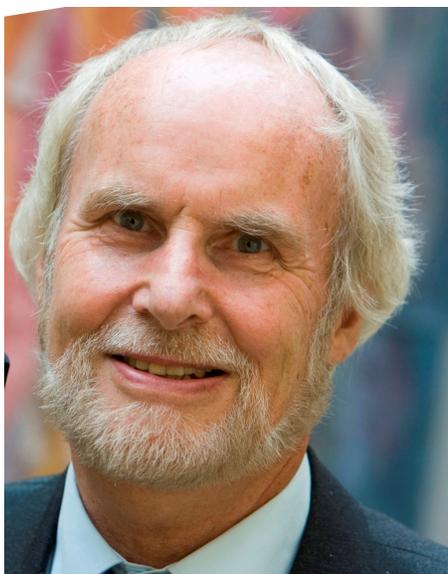


April 2012

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



**Southern California  
Section  
Tolman Award Dinner  
Tuesday, April 24, 2012**

**Recipient of the 2011  
Tolman Medal:  
Prof. Karl Christe  
University of Southern  
California**

See Page 3

**San Gorgonio Section**

**Section Message**

See Page 12

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# SCALACS

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## Southern California Section

### Chair's Message

Light is one of the most powerful metaphors expressing discovery, insight, or just plain "getting it." This month I'd like to illuminate two folks who have had many of their own "aha" moments and have also spent their lives fueling the flames of inspiration across the spectrum of students and other researchers.



**Herb Kaesz** always had a sparkle in his eye and a good joke (often about the USC/UCLA rivalry) or story to share. During my first meeting as SCALACS chair in 2009 he brought cookies and before we started he pulled me aside to tell me that he would give me signals from the back of the room in case I needed help. His beaming grin at the end of the meeting assured me that it had gone well. Whenever I able to show up early to dinner meetings I would find Herb and Norm sitting in the bar. Often joining them, I reveled in having a private audience with a good dose of stories as well as advice on how to make the perfect Manhattan (Herb bought me my first Manhattan in 2007). A shining intellect Herb was one of the first to accomplish the synthesis of a technetium carbonyl complex, one of the last such complexes to be discovered. He was Chair of the IUPAC Commission on the Nomenclature of Inorganic Chemistry and was involved in the naming of Seaborgium. His scientific achievements earned him the Tolman Medal in 1980. Herb's service to ACS and the Southern California Section was inspirational. For his service he received the Agnes Ann Green Distinguished Service Award in 1997 and he was elected an ACS Fellow in 2009. Herb will be missed and he will always occupy bright spot in our memories.

April is always a special month for SCALACS. We turn our attention to a scientific luminary in our midst. **Karl O. Christe** an inorganic chemist from the Loker Hydrocarbon Research Institute at the University of Southern California is the 2011 Tolman Award winner. Research Professor Christe has 345 publications in refereed journals and 63 patents to his credit. He is also a member of the German Chemical Society and has received numerous awards including the Alfred Stock Preis of the German Chemical Society (2006) and the ACS Award in Inorganic Chemistry in 2003. We hope you can join us to honor Dr. Christe at the upcoming Tolman Award dinner at USC on April 24<sup>th</sup>.

Cheers to all,  
Robert de Groot, Chair  
rdegroot@oxy.edu

## Southern California Section

### Tolman Award Dinner Meeting

Tuesday, April 24, 2012

#### The USC University Club

645 West Exposition Boulevard  
University of Southern California  
Los Angeles, CA 90089-1161

**“Never Say No to a Challenge-  
a Lifelong Pursuit of Impossible Chemistry”**

**Karl O. Christe,  
2011 Tolman Award Recipient**

Research Professor, Loker Hydrocarbon Research Institute,  
University of Southern California

Check-in and hosted reception: 6:00 pm

Dinner: 6:45 pm

Presentation: 7:45 pm

**The Award:** The Richard C. Tolman Medal is awarded each year by the Southern California Section of the American Chemical Society in recognition of outstanding contributions to chemistry in Southern California. The Tolman Medal recognizes broad accomplishments in chemistry rather than a single fundamental discovery. These contributions may be of several kinds, including seminal research of widely regarded influence, achievements of broad impact in chemical technology, significant contributions to chemical education, and outstanding leadership in science on a national level. To be eligible for the Medal, the recipient must have accomplished a major portion of his or her work while a resident of Southern California.

