

# THE VORTEX

AMERICAN CHEMICAL SOCIETY  
VOLUME LXXI NUMBER 8

CALIFORNIA SECTION  
OCTOBER 2010



*California and Santa Clara Valley Sections October Meetings celebrating National Chemistry Week*



Speakers: Drs. C. Marvin Lang and Donald Showalter  
Professors Emeritus, University of Wisconsin-Stevens Point

Title: "Chemistry-Colorful, Exciting and Fun"

Dates: Sunday, October 17, 2:00 pm, UC Santa Cruz  
Monday October 18, 7-9 pm St Mary's, Moraga  
Tuesday, October 19, 7-9 pm Chico State, Chico  
Wednesday October 20, 7:30 pm, Sonoma State, Rohnert Park  
Thursday, October 21, 7-9 pm Dominican College, San Rafael  
Friday, October 22, 6:00 pm Cal State, East Bay, Hayward  
Saturday October 23, 10:30 am Exploratorium, SF  
Saturday October 23, 2:00 pm San Jose State Univ. San Jose

Programs are free of charge, but reservations are required as venues have limited capacities. Call or email the office for reservations, (510) 351-9922, ([office@calacs.org](mailto:office@calacs.org)). Maps and directions for most of the venues are on the website. Go to the home page, [www.calacs.org](http://www.calacs.org), click on "About Us" and then on the Section Maps on the drop down menu. Click on the descriptive link (*i.e.* St. Mary's College Map) to view and download the map or directions.

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## Chair's Message

Paul Vartanian

Fall is my favorite time of the year. There are many things happening and the weather is almost always pleasant. I grew up in the Central Valley of California and the summer

heat made extended outdoor activities difficult. The fall weather brought the World Series, football, and the rain. It also brought school, but that's another story.

The Section has a number of activities coming up. Your 2010 Section election ballot will show up soon in the mail. Please take a few minutes to read the candidates' statements and vote. We have revised the Section bylaws to make them conform to changes initiated by the ACS, mainly the adoption of the "Student Member" category, and you are being asked to vote for their approval. The complete Section Bylaws, with the changes are on the Section web site ([www.calacs.org](http://www.calacs.org)). Many changes were made, some simple and some more substantial. The authority of the Board of Directors is made more definitive, and the ways vacancies in positions are filled made simpler.

The Board of Trustees are being given a little more latitude in the investments they can make on the Section's behalf, after their investment plan is approved by the Board of Directors. Please feel free to ask for clarification on anything concerning the changes by sending an e-mail to the Section office ([office@calacs.org](mailto:office@calacs.org)) with Bylaw Question in the subject line. We will respond as quickly as possible to your request.

Please also vote in the ACS election when you receive your national ballot.

Consider sending in California Section dues when you receive your ACS dues statement. Local section dues are a voluntary contribution, and we use the dues for activities the members generally support. Your contributions help the Section provide for these activities, and allow us to expand our level of support at times when important things like public education funds are being lowered.

Finally, consider coming to a Section meeting. We have several meetings, including the Subsection meeting in Chico in September and the Lang and Showalter demonstrations in October to entice you into enjoying an outing and meeting fellow chemists and engineers.



## *California and Santa Clara Valley Sections October Meetings celebrating National Chemistry Week*

### *Abstract:*

During National Chemistry Week, the California and Santa Clara Valley Sections are thrilled to sponsor two of the most enjoyable chemical demonstration impresarios – Marv Lang and Don Showalter – at eight events around the Bay from October 17-23, 2010. In one of the most colorful and exciting performances you are likely to see, they will demonstrate many chemical principles to both excite interest in chemistry and to assist in learning. Targeted for a broad audience, this is an unique opportunity and one you won't want to miss. Details are on our websites at [www.calacs.org](http://www.calacs.org) and [www.scvacs.org](http://www.scvacs.org). There is no charge to attend, but space is limited, so please make a reservation for your preferred location with the California Section office at (510) 351-9922.

