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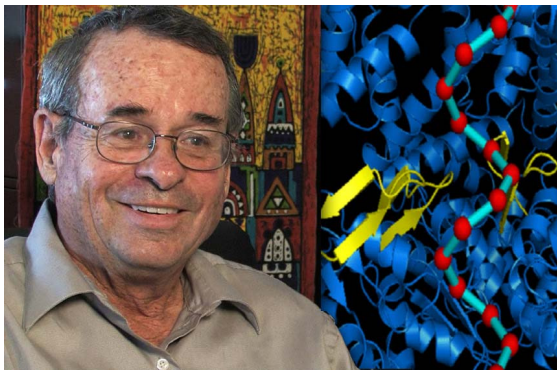
SCALACS

November/December 2013

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



Southern California Section Congratulates 2013 Nobel Laureate in Chemistry Arieh Warshel, USC

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Section Dinner Meeting honoring Local Section Awardees

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Institute on Science for Global Policy
November 20, 2013

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San Gorgonio Section Annual Meeting

Wednesday, November 13, 2013
7:00 pm
UC Riverside

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Southern California Section

Chair's Message

Greetings fellow chemists,

This is my last chair's message; it has been an honor to serve in such an active and exciting section. Last month was exciting not only for our local activities, but because the Nobel prize in chemistry was awarded in part to a Southern California chemist, Prof. Arieh Warshel of USC. Prof. Warshel was also the recipient of our Section's Tolman Award in 2003. You can read more about him and other Tolman Award winners on the SCALACS website, www.scalacs.org.

We have more exciting activities planned for November. The High School Chemistry Teacher meeting is November 2nd. We're having Ray Schmidt coming to talk on November 20th. He will talk on "Understanding Scientific Realities and the Risks at the Policy/Politics and Public Interfaces." At that same meeting, we will also be honoring Bob de Groot as the Outreach Volunteer of the Year, as well as our recently named ACS fellows, and award recipients from the Western Regional Meeting in October. Rita Boggs won the Ann Nalley Award, and Michael Morgan was named High School Teacher of the Year.

This year, three Southern California Section members were named as part of the ACS Fellows Program. The induction ceremony was held at the ACS National meeting in Indianapolis in September for the following:

Barbara Belmont, of American Research and Testing Inc.,
and our esteemed Executive Committee colleague.
Carlos G. Gutierrez, California State University, Los Angeles
Charles Knobler, University of California,
Los Angeles (Emeritus)

We thank and acknowledge all our local section volunteers for their service this year on a separate page in this issue. Thank you again.

- Brian Brady,
Chair

Southern California Section

Section Dinner Meeting
Honoring our recent Awardees and Dr. Robert de Groot, ACS Outreach Volunteer of the Year

Wednesday, November 20, 2013

Taix French Restaurant
1911 W. Sunset Blvd.
Los Angeles, CA 90026

"Understanding Scientific Realities and the Risks at the Policy/Politics and Public Interfaces"

Dr. Raymond Schmidt
Institute on Science for Global Policy

Check-in: 6:00 pm
Dinner: 7:00 pm
Presentation: 8:00 pm

In addition to our featured speaker for this evening, we will be honoring **Dr. Robert de Groot**, the inaugural ACS Outreach Volunteer of the Year; our 2013 Fellows, **Barbara Belmont, Dr. Carlos Gutierrez, and Dr. Charles Knobler**; and our Western Regional Meeting Award Recipients, **Dr. Rita Boggs** (Ann Nalley Award) and **Michael Morgan** (Excellence in High School Teaching).

Abstract: It's a long way from breakthrough discoveries at our lab benches to the policies that guide these innovations to benefit human-kind. The Food Safety, Security, and Defense topic will be used to illustrate the complexity of global sourcing, trade barriers, and information issues involved in most of the everyday food products we consume. The discussion will identify policy issues in today's "just-in-time," "eat more fresh fruits and vegetables," year-around access, and globally traded products we now find in our local supermarkets. Policies are intended to protect the consumer and insure higher quality, disease- and injury-free foods. With the increasing diversity of cultures in local areas, the diversity of tastes and provisions is increasing with new testing
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Southern California Section

November Meeting (Continued from Page 3)

methods needed to insure quality and identify infectious food-borne microbes. People can die from uncleaned, spoiled, contaminated or diseased imported or domestic food products. When something goes wrong, an appointed or elected policy official must make rapid critical decisions on less than perfectly convincing evidence, that can have billion dollar impacts and cost or save hundreds of lives; think epidemic or pandemic. The risks and uncertainty can be high.

