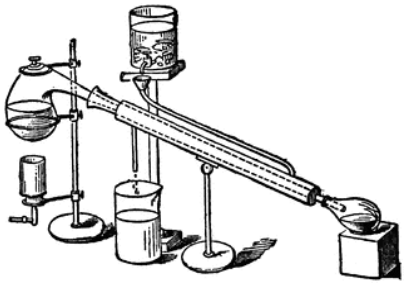
SOUTHWEST RETORT



SIXTY-SIXTH YEAR **MAY 2014**

Published for the advancement of
Chemists, Chemical Engineers
and Chemistry in this area

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EMPLOYMENT CLEARING HOUSE

Job applicants should send name, email, and phone, along with type of position and geographical area desired; employers may contact job applicants directly. If you have an opening, send your listing, including contact info for your company, to retort@acsdfw.org. Deadlines are the 7th of each month.

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Compensation:
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Job ID: JKUSA-20131202

Job Type: Full-time **Location:** Plano

Job Description:
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Job Requirements:
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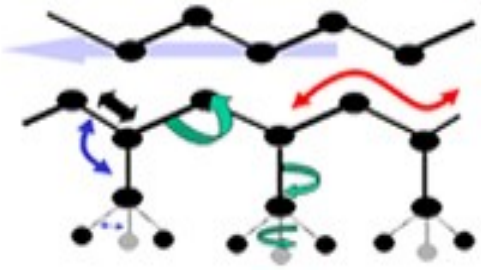

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FIFTY YEARS AGO IN THE SOUTHWEST RETORT

Letters of Intent for the ACS Southwest Regional ACS Meeting to be held in Shreveport, LA, Dec. 3-5 are due on June 15. A 200 word abstract is due Aug. 15.

The ACS tour speaker for May is **Professor Harry H. Sisler**, the chairman of the chemistry department at the University of Florida. His tour topics are "The Chloramination Reaction in the Synthesis of New Nitrogen-Phosphorus Compounds" and "New Syntheses of Aluminum Compounds and Phosphorus Compounds by Hydrazinolysis and Hydrazination Reactions."

Professor Leon O. (Tom) Morgan of the University of Texas has been appointed associate editor of *The Journal of Physical Chemistry*. **Professor W. A. Noyes, Jr.** attended an executive committee meeting of IUPAC in Switzerland in March. **Welch Professor M. J. S. Dewar** was a Philips Visiting Lecturer at Haverford College in Pennsylvania. He was also an invited speaker in April at the annual meeting of The Chemical Society in Birmingham, England. Individuals from UT attending the ACS National Spring Meeting in Philadelphia include **R. C. Anderson, R. Pettit, G. W. Watt, G. J. Fonken, J. J. Lagowski, L. F. Hatch, N. L. Bauld, W. C. Gardiner, D. S. Klett,** and **J. P. Schroeder**.

The Permian Basin ACS Section reports that Sul Ross set a record for chemistry graduates. Fifteen students will graduate with chemistry degrees this year. Seven will receive teaching certificates and plan to teach high school science. Five have accepted fellowships in graduate schools, one will enter medical school, and two plan to accept positions in the chemical industry.

The Ark-La-Tex ACS Section reports that Centenary College will graduate five chemistry majors in May. All have plans for graduate work. **Ben Condray** from East Texas Baptist College has been awarded a fellowship for the summer by Baylor University to continue work toward his Ph.D. degree.

The San Antonio ACS Section reports that the chemistry department at San Antonio College has recently received final approval to form an ACS student affiliate chapter. Visiting lecturers this past month at Trinity University were **Dr. E. E. Snell**, who discussed microbiological assays, and **Dr. Edward Teller**, whose topic was chemical education in universities.

The Texas A&M-Baylor ACS Section reports that **Dr. T. J. Bond** of Baylor is attending the annual meeting of the American Society for Experimental Biology. Also at Baylor, **Dr. Virgil Tweedie's** class in industrial chemistry made a field trip to Alcoa in Rockdale and also to the Texas A&M campus, where they toured the chemical engineering facilities, the computer center, and the nuclear reactor.