**Abstract:** Topics include the syntheses of the tetrafluoroammonium and hexafluoro-chlorine(VII) cations, and of chlorine trifluoridedioxide, the chemical synthesis of elemental  
(Continued on Page 4)

## Southern California Section

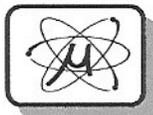
### Tolman Dinner Meeting (Continued from Page 3)

fluorine, the synthesis of pentagonal-planar  $AX_5$  species, polynitrogen and polyazide chemistry, oxygen balanced ionic-liquid liquid monopropellants, green replacements for ammonium perchlorate, and quantitative scales for oxidizer strength and Lewis acidity. It is shown that chemistry not only can be fun but many lessons besides chemistry can be learned.

**Cost:** There is a choice of entrée of Filet Mignon or Chilean Sea Bass. The cost is \$35 including salad, dessert, tax, tip and wine (cash or check at the door).

**Reservations:** Please call Nancy Paradiso in the Section Office at (310) 327 – 1216 or email [office@scalacs.org](mailto:office@scalacs.org) by Tuesday, April 17, 2012. *Note: Please honor your reservation. If you make a reservation and do not attend, you will be liable for the cost of the dinner.*

**Directions:** The University Club is located on the USC campus at the corner of Exposition Blvd. and Figueroa Street. Please go to <http://universityclub.usc.edu/html/content.cfm?CID=68> for driving directions and parking information. **Please note that there is an \$8 fee to park in the university parking lots.**



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## Southern California Section

### Karl Christe 2011 Richard C. Tolman Award Recipient

Karl Christe received his B.S., M.S. and Ph.D. from the Technical University in Stuttgart, Germany. He immigrated to the U.S. in 1962 and worked for 5 years at the Stauffer Research Center in Richmond, CA. In 1967, he joined Rocketdyne in Canoga Park and in 1994 he accepted split positions between the Air Force Research Lab, Edwards and the Loker Hydrocarbon Research Institute of USC. In 2005, he moved full-time to USC where he is working as a Research Professor.

Christe has more than 50 years of experience in the synthesis and characterization of novel compounds at the limits of oxidation and coordination. He has achieved the first syntheses of many spectacular compounds, such as  $\text{ClF}_3\text{O}$ ,  $\text{ClF}_3\text{O}_2$ , halogen perchlorates,  $\text{OIF}_4\text{OF}$ ,  $\text{OsF}_4\text{O}_2$ , and ions, such as  $\text{NF}_4^+$ ,  $\text{ClF}_6^+$ ,  $\text{ClF}_6^-$ ,  $\text{ClO}_2\text{F}_2^-$ ,  $\text{ClO}_2\text{F}_2^+$ ,  $\text{ClF}_2\text{O}^+$ ,  $\text{ClF}_4\text{O}^-$ ,  $\text{NF}_3^+$ ,  $\text{NF}_2\text{O}^+$ , and  $\text{NH}_2\text{F}_2^+$ . He has developed fluorine gas generators for chemical lasers and in 1986 has discovered the first chemical synthesis of elemental fluorine which for more than a century had been deemed impossible. His synthesis for truly anhydrous tetramethyl ammonium fluoride has led to a renaissance of high coordination number chemistry. Among the novel compounds, which he prepared in this manner, are the  $\text{XeF}_5^-$  and  $\text{IF}_5^{2-}$  anions, the only known pentagonal planar species.

He has a very broad background in general chemistry. He has prepared the first stable  $\text{OH}_3^+$  and  $\text{SH}_3^+$  salts, has discovered a new process for metal joining, has developed new methods for the introduction of fluorine into aromatic rings, and has pioneered graphite based ion exchange resins for powerful oxidizers in anhydrous HF. In addition, he has made major contributions to fluorocarbon chemistry, inorganic high polymers, chemical laser technology, and methane oxy-chlorination. More recently, he has made major breakthroughs in polynitrogen chemistry and has discovered the  $\text{N}_5^+$ ,  $\text{N}_3\text{NFO}^+$ ,  $\text{N}_7\text{O}^+$  and *cyclo*- $\text{N}_5^-$  ions and many new polyazides. In collaboration with David Dixon, he has created the first quantitative scales for oxidizer strength and Lewis Acidity. He is presently working on green replacements for the highly toxic propellants and explosives, ammonium perchlorate, hydrazine and lead diazide.