A model has been developed by the Institute on Science for Global Policy to engage leading scientists with policy makers and politicians in critical debates and consensus building, to improve the role of scientific evidence in national and global policy discussions. While the Institute takes no preconceived position on the issues, all viewpoints must be aired and debated. The talk will illustrate the process, benefits and the resulting areas of consensus (AOC) and actionable next steps (ANS) as policies get formulated, implemented, refined and/or improved. The model also has application to the debate of highly controversial technical subjects with the less well informed general public, our non-scientific friends, neighbors and local communities; (think fracking, climate change and GMOs). Hopefully, the world will be a better place as a result.

Biography: Raymond Schmidt, Ph.D. (Emory Univ., Postdoc Caltech) is a newly minted 50 year ACS alumni and a Senior Fellow with the **Institute on Science for Global Policy** (http://scienceforglobalpolicy.org/) while still actively involved in his local community. He serves on the board of the PIH Health Insurance Co., chairs their Claims/Risk/Underwriting committee and is on the PIH Health Community Benefits Oversight Committee, Whittier Public Library Foundation Treasurer, YMCA Director and Finance committee, Elder/Trustee of his church, and a Rotarian and local club past president. Before retirement, he was a chemistry professor and an industrial R&D scientist leading inter-disciplinary multi-company teams to develop new oil recovery techniques and to commercialize innovative petroleum and geothermal production methods in California, northern Alberta and Indonesia as the corporation's technology liaison for oil, gas and geothermal issues. He has a strong interest in organizational effectiveness and high quality outcomes.

Reservations: There is a choice of Coq au Vin (chicken with wine sauce) or Beef Bourguignon for dinner. The cost of the dinner is $33 including tax, tip, and wine with dinner; cash or check at the door. Please call Nancy Paradiso in the Section Office at 310 327-1216 or email office@scalacs.org by Monday, November 18th.

Directions: To access Google maps from the Taix French Restaurant website, go to http://taixfrench.com/contact-us/

Southern California Section

2013 Nobel Prize in Chemistry Recipient
Professor Arieh Warshel
University of Southern California

Arieh Warshel, Distinguished Professor of Chemistry at the USC Dornsife College of Letters, Arts and Sciences and fellow of the National Academy of Sciences, has earned a new title: Nobel laureate. The Royal Swedish Academy of Sciences awarded the Nobel Prize in chemistry for 2013 on October 9th to Warshel and two colleagues for developing the key principles behind computer simulations that are now indispensable in the study of chemical reactions.

Warshel, Martin Karplus of the Université de Strasbourg in France and Harvard University, and Michael Levitt of Stanford University were recognized for "the development of multiscale models for complex chemical systems." Their crucial achievement was to marry classical and quantum mechanics in order to model both the relatively large-scale movements of atoms in a molecule, and the minute dances of the free electrons that shuttle between atoms and spark many chemical reactions.

"Warshel's first breakthrough was his simulation of a key protein in the eye in collaboration with Karplus in 1972. Karplus was an expert in quantum mechanics, which explains physical behavior at an extremely small scale. Warshel and Levitt as PhD classmates had developed a pioneering computer modeling program based on classical mechanics that could be used on molecules of any size. Warshel then reunited with Levitt in 1976 to publish the revolutionary first computerized model of an enzymatic reaction, scalable to molecules of any size. That year also marked Warshel's arrival at USC.

Warshel had long been interested in enzymes, which control almost all chemistry in the body, and continues to study their reactive properties to this day. The methods he and his collaborators developed can be used on a practical level to develop new drugs, he explained at the news conference, "or just in my case to satisfy your curiosity."

Scientists today use the methods developed by Warshel and his colleagues to model chemical processes both accurately and efficiently. They apply the quantum mechanical half of the method only to the free electrons and nuclei directly involved in a reaction, and use classical mechanics to study the rest of a molecule. Warshel has been applying his method to study how proteins are responsible for transferring signals within a single cell. One of his recent studies explained the essential workings of adenosine triphosphate, the energy factory for the body.

He will receive one third of the Nobel Prize total award of 8 million Swedish kronor, equivalent to approximately $1.2 million.
Sources: Royal Swedish Academy of Sciences, USC News

Southern California Section

Thanks to all 2013 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: Brian Brady
Chair Elect: Yumei Lin
Secretary/Treasurer:
Spencer Ririe
Financial Manager:
Barbara Belmont

Elected Members of Executive Committee:
Jason Anspach
Tina Choe
Bill Harter
Veronica Jaramillo
Michael Morgan
Heather Mott
Armando Rivera
Brian Sullivan
Tieli Wang

Councilors:
Rita Boggs
Bob de Groot
Tom LeBon
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Eleanor Siebert
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Virgil Lee
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Bylaws Committee
Virgil Lee

Expanding Your Horizons
Eleanor Siebert, Chair
Jessica Cardenas
Hyeran Choi
Deniz Cizmeciyan
Syvine Deprele
Andrea Martinez
Lauren Que