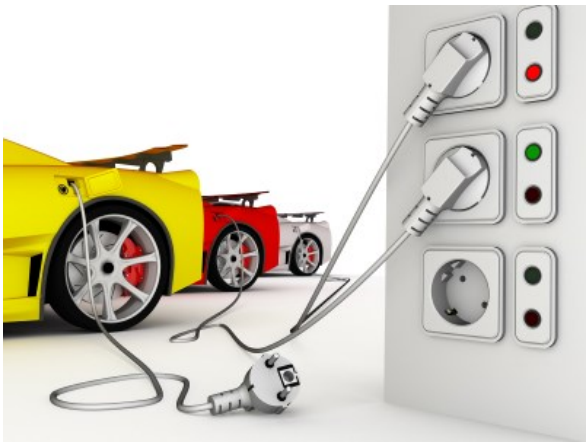
Contributed by

E. Thomas Strom

Is the Electric Automobile Practical?
by
John E. Spessard, PhD, PE

In this paper I am dealing with the 100% electrically powered automobile. I am not referring to the gasoline-electric hybrids such as the Toyota Prius and Chevrolet Volt. The electric automobile is practical providing that (1) you NEVER drive more than 80 miles a day, (2) you have a 240-volt charging station in your home and (3) that you live in a temperate climate where the temperature never goes below minus ten degrees C or above 30 degrees C (14 to 86F).

The battery pack is about half of the cost of an electric automobile and battery pack lifetime is a crucial component of the cost ofowning an electric car. The Nissan Leaf provides a battery warranty of eight years or 100,000 miles (whichever comes first). The actual battery pack life very much depends on how the car is driven and how the battery pack is recharged.



At the April 2013 National American Chemical Society Meeting in New Orleans, Mikael Cugnet in a presentation stated that, based upon experimental work, a battery pack could last between five and 20 years. Electric automobile manufacturers have claimed an electric car range of 100 or more miles. This depends upon the battery starting out fully charged and ending nearly fully drained. For longer battery life, the car should be driven between 20 and 80% charged. Going beyond these limits reduces battery life and increases the cost of owning an electric car. A loss of about 25% of the battery pack's capacity renders it worn out for automobiles.

Fast charging reduces battery life. An estimate is about one percent loss of capacity per year. A slow recharge is better. For example, if in eight years, natural depletion has reduced the battery pack's capacity by sixteen percent and fast charging has reduced capacity by another eight percent, the battery pack is at about 76 percent or about finished.

The owner of an electric automobile will need a 240-volt recharging requirement. Recharging a Nissan Leaf at 120-volt household current requires about 20 hours. A 240-volt system reduces the time to about four hours.

There are about 120,000 gasoline driven car "charging stations" in the United States. This compares with about 5,600 electric charging stations in the United States as of March 2013 with about 4,000 of these sta-

tions being located in California. With the shorter range of the electric car, if it were in wide use, many more charging stations would be needed. Hence, home charging capability is a must for most electric vehicle owners. Governmental planners have ignored that for a gasoline station to remain in business, the station depends on selling food, tobacco, beverages, etc. A pure electric car recharging station would need massive subsidies to stay in business. This cost passed on to the electric car drivers would probably be greater than the cost of the electricity.

What makes more sense is to use the existing service stations and have them sell interchangeable batteries. This is done in other countries. Batteries designs are standardized to where a battery can be changed out in about five minutes. This is about the time needed for a gasoline fill-up. The service station could recharge the depleted batteries at night or early morning when there is surplus electric generating capacity available.

The electric car operates best between minus ten degrees and 36 degrees C (14 to 86 degrees F). Below minus 10 degrees, the battery pack can't provide full power. Above 30 degrees, the battery pack loses energy. Nissan Leaf owners in Phoenix complained about unexpectedly short battery pack lives. (It gets above 30 degrees in Dallas also.) Liquid cooling or heating of the battery pack is an option that alleviates this problem. However, this feature significantly increases the cost of the battery pack. Also, in Minneapolis, the time to heat the liquid would mean a delay in starting a drive.

Since the battery pack is no longer useful for automobiles at 70 to 75% depletion, electric vehicle manufacturers are promoting "second life" uses for battery packs such as backup power for computers and medical equipment or electric grid storage. The latter could be used in conjunction with wind and solar power. If millions of such batteries were available, could all of them find uses?

The battery in the hybrids such as a Toyota Prius or Chevrolet Volt is a far different matter. This battery is smaller and cheaper. It also is designed to prevent overcharging which can reduce battery life. Like the Reader I have seen many Priuses on the road and I have talked with satisfied owners. I have seen only one Chevrolet Volt. I have seen the Leaf and a Mitsubishi all electric vehicle. I have not talked to any all electric vehicle owners.