### *Biographies:*

Drs. C. Marvin Lang and Donald Showalter have spent their careers actively promoting the use of chemical demonstrations to excite students, teachers, and the general public, and to teach chemical principles at all levels of science education. They have presented over 500 chemical demonstrations and teacher workshops worldwide, at venues as varied as Walt Disney World's EPCOT Center, Disneyland, the U.S. Congress, the Smithsonian Museum of American History, the Great Lakes Science Museum in Cleveland, Ohio, the Kamehameha Schools in Hawaii, Oxford University in England, and Helsinki University in Finland, to name just a few. They have maintained their popularity because they are energetic showmen and creative in their approach, and their emphasis is that chemistry is fun.

Both Marv and Don are winners of the ACS Helen Free Award for Public Outreach - Marv in 1997, and Don in 2006. Marv has also been honored with the Harry and Carol Mosher Award from the Santa Clara Valley local section in 2002, and as an ACS Fellow (2010), and has been a local section Councilor for over 20 years and served as a National ACS Director. Don is still recognized and remembered as

the chemical demonstrator opposite the show host, Nobel Prize winner Roald Hoffman, in the 26-episode PBS series, "The World of Chemistry," that aired between 1987 and 1989, that is still used as a part of high school chemistry curricula around the country. Drs. Lang and Showalter have spent the large majority of their teaching careers at the University of Wisconsin - Stevens Point, where Marv joined the faculty in 1964 and Don in 1971. They have individually won a number of prestigious teaching awards from that university.

Dr. Lang received his Ph.D. in Physical Chemistry from the University of Wyoming at Laramie, after a M.S. in chemistry from the University of Wisconsin - Madison, and a B.S. in chemistry and mathematics from Elmhurst College.

Dr. Showalter spent a year as a post-doctoral fellow at the Oregon State University Radiation Center, after receiving his Ph.D. in inorganic and radiochemistry from the University of Kentucky, and a B.S. degree with emphasis on chemistry and math from Eastern Kentucky University.



# REPORT FROM THE ACS NATIONAL MEETING Boston, MA, August 22-26, 2010

## Highlights

Fall ACS National meetings have tended to be larger than spring meetings, and one would have expected that to be the case this year, since Boston is one of the most popular venues. However, that was not the case this year, because the spring meeting was held in San Francisco, THE most popular National meeting venue. Still the combined attendance of 18,093 in SF and 14,059 in Boston is almost sure to have set a record for total yearly attendance at National ACS meetings, even with a continuing depressed economy.

Another comparison between the two National meetings this year has to do with weather. It was absolutely beautiful in SF in March, but the cool and foggy summer here was expected to be in sharp contrast with the hot and muggy weather that the East Coast has been experiencing this summer. However, unless one arrived a few days early or stayed late in Boston, ACS members were greeted with unseasonal rainy, windy weather throughout the meeting, from Sunday morning through Wednesday evening.

The overall theme of the Boston meeting was "Chemistry for Preventing and Combating Disease." There were over 160 sessions across the various ACS Divisions and Presidential plenary events at the meeting related to this theme, including a Sunday afternoon plenary session on "Impact of Science and Technology on the Future of Global Healthcare." "Sustainability" was an ongoing meeting topic, and there was an expert forum on "Climate Change Science and Consequences," as well as a full day, last minute symposium on the Deepwater oil spill in the Gulf of Mexico. As always, this was a very full meeting, with many interesting, yet conflicting events that provided a scheduling challenge.

Abstracts of the papers and posters presented at the meeting are still archived at [www.acs.org](http://www.acs.org) and many of the plenary and symposium presentations were recorded and will be available with sequenced slides on

the website on September 24th. Meeting attendees are invited to view starting September 10th at [www.acs.org/meetingcontent](http://www.acs.org/meetingcontent).

The annual Chemluminary awards event to honor local sections and divisions for their public outreach activities was held on August 24th and the California local section was a finalist in two categories, Best Project Seed program and Best Women's Chemists Committee Event. While our section was not an award winner this year, many awards have been won at this event in the past, and Project Seed, which began as an idea from the California Section many years ago, continues to be a significant program for which our local section can be proud, primarily due to the long term energy and dedication of Elaine Yamaguchi and other volunteers.