Educational Affairs—High School Teacher of the Year
Michael Morgan, Chair
Gerald Delker
Richard Erdman
Peter Shin

Teacher's Meeting
Michael Morgan, Chair
Robert de Groot
Richard Erdman

High School Olympiad
Gerald Delker, Chair
Henry Abrash
Barbara Belmont
Bob de Groot
Paul Groves
Derek Marin
Michael Morgan
Eleanor Siebert
Barbara Sitzman

Community Activities: NCW, CCED & others
Robert de Groot, Chair
Henry Abrash
Barbara Belmont
Brian Brady
Nallely Cero
Victoria Darlington
Gerald Delker
Keith Frogue
Eloïse Gaillou
Carla Gonzalez
Catherine Jacobs
Veronica Jaramillo
Nate Lewis
Derek Marin
Natalie Martinez
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Alyssa Morgan
Michael Morgan
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Ana Perez
Hannah Pham
G. K. Surya Prakash
Janelle Rockwell
Armando Rivera-Figueroa
Marina Rueda
Eleanor Siebert
Barbara Sitzman

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Thank You List (Continued from Page 6)

Organizations Supporting Section Community Activity Efforts:

- ACS Student Chapter at Cal. State Long Beach
-ACS Student Chapter at Pasadena City College
- WISH Organization at Mount St. Mary's College
- Science Society—Cal. State Dominguez Hills
- Priory of Biology & Chemistry at ELAC
- ACS Office of Volunteer Support
-ACS Office of Public Affairs
- Natural History Museum of Los Angeles County
- California Science Center Education Department
- Cal State University, Long Beach - Department of Chem. & Biochem.
- East Los Angeles College Chemistry Department
- Pasadena City College
- Occidental College, Department of Chemistry

Project SEED
Frank Gomez, Chair

Boy Scout Expo
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Nominations & Elections
Barbara Belmont
Brian Brady

Senior Chemists
Henry Abrash, Chair

Social Media
Heather Mott, Chair

Tolman Award
Dr. Joseph Mabry, Chair. Confidential committee, but you know who you are!

Undergraduate Research Conference
Henry Abrash, Chair
Grace Chong, Student President
John Kenny, Concordia University

Webmaster
Barbara Belmont

Women Chemists Committee
Veronica Jaramillo, Chair

Younger Chemists
Derek Marin, Chair

As you can see, 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!

Southern California Section

Second Call for Nominations
2013 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 2013 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**. Copies of publications are not required. Rather, a list of representative publications would suffice. ***The deadline for receipt of nominations is December 16, 2013.*** Inquiries should be directed to the Chairperson at (310) 327-1216 or via e-mail at office@scalacs.org.

Second 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. **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.** The deadline for nominations is **November 15th, 2013**. Please feel free to contact Michael Morgan of the Educational Affairs Committee at mmorgan@lausd.net if you have any questions.

This Month in Chemical History

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

"I often think it's comical that nature always does contrive that every boy and every gal that's born into this world alive is either a little liberal, or else a little conservative." So sings Private Willis (in front of London's Houses of Parliament) at the beginning of the second act of "Iolanthe", one of my favorite Gilbert and Sullivan operettas. But perhaps chemists fall into the class of split personalities, for I think that many chemists are liberal (even radical, if you'll pardon the pun) when it comes to enlarging the boundaries of their science, and conservative when it comes to teaching it. And so to the subject of this column; an examination of a century old general chemistry text, "Introduction to Inorganic Chemistry" by Alexander Smith, whose career I described in a recent column. I am looking at the third edition, published in New York in 1919. The first edition was published in 1906.

Smith's Preface has some profound insights into the teaching of chemistry. "The chemistry of the laboratory is, of course, the only real chemistry, and that of the lecture must be somewhere at fault." "No conception is defined, and no generalization or law is developed, until such a point has been reached that applications …have already been encountered..".

After an initial chapter on how chemical phenomena are studied and classified the second chapter is on energy in chemical change, subtitled physics in practical chemistry. Smith quotes Mayer (1842) and Helmholtz (1847) on conservation of energy: "in a limited system no gain or loss of energy is ever observed". This is a quite conservative statement of the first law of thermodynamics, but one that upholds Smith's idea that "Scientific statements of fact can never err by being too conservative". Generally Smith's approach to understanding chemistry, as expounded in this chapter, is more profound, more philosophical, than the usual approach in our current texts, and for me it is that much better.

In his chapter on combining proportions by weight Smith is equally clear on the implications of conservation of mass. "A law is …simply a summary of our experience. As such it is subject to modification …Thus it is perfectly possible that we may yet find cases of demonstrable changes in weight accompanying other physical or chemical changes in a limited system" : Prophetic comments at the beginning of the understanding of radioactive change and mass/energy equivalence. This is a further example of the way in which Smith so carefully picks his words and explanations.