Christe has more than 350 publications in refereed journals and 63 patents. He is a member of the European Academies of Sciences in Liege and Arts and Sciences in Salzburg. He has received numerous awards, including the Alfred Stock Preis of the German Chemical Society (2006), the ACS Award in Inorganic Chemistry (2003), the Prix Moissan (2000), the ACS Award for Creative Work in Fluorine Chemistry (1986), and the NASA Apollo Achievement Award (1969).

## Southern California Section

### Undergraduate Research Conference

The 2012 Southern California Undergraduate Research Conference in Chemistry and Biochemistry will be held at the California State University, Channel Islands on **Saturday, April 7th, 2012**. **Registration opened on February 12th and closed on March 15th**. For meeting information, please contact Blake Gillespie via email at [Blake.Gillespie@csuci.edu](mailto:Blake.Gillespie@csuci.edu) or go to the website, <http://chemistry.csuci.edu/scurccb/index.htm>.

### High School Olympiad

Local competition for the ACS High School Chemistry Olympiad was held on **March 14th and 15th** at over 40 high schools around Los Angeles County. Francisco Bravo High School finished first overall and North Hollywood High School finished first for first year students. The winners of the local exam are invited to participate in the National Exam on **April 21st at Loyola Marymount University** for a chance to be part of the International Olympiad in July in Washington DC. The High School Awards Banquet is **May 18th** at Mount St. Mary's College. For more information, visit our website at [www.scalacs.org](http://www.scalacs.org).

### Outreach Activities

**Late April 2011 - Chemists Celebrate Earth Day Activities at the California Science Center.** Chemists Celebrate Earth Day 2012 International Year of Chemistry - Environment Activities at the California Science Center, 700 Exposition Park Drive, Los Angeles, CA 90037, website: <http://www.californiasciencecenter.org>. Join volunteers at the California Science Center for CCED activities. Dates and Times for this event will be listed on the SCALACS website. For more information, or if you would like to volunteer please contact Henry Abrash at: [abrash8@aol.com](mailto:abrash8@aol.com).

**Save the Date! Saturday, June 2nd—Chemistry Merit Badge Activity.** SCALACS Younger Chemists Committee will have a booth at the Boy Scout Expo at Santa Anita Park Infield. We need volunteers to work with the Scouts on the Chemistry Merit Badge. The show is from 10 am to 3 pm. Contact Gerald Delker at [delker@earthlink.net](mailto:delker@earthlink.net), or (626) 622-7776 or Derek Marin at [Derek.Marin@DunnEdwards.com](mailto:Derek.Marin@DunnEdwards.com).

## Southern California Section

### Have you checked your lab for safety?

It was 2008 when the student at UCLA was killed as her experiment exploded. There have been a number of articles in C&E News regarding the matter, the most recent of which was in the January 30, 2012 issue. The author, Jyllian Kemsley, talks about the Cal/OSHA report which was recently forwarded to the Office of the Los Angeles District Attorney. If you look at page 10 of the January 30<sup>th</sup> 2012 issue of C&N News, it gives you access to the Cal/OSHA report (all 95 pages) as well.

It once again reminds me of the horror of the event. Many years ago, when I first started teaching and was doing so in high school, I still remember a student picking up a small glass bottle by the stopper. Needless to say I was very frightened when it broke on the counter top and it appeared to go in her eyes. I saw it happening and couldn't stop her in time. I still remember that and it happened in the 60's. I put her face under the running water in a nearby sink. Nothing ultimately happened to her.

I realize the accident at UCLA is nothing like the one I quoted above. I know too that none of you would ever want to see a student hurt in one of our labs. At our most recent meeting of our ACS Executive meeting, we discussed briefly my intent to write this piece. Before leaving that evening, one member who teaches at one of our universities and another who has an industrial position indicated to me that they had already made changes in their labs.

The big question is have we all made the changes that need to be made? God forbid, there should ever be another death in our labs.

Rita Boggs  
Councilor

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## Southern California Section

### In Memoriam Professor Herbert D. Haesz

**Herbert D. Kaesz**, professor emeritus of chemistry and biochemistry, died February 26, 2012 of cancer in Los Angeles. He was 79.

He was born in Alexandria, Egypt to Austrian parents. His father, a chemist, was asked to join his wife's family business, Kurz Optical, to run the branch in Alexandria. Later, the family immigrated to the United States when the younger Kaesz was 7.

After receiving his AB from NYU, Herb went on to graduate studies at Harvard University, receiving his Ph.D. in 1959 under the mentorship of F. Gordon A. Stone, and joined the UCLA faculty in 1960 as a member of the inorganic division. He retired in 2003, but remained an active emeritus right up until his death.