The ACS Fellows awards program, to honor outstanding achievements and contributions to our science, profession, and service to the society, which began last year, had 192 new award recipients this year, including three who were nominated by the California local section: Bryan Balazs (Lawrence Livermore Laboratories), Attila Pavlath (USDA Western Regional Research Center), and Elaine Yamaguchi (Chevron).

Data from the ACS Career Fair at the Boston meeting continues to reflect a challenging, but possibly improving employment situation. Numbers reported by the Committee on Economic and Professional Affairs (CEPA) comparing the fall 2008 meeting in Philadelphia, the spring 2009 meeting in Salt Lake City, the Fall 2009 DC meeting, the Spring 2010 SF meeting, and the Boston meeting for key indicators respectively are: Employers (80, 32, 38, 40, 68), Positions (488, 176, 309, 116, 484), Job seekers (1024, 504, 787, 1018, 1066). There were 38 career related workshops offered within the Career Services area of the Boston meeting.

Another potential indication of some economic optimism was the larger number of exhibitors in Boston vs San Francisco with 329 exhibiting companies vs 257 and 451 booths vs 387, respectively. The total of 56 first time exhibitors set a record.

*(Continued on page 11)*

## *Report on the California Section-WCC Summer Family Event on August 28*

It was a typical cool foggy morning as 34 chemists, their families and friends gathered in front of the California Academy of Sciences in Golden Gate Park. The Saturday event at the end of August was an opportunity to see the new building and its exhibits beckoned through the Tyrannosaurus rex skeleton at the entrance. After an introductory talk we split off in many directions, to grab tickets to the Planetarium, line up for the 3 story Rainforest, dive downstairs to the Aquarium and upstairs to explore the Extreme

Mammals exhibits and the Living Roof. Lunch was available from the excellent Academy Café with its multicultural menu.

Although the Academy has no specific chemistry exhibit, there are certainly displays to catch the attention of a chemist. On the main floor containing the Kimball Natural History museum, the Climate Change exhibit includes atmospheric chemistry. The Rainforest and Islands of Evolution highlight unique adaptations; poison dart frogs in the Costa Rica section of the rainforest and princess flowers in Madagascar are subjects of natural product research. The current Planetarium show "Journey to the Stars" discusses the solar generation of elements. Downstairs in the Steinhart Aquarium venomous fish in the Philippine coral reef generate more interesting molecules. Behind the scenes there is a laboratory for water quality analysis, including adjusting incoming cold Pacific ocean water for the gigantic tropical coral reef tank, and the many other display, quarantine and research tanks. The Living Roof has weather stations whose data feeds back into the build-

ing for temperature control, automatically opening skylights as needed. Seek out a friendly volunteer docent in an orange labcoat for more information on the exhibits.

The Academy of Sciences has a large research division with 12 departments performing original research. The curators are not involved in the public floor, but they do give lectures and describe their projects on the Academy research website: <http://research.calacademy.org/>. Field sites in Africa, Asia and the Americas provide samples for study. The Center for Comparative Genomics is the newest department and provides state of the art genomic analysis to augment traditional morphological determination of species. The Anthropology department is even involved in the latest examination of Australopithecus skeletons, and you can see a replica of Lucy's skeleton in African Hall.

The California Academy of Sciences has free events, lectures and low-cost "Nightlife" programs every Thursday evening until 10. This is the second visit sponsored by the California section Women Chemists Committee this year, following the March ACS Presidential Outreach event. Members are encouraged to visit on their own or to consider the Academy for future section meetings.

### *Cal Science & Engineering Festival*

This free event will take place at UC Berkeley on Spieker Plaza (located next to Haas Pavilion) on Saturday, October 23 from 10am to 2pm. California Section will be presenting the "Balazs Magic Show"

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### *WCC October Meeting*

Saturday October 30 at Mills College, with Cheryl Martin of KPCB as speaker. Details will be posted to the website.

