). Exit at Adams Street and turn left. Proceed to Magnolia Avenue and turn left.

**TRAVELING NORTH ON I-15:** Take I-15 N to CA Hwy. 91 E (Riverside). Exit at Adams Street (Exit 59) and turn left. Proceed to Magnolia Avenue and turn left.

**TRAVELING SOUTH ON I-15:** Take I-15 S to Hwy. 60 E to CA Hwy. 91 W (Beach Cities). Proceed west on CA Hwy. 91 to Adams Street (Exit 59). Exit at Adams Street and turn right. Proceed to Magnolia Avenue and turn left.

The main campus entrance is at the intersection of Campus Bridge Drive and Magnolia Avenue. When you enter campus, please stop at the welcome booth and let them know you are here for the American Chemical Society Meeting. The Yeager Building is the 1st building on the left hand side as you drive south on Campus Bridge Drive. Park in the large lots on the right hand side of Campus Bridge Drive. Parking is free and no pass is needed. Enter the Yeager building breezeway by the fountain and kugel (big globe). Our meeting is in the building on the right-hand side of the breezeway. Go up the outer staircase to the right or use the elevator next to the staircase. On the second floor, enter through the double doors and head down the hallway to the right. Follow the hallway around until you reach Copenbarger Dining Room.

**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.

### INDEX TO ADVERTISERS



**Please support our Advertisers!**
**They support us!**
**Let them know you saw their ad in SCALACS!**

**SOUTHERN CALIFORNIA SECTION**
**AMERICAN CHEMICAL SOCIETY**
14934 S. FIGUEROA STREET
GARDENA, CA 90248

***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

**May**

17 SC Educational Awards Banquet at MSMU—see page 5
17 SG High School Student and Teacher Recognition Banquet at Cal. Baptist University—see page 12

Enjoy your Summer!
Check our websites for summer activities:
www.scalacs.org
www.sangorgonio.sites.acs.org.