His research focus was in the synthesis and applications of organometallic compounds, with a particular interest in metal carbonyls. Herb was one of the first to accomplish the synthesis of a technetium carbonyl complex, one of the last such complexes to be discovered. Later in his career, he pioneered the development of pyrolytic and photolytic methods of metal film deposition for electronic applications.

Herb was also a dedicated teacher. His principal teaching assignments were in chemistry for non-majors, general chemistry, structural inorganic and organometallic chemistry. Since his retirement he developed and taught a popular "Fiat Lux" seminar for non-majors entitled "Serendipity in Science".

Herb performed vital service for the chemistry community. He was Chairman of the IUPAC Commission on the Nomenclature of Inorganic Chemistry -- and was involved in the naming of Seaborgium. In addition, he was president of the Inorganic Syntheses Organization, which publishes the Inorganic Syntheses book series (Herb served as editor of volume 26 in this series) and served for over 30 years as Associate Editor of the ACS journal Inorganic Chemistry.

Herb's accomplishments were honored by the scientific community many times over the course of his career. In 1980, he received the Tolman Medal from the Southern California Section of the American Chemical Society and in 1981 he was elected a Fellow of the American Association for the Advancement of Science. In 1998, Herb received the American Chemical Society Award for Distinguished Service in the Advancement of Inorganic  
*(Continued on Page 9)*

## Southern California Section

### In Memoriam, Herbert D. Kaesz (Continued from Page 8)

Chemistry. In 2009, he was elected a Fellow of the American Chemical Society in the inaugural year of that program. This designation honors those who have distinguished themselves in multiple areas, including promoting the science and profession of chemistry and service to the American Chemical Society. Herb was also a member of Royal Society of Chemistry, AAAS (Fellow), and Alpha Chi Sigma.

Herb was a long time member of the American Chemical Society (since 1954) and served for many years as Councilor for the Southern California Section, as well as Chair in 1987 and 2006. He served on the Inorganic Division and was Chair in 1981. Besides the Tolman Award, Herb was honored with the Section's Agnes Ann Green Award for Distinguished Service to the Section in 1997. He was always generous with his time and expertise. He most recently appeared as a panelist for the section's centennial banquet along with Rudy Marcus, John D. Roberts, and Arthur Riggs.

Joan Kaesz, Herb's adored wife of over 51 years (who worked with Herb for 30 years as his assistant in his capacity as journal editor), passed away in January 2010. In addition to his daughters, Susan and Judy, Herb is survived by his grandchildren Dylan Kaesz, Erin Murray, and James Murray.

As one of our long-time members, Herb will be missed not only for his academic achievements, but for his wonderful personality and willingness to share of himself.



One of Herb's favorite pictures - exchanging information with students.



## This Month in Chemical History

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

My last column described the career and some of the achievements and publications of Michael Faraday. A 150<sup>th</sup>. anniversary edition of his “Chemical History of a Candle” (Oxford; Frank James ed. 2011) has recently been published; this is a book that has not been out-of-print since it first appeared. The new edition has some notable features. It has been carefully edited by Frank James who is a leading authority on Faraday. He is Professor of the History of Science at the Royal Institution in London, the Institution in which Faraday worked for all of his professional career. James has had access to the Institution’s extensive collection of Faraday books and manuscripts and has edited the six volumes of Faraday’s Correspondence.

James’ introduction to the “Chemical History of a Candle” explores the origin of the text that was not written down by Faraday. A shorthand reporter was present at the lectures given to a juvenile audience, and their adult relations, at the Royal Institution in December 1860 and January 1861. Faraday was not in good health at the time, but decided not to disappoint the enthusiastic audience that had been attending these Christmas Lecture series for years. At the start of his career Faraday had been an indifferent lecturer, but by dint of practice and experience he developed into a magnificent teacher. An attendee wrote in 1863: “He never told his listeners of an experiment, he always showed it them, however simple and well-known it might have been. ‘If’, Dr. Faraday once said to a young lecturer, ‘I said to my audience this stone will fall to the ground if I open my hand, I should open my hand and let it fall. Take nothing for granted as known; inform the eye at the same time as you address the ear.’ This was the great secret of Faraday’s success.”