Trudy Lionel



## *ELK-N-ACS*

Evaldo Kothny

### *CARL AUER (II)*

Carl Auer had a constant interest in new elements and their applications all his life. From what is known today, the abundance of the rare elements is as follows: The most abundant, 1090 ppm, are Y, Ce, La, Nd, and Th. Next, at 2-7 ppm, are Pr, Sm, Gd, Dy, and Sc. Rare, at 1-3 ppm, are Eu, Ho, Yb, and Er and very rare, at less than 1 ppm are Tm, Lu, and Tb.

After his discovery in 1885 of Praseodymium and Neodymium, he secured the help of entrepreneur and financier Koppel and founded in 1892 the Treibach Industry, DEGEA (German Gas Light Co) and the Auer Society. In 1898 he invented the Osmium wired electrical lamp. Since Osmium was too expensive and in short supply for this application, nevertheless it was the basis of the tungsten wired light bulb. Osmium has the second highest melting point of a metal, i.e., 2700.°C, and tungsten melts at 3400.°C.

The transformation of fuel into light of the gas mantle can be analyzed. Compared with a tungsten wired light bulb, the light output of a gas mantle is only half of that, however, since the conversion of fuel to electricity in a power plant is nearly 50%, the light output per net energy consumed in a light bulb is about identical to that of a gas mantle. Electric carbon filament incandescent lamps have a conversion efficiency 4 to 6 times lower than those wired with tungsten, whereas fluorescent lighting is between 3 to 4 times more efficient.

In 1904 Carl Auer developed a practical flint, called Auermetall, a sparking alloy of Ce, La and other rare metals with 7% Fe, which is still used today in cigarette and gas lighters.

The Osram company was created in 1906 after experimentation with tungsten in replacement of Osmium. The name Osram implies a combination of a prefix of OS from Osmium and a suffix RAM from Wolfram.

In 1907, Auer separated the scarce element Lutetium. One year after, in 1908, he was

the first in isolating and purifying Ytterbium and Lutetium.

The name Osram appeared in a company name and in advertisements after 1919. In 1920, the Auer Society combined their lamp production with AEG and Siemens. The availability of electricity after 1920 favored the tungsten light bulbs and sales of Welsbach mantles had a sharp decline.

Auer died in 1929, and a few years after, in 1934, the Auer Society merged with Degussa. In 1935 Osram developed the luminescent (neon) light, which is based on a high voltage discharge through low pressure gas.

A subsidiary of the Auer Society, their Oranienburg plant built in 1926 near Berlin, produced specialty colored glass which included rare element oxides and after 1938 high purity uranium. At the close of WWII, the Oranienburg plant was dismantled and their equipment went to Russia.

The Welsbach company made progress in the application of rare elements in the dawning of the electronics, such as Er for fiber optics, La for vacuum getters, i.e., in electronic amplifying tubes, Tb in laser technology, Sm for strong permanent magnets, Dy in control rods for atomic powerplants, Eu for red TV phosphors, arc lightning, X-ray phosphors, neutron absorbers, catalysts, alloys, microwave filters, specialty glasses, i.e., the Pr and Nd glass for UV and yellow absorbing lenses, and especially for welding goggles. Other characteristics of rare elements: Sc, Y and La are diamagnetic and all others are paramagnetic elements. The sulfides are highly colored. Cerium behaves like a transition hybrid between La and Th and the dioxide has found a wide application as a polishing abrasive superior to ferric oxide. Gd is the only ferromagnetic element of the series.

In 1958 the Auer Society merged with Mine Safety Appliances of the US. and became a limited corporation in 1960. After 1978, Siemens was the sole Osram proprietor. Osram is today the producer of UV water disinfecting systems and since 1985 was the first manufacturer of the popular electronic ballast fluorescent household light bulbs and of LED (light emitting diodes).





*A Chemist's  
Conundrum:  
The Problems and  
Chemistry of  
Emerging Con-  
taminants (Part 3)*

Bill Motzer

In Part 1 (June 2010 Vortex), I discussed the definition of an emerging chemical contaminant (ECC) and also the history and characteristics of older ECCs. In Part 2 (September 2010 Vortex) I described how a chemical or class of chemicals may be designated as an EEC, and reviewed some “newer” ECCs. There are many ECCs currently under consideration by researchers and regulatory agencies, including endocrine disrupting compounds (EDCs; also known as endocrine active substances or EASs). Many pesticides are included in this research. However, there are other potential ECCs that are presently “under the radar” and these are discussed below.