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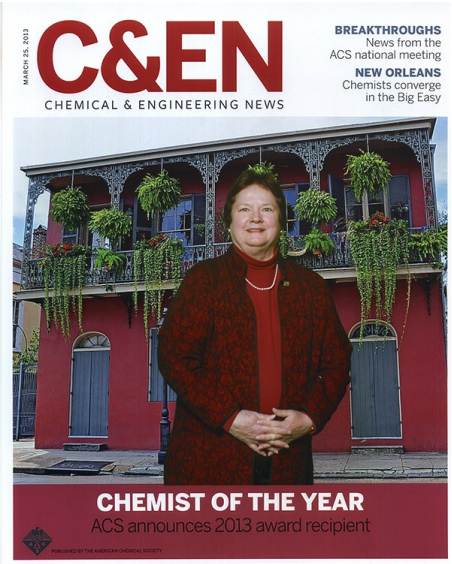
AN INTERVIEW WITH ACS PRESIDENT-ELECT DIANE GROB SCHMIDT

by E. Thomas Strom

It's hard to believe that this is my eleventh interview of an ACS President-Elect, but so it is. I have found these individuals to be very sharp people, who I am proud to have representing our members to the general public, and this is definitely the case with Dr. Diane Schmidt. Early at the Dallas ACS meeting I had had the chance to hear her, when she gave a very impressive talk to my new ACS Committee, the International Relations Committee. She then found time in her busy schedule to give me an interview later (Mar. 19) at the Dallas ACS National Meeting. This piece covers the main points of our discussion.



I started out with a challenging question based on a comment I had heard in the morning council meeting at the discussion session on improving the educational system. A councilor bemoaned the fact that the holder of the average master's degree in computer science starts out with as high a salary as a starting Ph.D. chemist, the average student with a master's degree in business starts out with a 50% higher salary than the student starting with a master's degree in chemistry, and the average MD makes several times the salary of the average Ph.D. His point and mine was that was when students bypass chemistry to go into these other fields, they seem to be making rational decisions. Dr. Schmidt replied that this was one way to look at it, but she pointed out that chemistry was the central science and an enabling science. She feels that chemistry comes to bear on many of these fields, and that she preferred to view chemistry as a continuum rather than as a group of silos. She went on to point out all the connections between chemistry and computer science, for example.

My next question dealt with how to deal with the increasingly negative view of chemistry held by the public. Of course, not any one ACS president can fix the problem in his/her term, but any ACS president needs to work on the solution. The discussion in council brought out that there has been an erosion in the knowledge of science in general and chemistry in particular in terms of science education. Dr. Schmidt felt that fuels the problem, because the public does not have sufficient understanding to know whether what is being said is factual or not. There are a number of drivers that impact each other—the need for share points on a TV newscast or the need to sell newspapers or magazines or the desire for hits on U-tube. We must

continue to educate and inform. These problems are issues for other scientific societies as well. By partnering with other societies, we can amplify the methods and the resources to combat the problems.

The issue with employment for chemists she has labeled jobs, jobs, jobs! The ACS can not create jobs, but the ACS can do advocacy---on the hill for funds for R&D, for education, for tax incentives for industry so that we are more competitive. Dr. Schmidt believes we need new models that go beyond the Bayh-Dole act to foster interactions among industry, academia, and newer entities. (The Bayh-Dole Act of 1980 permitted a university, small business, or non-profit to seek ownership of a patent for inventions discovered with funding from a government grant or contract. Previously any such inventions were the property of the government.) She plans to have a symposium at the Boston ACS National Meeting to look into that subject. It is particularly important to maximize the impact of small business, because everyone agrees that small business is where many of the new chemists' jobs will come from.

Dr. Schmidt is also planning a symposium titled "Nanotechnology: Delivering the Promise." Another symposium will deal with the issues of many members spending considerable time in their jobs overseas, i.e., they are effectively ex-pats. Yet another symposium will be concerned with the new American Association of Chemistry Teachers that ACS is organizing. Physics, math, etc., have national organizations of high school teachers in their areas, but chemistry has none. Consequently, ACS is filling a void.