The subjects in this impressive text do not look very different from those in current texts, though the order is somewhat different, in that sections devoted

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This Month in Chemical History

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to individual elements and compounds, such as hydrogen, oxygen, and water are interspersed among chapters on theory including the kinetic molecular viewpoint , solution, and molecular and atomic weights. The end-of-chapter exercises seem to me to be more pedestrian than the text material. We teachers of chemistry include much of the same content as Smith, but I believe we are moving in a more liberal direction in our attempts to assess student learning in our courses. And so I return to my opening theme; the blend of conservative and liberal approaches to teaching chemistry, as exemplified in Smith's century old text, still serve us and our students well.

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San Gorgonio Section

Chair's Message

My Mother, Linus Pauling, the 2013 Nobel Prize in Chemistry and the San Gorgonio Section?

My 88-year old mother had finished reading her hometown newspaper in Germany on her tablet and was checking to see if the grandchildren had posted any new pictures on Face book. She commented "***it is truly amazing to see what changes in technology I have seen in my lifetime."*** That led me to thinking about this year's Nobel Prize in Chemistry, Linus Pauling, and the San Gorgonio Section.

In the 1940's, Linus Pauling was working to decipher the three-dimensional structure of proteins. Quantum mechanics was a relatively new development and Pauling was one of the first to apply it to chemical structures. From X-ray crystallography data, he had information about the bond lengths and bond angles in hemoglobin. In a famous story, he was in bed for a few days with a cold in 1948. After becoming thoroughly bored, he drew a segment of a hemoglobin molecule with the correct dimensions on a piece of paper. He then spent the day folding the piece of paper, maintaining the bond lengths and angles until he had created a structure that worked. Thus, the first model of an alpha helix was created!

The 2013 Nobel Prize in Chemistry was awarded to Martin Karplus, Michael Levitt and Arieh Warshel "***for the development of multiscale models for complex chemical systems***". They harnessed the power of the computer to understand and predict chemical process in complex biomolecules such as proteins. Their computation programs are able to apply quantum mechanical calculations to the reactive atoms of molecules and classical calculations to the rest of the structure. The result is molecular modeling computer programs that can produce simulations of a drug molecule interacting with its atoms in its target protein!

How do these major milestones in protein chemistry relate to the San Gorgonio Section? The year after Linus Pauling first created a paper model of an alpha helix, he served as the president of the American Chemical Society. The San Gorgonio Section was founded in 1949 while he was ACS president and it will be celebrating its 65th anniversary next year. Over the "life time" of the San Gorgonio Section we have gone from building models of molecules with paper to visualizing realistic simulations of biological processes. This brings to mind two thoughts: what tools will chemists have to unravel the mysteries of life over the next 65 years? and please join us in celebrating the 65th anniversary of the Section next year!

- Eileen DiMauro, Chair

San Gorgonio Section

Annual Meeting

Wednesday, November 13, 2013
7:00 p.m.

Chemical Sciences Bldg, Room 231
University of California, Riverside

900 University Avenue
Riverside, CA 92521

Come help plan the new year! An overview of Section activities for the upcoming year will be presented. The upcoming election for 2014 officers will be discussed. We will brainstorm the needs, suggestions, comments, and other items to improve the Section. Food (sandwiches, fruit, cheeses, water, and sodas) will be provided. There will also be a drawing for a variety of door prizes.

Meeting Agenda: Door prize drawings throughout the evening!

Welcome
What's New at UCR
Notable events in the Section this year
Upcoming election of officers for 2014
Overview of 2014 Section planned events
- Plans to celebrate our 65th anniversary
- National Chemistry Week
- High school chemistry Olympiad

Brainstorming: How to improve the San Gorgonio Section
Adjournment

Reservations: Please RSVP to Dennis Pederson (dpedersn@csusb.edu) or David Srulevitch (dsrulevitch@mtsac.edu, (909)594-3070) no **later than** Friday, November 8. There is no cost, but we need to know how much food to buy! We must also submit names of anyone who would like a parking pass to UCR.

Parking: Parking is $5 for the evening. Park in lot 13. Get to the campus and go to the main 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 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.

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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

November

1	NCW Event at CSUDH with Prof. Surya Prakash—see our website
2	SC High School Chemistry Teachers Meeting at Oxy—see our website
13	SG Annual Meeting at UC Riverside—see page 12
15	Deadline for SC Teacher of the Year Award—see page 8
20	SC Dinner Meeting with Dr. Raymond Schmidt and honoring So. Cal. Awardees—see page 3

December

15	Deadline for R. C. Tolman Medal nominations—see page 8

Have a wonderful Holiday Season!