#### PLATINUM GROUP METALS

The platinum group metals (PGMs) belong to six metallic elements clustered together in the periodic table. These are all transition metals, lying in the d-block (groups 8, 9, and 10, periods 5 and 6). The six PGMs are ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), and platinum (Pt) ( $Z = 44, 45, \text{ and } 46; 76, 77, \text{ and } 78$ , respectively). They have similar physical and chemical properties, and tend to occur together in the same mineral deposits.

Natural (geogenic) sources include magmatic deposits such as the Stillwater ultramafic complex in Montana, and the Merensky Reef of the Bushveld Complex in South Africa. These deposits are commonly known as basic layered intrusions. Minor amounts of PGMs may also occur with olivine gabbros and associated ultramafic rocks containing chromite such as those in the California Coast Ranges. Other sources include placer deposits (e.g., Columbia; Ontario, Canada; and the Ural Mountains in Russia) and as a bi-product of nickel sulfide mining such as the Sudbury District in Canada.

Anthropogenic Sources: Some PGMs (Ru, Rh, and Pd) are produced as fission products in nuclear reactors and as the demand for PGMs increases, these are being considered as possible alternative sources. However, the current major environmental source is from automobile catalytic converters. In the U.S., beginning in 1975, PGMs (largely as Pt-Pd-Rh alloys) were required in three-way catalytic converters to reduce nitrogen oxides to nitrogen and water, oxidize carbon monoxide to carbon dioxide, and oxidize harmful hydrocarbons. Since 1993, all new cars sold in the EU have been required to be fitted with catalytic converters. By 2005, there were an estimated 500 million vehicles worldwide with catalytic converters. Surface abrasion of the catalyst during automobile operation results in the environmental spread of PGMs, largely Pt, Pd, and Rh. PGM emission rates are dependent on the vehicle's speed and total distance driven. One study found that new catalytic converters emitted Pt, Pd, and Rh at 100, 250, and 50 ng/km, respectively; but after the vehicle had been driven 30,000 km, the released amount dropped to 6 to 8 ng/km for Pt, 12 to 16 ng/km for Pd, and 3 to 12 ng/km for Rh.

PGM environmental contamination from catalytic converters has become a concern largely with European Union, Australian, and Chinese scientists. Very little research on PGM's potential impact to groundwater has been conducted in the U.S. or is of current concern by regulators. Except for a drinking water taste and odor threshold of 12  $\mu\text{g/L}$  for osmium tetroxide (an x-ray contrast agent), there are no current PGM maximum contaminant levels (MCLs). The classical notion that PGMs are insoluble has been replaced by recent experimental data showing that some PGMs can become mobilized upon weathering, particularly when acted on by humic and fulvic acids in soil organic material. These are now accumulating in urban runoff and deposited sediment. Therefore, the potential exists for PGMs to impact groundwater resources, particularly in urban and suburban areas. Water managers

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may wish to become proactive and request inclusion of PGMs on an annual basis for groundwater screening purposes.

## PRIONS

Prions are considered to be single, misfolded cell-surface proteins, lacking detectable nucleic acid, which become "infectious" by causing normal proteins to also misfold. The term was coined for a proteinaceous infectious particle by Nobel Prize winner Dr. Stanley B. Prusiner for his work at UCSF. Prion diseases are believed to belong to a variety of rare and progressive neuro degenerative disorders also known as amyloid diseases because they form amyloids or fibrils within a particular organ. Several degenerative diseases such as Alzheimer's, Parkinson, and type II diabetes fall within this family. However, these have not been considered as "infectious". Other human and animal prion diseases such as Creutzfeldt Jakob disease (CJD) and Bovine Spongiform Encephalopathy (BSE or "mad cow" disease) are considered to be infectious.