Another issue that Dr. Schmidt thought was of high importance was that concerning scientific information. We have outstanding information services because of the ACS prestigious journals and the Chemical Abstracts service. In recent years ACS has been active in producing new journals to fill niche areas. It is a useful bridge to have these journals in emerging fields. I did ask Dr. Schmidt about the open access movement, because someone has to pay for the publication of journals. Under open access, who is it? Are we going back to the days of page charges? She responded that nothing is really free, so someone will have to pay the cost. Her final comment on this issue was, "We're on it. Stay tuned."

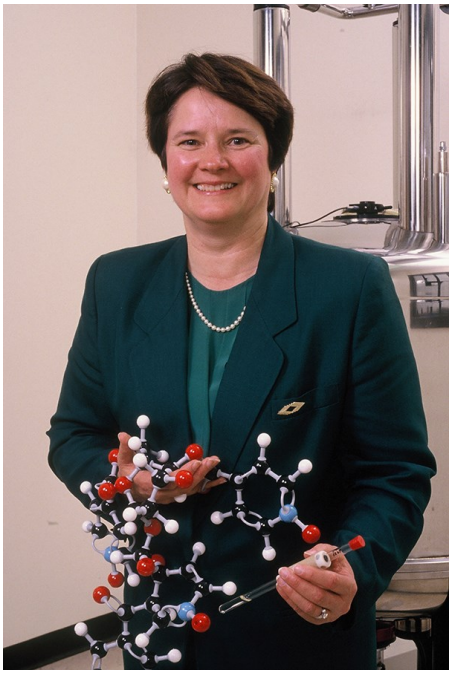
Of Dr. Schmidt's five focus areas in her campaign, the last I raised was advocacy. She said that a one-line summary of that would be encouraging a more favorable business climate. Along with that, we need a pipeline of educated citizens, whether they wind up in science or in other areas.

I raised a point with Dr. Schmidt that I have raised with other ACS presidents-elect. It comes from an interview I did with Norman Hackerman, past president of UT-Austin and Rice, about the time of his 90th birthday. Norman told me he was very unpopular with his fellow UT-Austin faculty, because he said there was absolutely no need for any further increase in the number of chemists. All that was needed were enough chemists to replace those who retired or died. Norman's point was that the huge advances in instrumentation made the present day chemist orders of magnitude more productive than his/her counterpart of 25 years earlier. Therefore, when I read these calls for training more people in the STEM disciplines, I **wonder** if there is a true need there. Dr. Schmidt replied that there is a task force looking at supply and demand, and she thinks they have not made their report yet. She does say that new problems are continually coming up, and the chemist has the expertise to handle those problems. For example, the problem of ensuring safe drinking water for developing countries is one that calls for the chemist's expertise.

Dr. Schmidt was elected to her position through the petition process. She had been one of the four candidates for president-elect voted on by the council at the 2013 spring meeting in New Orleans, but she didn't finish in the top two. Subsequently, she mounted a successful petition campaign to get on the ballot. Obviously she was right to do so, as the membership chose her as president-elect. I asked about the reasoning that went into her decision. She said that the vote among the four candidates was very close. It was something she wanted the opportunity to do, and the time was right for her to do so. The ACS constitution provides for more than one way to get on the ballot, so it validates that particular way of volunteering for service. Above all, ACS is a volunteer organization. Ultimately, the voters decide.

She finished our talk by saying that she is just beginning her three-year journey. She wants to inspire and innovate for the future. She believes that a 30+ year career in a major company with a global perspective, working in both basic and applied research, is something that she uniquely brings to the presidency at this time. There is a reset going on, as times have changed. It may be dramatic to say that we are at a crossroads, but we are at a turning point where what we do and how we do it is going to be critical to our success. She is delighted that she has the opportunity to lead the ACS at this important juncture.

I was grateful to once again have the opportunity to talk to the ACS president-elect, whose schedule is so crowded. What are my final impressions? I think that once again ACS is in good hands.



DFW SECTION OF THE ACS AWARD and OFFICER Nominations

Doherty and Schulz Awards

Call for Nominations: Deadline Extended

Nominations are invited for the 2014 Wilfred T. Doherty and Werner Schulz awards. Nomination forms are available online at acsdfw.org. This year's chair is Dr. Mihaela C. Stefan at UTD (972-883-6581; send nomination files to **mci071000@utdallas.edu**). Nominations are due by May 15. Each nomination should contain a cover letter highlighting the nominee's accomplishments; seconding letters may accompany nominations. Nominations remain active for five years but should be updated annually.