It was the scientist William Crookes, publisher of the magazine “Chemical News”, who prevailed upon an initially reluctant Faraday to allow his lectures to be taken down and published . (Crookes was a discoverer of the element thallium, and a pioneer in radiochemistry and X-rays.) Crookes’ staff recorded Faraday’s talks in shorthand and Crookes edited them for grammar and accuracy. They were published in the early issues of Chemical News in 1861, were rapidly republished in Scientific American in the United States and appeared in book form on  
*(Continued on Page 11)*

## This Month in Chemical History

(Continued from Page 10)

both sides of the Atlantic in 1861. In both serial and book form the "Chemical History of a Candle" was an immediate success and has remained so to this date.

A striking feature of James' new edition is the inclusion of 40 pages of reproduced manuscript of Faraday's original notes in his own hand for the delivery of the lecture series. They are not easy to read, not because of Faraday's handwriting, which is clear, but because of low contrast between the mid-grey of the background and the dark grey of the writing. Patience and persistence does allow for deciphering these interesting guides to how Faraday planned his lectures, and the main text makes clear how much he added in his actual presentation. In accord with his dictum, mentioned above, there are many direct observations and demonstrations woven into the course.

Faraday comments in these lectures on their purpose and his philosophy:

"There is not a law under which any part of this universe is governed which does not come into play and is touched upon in these phenomena. There is no better, there is no more open door by which you can enter into the study of natural philosophy than by considering the physical phenomena of a candle."

"So are we made dependent not merely upon our fellow-creatures, but upon our fellow-existers, all Nature being tied together by the laws that make one part conduce to the good of another."

I have carefully avoided trying to abstract the bulk of what Faraday did and said. I urge you to read this short classic for yourselves; it is under 100 pages. If the new Oxford edition is too rich for your blood, there is a Dover Books edition that is cheaper. But dipping into this little book will bring you into contact with one of the greatest and most modest scientific minds of all time. It's worth the trip.

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## San Gorgonio Section

### Academic Laboratory Support Workshops

On February 24, the second Academic Laboratory Support Workshop was held at Mt. San Antonio College. This fledgling program is the brainchild of Joyce Oakdale of Chaffey College. The goal of this program is to “develop a resource network for anyone involved in academic laboratories and start a series of workshops to address general issues of interest”. It is supported by an ACS Innovative Projects Grant. The workshops were originally targeted at laboratory personnel in community college stockrooms, but we have found that it is extremely constructive to include laboratory professionals from all types of institutions.

The first workshop was held at Chaffey College in March 2011. James L. Morris, Safety/Health Consultant at Cal/OSHA and David Patterson, Director of Environmental Health & Safety at Cal Poly, Pomona both held the audience captivated with their knowledge of health and safety aspects of working in a chemistry laboratory. The plethora of questions asked by attendees justified Joyce’s hypothesis that there is need for this type of event.

The scheduling of the second workshop was timely, coming soon after the announcement in December that the Los Angeles District Attorney’s office has filed felony charges against UCLA and chemistry professor Patrick Harran in the death of Sheri Sangji. The focus of the second workshop was on safety – from an institutional perspective. Participants were present from industry, community colleges and 4-year public and private universities. What quickly became obvious was the wide diversity of safety procedures and training at the different institutions. Consider the robust dialogue regarding chemical hygiene plans (CHP), considered to be the foundation for the safe handling of hazardous chemicals. Some campuses have a top-down system where a college-wide CHP is developed and maintained at an administrative level. Other participants described the development of a CHP for their immediate workspace, with limited guidance and input from higher levels. Participants who had experience with creating and maintaining a CHP were quick to offer enthusiastic assistance and references to others who were new to the task. These types of interactions fulfilled the goal of the project – to provide an opportunity for the laboratory professionals who are responsible for daily operations to interact, share resources and provide a network of support.

The third Academic Laboratory Support Workshop is tentatively scheduled for August, in San Bernardino. One suggested topic for this workshop is the safe handling of laboratory waste. If you are interested in participating, please check the San Gorgonio Section website (<http://sangorgonio.sites.acs.org/>) during the summer for more information.

- Eileen DiMauro, San Gorgonio Section



**SOUTHERN CALIFORNIA SECTION  
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**PERIODICAL**

**Bi-Section Chemists' Calendar**

**April**

- 7 Undergraduate Research Conference at CSU Channel Islands—  
see page 6
- 21 National Exam for SC High School Olympiad—see page 6
- 24 Tolman Award Dinner honoring Prof. Karl Christe at USC—see  
page 3
- TBA Chemists Celebrate Earth Day events at California Science  
Center—see page 6

**May**

- 18 SC Educational Awards Banquet—see page 6

**June**

- 2 YCC Boy Scout Chemistry Merit Badge—see page 6