Prion diseases affecting both humans and animals are termed transmissible spongiform encephalopathies (TSEs); these are distinguished by long incubation periods, characteristic spongiform changes (formation of large vacuoles or holes) in tissues associated with neuronal loss (particularly the brain), and a failure to induce an inflammatory response. They have long incubation periods (2 to 8 years and even longer), and are resistant to procedures which normally inactivate viruses (i.e., heat and disinfectants). There are no known successful treatments or cures for prevention, and even detection is difficult. Human prion diseases are rather rare but animal prion diseases are more common. A TSE of considerable concern is Chronic Wasting Disease (CWD), a prion disease affecting captive and free ranging deer and elk in the Rocky Mountain (and surrounding) states (Colorado, Wyoming, New Mexico, Utah, South Dakota, Nebraska, and Kansas) and Canada (Manitoba and Saskatchewan). Sources for CWS contagion have been identified in infected animal secretions and excretions and in carcasses.

Potential for Environmental Contamination. The problem associated with TSEs is twofold: can prions that produce such diseases remain infectious after they leave the host and can they be transported in the environment (i.e., transport from the infected animal to soil, surface and groundwater)?

Soil, Minerals, and Organic Matter: Prions are believed to enter the environment through shedding of tissues including excretions of urine and feces and host mortalities (carcass). Released prions strongly bind to soil particularly those that are clay (the smectites)- and organic (humic)-rich. This is because prion particles are charged and soils and minerals such as quartz with high cation exchange capacities tend to attract prions. Although microbial and fungal decay of proteins in soil occurs, tightly bound prions may remain infectious for years. Unlike bacteria and viruses, prions do not multiply but concentrations in soil may increase from the addition of continual input from infected animals, resulting in further transmission to uninfected grazing animals.

Experiments with manganese oxides (e.g.,  $MnO_2$ ) suggest that soils with high  $MnO_2$  will abiotically degrade prion proteins. Copper may also have a role in that it tends to bind to the prion particle. Therefore, soils that have elevated copper tend to concentrate prions. Soil pH may also play a role in that experiments show that more non-infectious fibrils tend to form at a pH of 3 whereas infectious fibrils will increase when the pH is raised to 7.0.

Water: Experiments involving BSE and scrapie prion decay in aquatic environments suggests that prions are normally hydrophobic although there are some indications that they become hydrophilic in urine. In water therefore, they readily bind or sorb to suspended particulates, particularly clays. Subsurface transport may be by both horizontal and vertical colloidal transport, although clay aquitards could be an effective transport barrier. Research in groundwater transport and fate is only now beginning and further research and investigations are required.



## *Family Science Night*

What has now become a yearly traditional event, the members of the California Section with friends offer chemistry and science in a captivating and entertaining format for school children.

This year it is at the Claremont Middle School at 5750 College Avenue in Oakland, across from the Rockridge BART station.

Tuesday, Oct. 26, 2010

The time will be 6 pm to 8 pm. As more information becomes available, it will be placed on the website, [www.calacs.org](http://www.calacs.org).

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 UC Berkeley Extension



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*Report from the Council Meeting and other Society governance activities*

California Local Section Councilors, our Board member, and our former ACS President were very active in Boston in representing the section at numerous governance functions including the Board and Chemistry and Public Affairs ( Marinda Wu) and ACS committees: Committee on Committees ( Bryan Balazs, newly elected by vote of Council at the spring meeting), Community Activities (Sheila Kanodia), Economic and Professional Affairs (Attila Pavlath), Environmental Improvement (Eileen Nottoli), Local Section Activities (Lee Latimer - Chair), Membership Affairs (Mark Frishberg), and Project Seed (Elaine Yamaguchi). Councilor Alex Madonik, who is active with the Sustainability Engagement Event (SEE) Action Team, and Alternate Councilor, Jim Postma also attended.

After a heated, and at times raucous, Council meeting in San Francisco, the Boston Council meeting was relatively reserved, with few controversial issues on the agenda. The

only petition up for vote involved allowing other methods than paper ballots for recorded votes at Council, and it passed easily, as did the Committee on Committees' review that recommended the continuation of the Committee on Science.

The only Council item that brought about any controversy was a special discussion topic on whether to move the Council meeting at National meetings from its traditional Wednesday morning time slot, to Tuesday morning. A pre-meeting survey of Councilors had shown the majority to favor a move to Tuesday (fewer days away from work, lower reimbursement and out-of-pocket cost, not missing start of school for academics in the fall vs providing enough time to get committee work done, concern about forcing committee work into week prior to National meeting, more conflict with some of the more popular symposia days), however after about 40 minutes of debate on the floor of Council a non-binding straw poll showed 128 Councilors for the move, 225 opposed, and

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Elaine Yamzguchi at Project SEED Chemluminary Poster session at the Boston Meeting

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56 undecided. The overall subject will carry over and be a subject decided by the Council Policy Committee and the Board of Directors by Spring 2011.

The Local Section Activities Committee has funded 47 new innovative program grants totaling \$96,000 so far this year. The new grant program, named "Bridging the Gap," that was initiated to provide up to \$250 to help support local section events to help attract more student members will be renewed for 2011, and expanded to cover programs associated with the International Year of Chemistry.

The Board-Presidential Task Force on Society Services and Associated Dues Pricing Models continued to seek input on topics related to ACS dues, member categories, and member benefits with the overall goals of making ACS membership more valuable to current members and more attractive to non-members. While overall ACS membership continues to hold around 161,000, there continues to be volatility among our younger members, who are more likely to drop their membership within their first five years.

*Looking ahead to Anaheim - March 27-31, 2011*

The overall meeting theme will be "Chemistry of Natural Resources."

The advance registration fee for members for the ACS National meetings in 2011 (fall in Denver, August 28-September 1, with overall theme of "Chemistry of Air, Space, and Water") will be \$355.

#### **News you might use**

For ACS members seeking employment who were not able to attend a National meeting, ACS Career Services will hold a Virtual Career Fair on-line on November 2nd and 3rd. Look for more information at ([www.acs.org/careers](http://www.acs.org/careers)) and C&EN this fall. Career forums can be accessed through this website the 2nd Thursday of each month, and a webinar of interest to industrial members within small businesses continues to be scheduled for the 4th Thursday of each month.

The Chemistry Ambassadors program launched by the Office of Public Affairs to

assist ACS members who are interested in public outreach continues to pick up steam. Tools, tips, and other resources can be found at [www.acs.org/chemistryambassadors](http://www.acs.org/chemistryambassadors).

Efforts are now in high gear to prepare for the United Nations designated International Year of Chemistry in 2011. To keep tabs of the many ACS activities that will be developed in coordination with this event, go to [IYC2011@acs.org](mailto:IYC2011@acs.org). The Committee on Community Activities will be encouraging members to support the quarterly outreach themes of environment, energy, materials, and health.

The theme for NCW to be held Oct. 17-23 is "Behind the Scenes Chemistry." During the Boston meeting, members of the California Section were able to meet with Marvin Lang, Professor Emeritus from the University of Wisconsin-Stevens Point, who, with Don Showalter, are known as one of the premier teams performing chemical demonstrations around the country of interest to all ages. CAL-ACS has scheduled Marv and Don to perform a series of demonstration programs around our Section and the neighboring Santa Clara Valley Section throughout the week of NCW. Check the CAL-ACS and SCV-ACS websites for announcements regarding dates and venues.

The ACS Member's Network has been upgraded this summer to make it more inclusive and effective by changing its enrollment approach from an opt-in to an opt-out system and putting all ACS members into the network to start. Please be aware that CAL Section Councilor and Chair-Elect, Bryan Balazs has set up a California Section group within this network.

The 2012 International Chemistry Olympiad will be held in the US after many years absence. This will be the 44th IChO and will be held at the Univ. of Maryland, College Park campus, with Caltech's Ahmed Zewail (1999 Nobel Laureate in Chemistry) as President of this IChO. California Section Councilor Bryan Balazs is chair of the organizing committee. The committee for preparing the exams for 2012 has been established and Bryan is busy pulling together the Planning Committee, which handles the logistics,

(Continued from page 14)

## October Historical Events In Chemistry

Leopold May

October 1, 1867 One hundred years ago in 1910, Wilder D. Bancroft served as President of the American Chemical Society. He made the first systematic study of oxidation cells and did research on heterogeneous equilibria, emulsions, and theory of dyeing. In 1896, he founded the Journal of Physical Chemistry and served as Editor until 1932.

October 5, 1872 Emil Votocek, who was born on this date, was a researcher in sugars. He introduced the concept of epimerism and was a chemist-composer

October 7, 1885 One hundred and twenty-five years ago, Niels Bohr was born. In 1913, he proposed the "solar system" model of atom based upon Planck's quantum law and received the Nobel Prize in Physics in 1922 for his services in the investigation of the structure of atoms and of the radiation emanating from them.

October 8, 1917 Rodney R. Porter, who was born on this date, researched the structure of antibodies. In 1972, he shared the Nobel Prize in Physiology or Medicine with Gerald M. Edelman for their discoveries concerning the chemical structure of antibodies.

October 12, 1865 Arthur Harden, a researcher on enzymes and fermentation, was born on this date. He also demonstrated the structure of zymase. In 1929, he shared the Nobel Prize in Chemistry with Hans Euler-Chelpin for their investigations on the fermentation of sugar and fermentative enzymes.

October 14, 1840 Friederich W. G. Kohlrausch, was a researcher on electrical

conductivity, dilution of strong electrolytes and conductivity (Kohlrausch's equation). He was born on this day.

October 18, 1799 Christian F. Schönbein was born on this date. He discovered ozone in 1840 and collodion in 1846 and did research on hydrogen peroxide and gun-cotton or cellulose nitrate.

October 20, 1891 Seventy-five years ago in 1935, James Chadwick received the Nobel Prize (1935) for the discovery of the neutron, which he discovered in 1932.

October 21, 1660 Three hundred and fifty years ago on this date, Georg E. Stahl was born. He was a researcher on oxidation and reduction and prepared glacial acetic acid. Johann J. Becher and he were responsible for theory of phlogiston

October 23, Any Year Mole Day, 6.02 a.m. through 6.02 p.m. (Mole time); Mole Moment: 50.453 s after 6.42 p.m.

October 27, 1894 John E. Lennard-Jones, who was born on this date, was a researcher in surface chemistry, chemistry of carbon, liquid structure, and interatomic forces.

October 31, 1835 One hundred and seventy-five years ago, Adolf von Baeyer (Johann Friedrich Wilhelm Adolf Von Baeyer) was born. He was a researcher on indigo, evolved strain theory of carbon rings, prepared acetylene, and discovered barbituric acid in 1863. In 1905, he was awarded the Nobel Prize in Chemistry in recognition of his services in the advancement of organic chemistry and the chemical industry, through his work on organic dyes and hydroaromatic compounds.

For more historical facts on chemistry, visit Dr. May's website at <http://faculty.cua.edu/may/ChemistryCalendar.html>



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*(Continued from page 12)*

meals, housing, tours, meeting venues, cultural issues, and the many other aspects of such an international endeavor. At the 2010 Olympiad, the US had its best showing in many years, winning two gold medals, two silver medals, and one bronze.

### *Interesting Statistics*

The ACS Scholars Program that offers direct financial assistance to students from groups who have been traditionally underrepresented in the chemical enterprise celebrated its 15th Anniversary. To date, over three million dollars has been donated to fund this program, with 2395 scholars supported, many who have gone on to achieve higher degrees and positions, including 70 Ph.D.'s, 12 faculty, and 5 MD/Ph.D.'s.

Project Seed had 451 students participating this year, 69 of whom presented posters during Sci-Mix at the Boston ACS meeting.

As of July 2010, there were 12,815 ACS Student Members.

The Committee on Professional Training, which will celebrate its 75th anniversary at the Anaheim ACS National meeting, reports that there are now 663 ACS accredited Bachelor's degree granting programs in the US. Of chemistry faculty in the US, 68% are tenured and 22% are women.

Mark Frishberg, CAL-ACS Councilor

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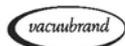
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