DFW Section Elections

Thinking of getting more involved with the ACS Local Section? We invite you to run for office!

Volunteers are elected to govern the DFW Local Section and interact with ACS National. Section officers join the Executive Committee (aka EC or ExCom) for the length of their terms. The DFW local section cannot carry out its mission of promoting chemistry and chemical professionals without the help of as many ACS members as possible. Serving the local section as an officer—or even as a candidate—is a great way to contribute to the community. A description of the duties of each of the open offices is available at the local section website:
http://acsdfw.org/officers_duties.php

The new terms begin on January 1.

Offices open:
Chair-elect 3 year term: chair-elect 2015; chair 2016; past chair 2017
Treasurer 2 year term: 2015-2016
Councilor 3 year term: 2015-2017
Alternate Councilor 3 year term: 2015-2017

To run for office please submit a 1/3 page biography, single-space typed, to the Secretary of the DFW Section, Trish Smith, at **trishsmithtx@gmail.com** as soon as possible, but not later than July 15, 2014.

47th ACS DFW

Meeting in Miniature
Texas Wesleyan University
McFadden Science Center

The 47th ACS DFW Meeting in Miniature was held at Texas Wesleyan University in Fort Worth on Saturday, April 26, 2014. There were 54 presentations by graduate and undergraduate students, with approximately 100 people in attendance at the meeting. Thanks to Dr. Phillip Pelphrey and the rest of the Texas Wesleyan Chemistry department for hosting the meeting. Also, thanks to our judges from academia, government, and industry for volunteering their time to support and evaluate our excellent DFW area students. The 48th Meeting in Miniature will be held at Austin College in Sherman in April 2015.

Section Chair Dr. Katie Walker presents awards

47th ACS DFW Meeting in Miniature Award Winners
Graduate Sessions

Physical/Inorganic 1 & 3 (Morning)
1st—Rebecca Weber, University of North Texas
2nd—Kyralyssa Hauger, Texas Christian University
Physical/Inorganic 2 & 4 (Morning)
1st—Zahra Bassampour, Southern Methodist University
2nd—Jiaqi Wang, University of North Texas
Physical/Inorganic 5 & 6 (Afternoon)
1st—Andrew Mahler, University of North Texas
2nd—Imalka Munaweera, University of Texas at Dallas
Organic/Biochem/Polymer 1 & 2 (Afternoon)
1st—Pradeep Budhathoki, Texas Christian University
2nd—David C. McLeod, Southern Methodist University

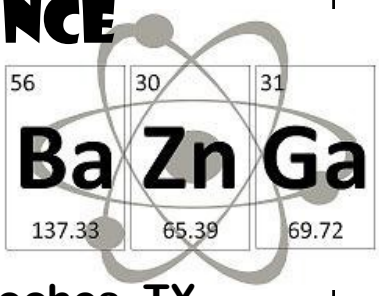
Undergraduate Sessions

Organic/Biochem/Polymer 1 & 2 (Morning)
1st—Cindy Nguyen, University of Texas at Dallas
2nd—Dalton Kim, Southern Methodist University
Physical/Inorganic 1 & 2 (Afternoon)
1st—Soo Hun Yoon, Abilene Christian University
2nd—Rawan Muhanna, University of Texas at Dallas

AWARD WINNERS and Katie Walker (center back), and Phillip Pelphrey of Texas Wesleyan (back right)

Kirby Drake, SWRM General Chair 2014

ACT2 BIENNIAL CONFERENCE



WHEN: Monday-Thursday, 23-26 June, 2014

WHERE: Stephen F Austin State University, Nacogdoches, TX

Cost: $275 (early bird pricing until May 15th) includes registration, all meals from Monday night through breakfast Thursday, and lodging in a dorm room from Monday night until Thursday. ($175 for registration and all meals without lodging if you don't want to stay in the dorms) ** Presenters save $25 off the above prices!

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https://sites.google.com/site/act2biennial

From the ACS Press Room

Key chocolate ingredients could help prevent obesity, diabetes

Oligomeric Cocoa Procyanidins Possess Enhanced Bioactivity Compared to Monomeric and Polymeric Cocoa Procyanidins for Preventing the Development of Obesity, Insulin Resistance, and Impaired Glucose Tolerance during High-Fat Feeding
Journal of Agricultural & Food Chemistry

Improved thinking. Decreased appetite. Lowered blood pressure. The potential health benefits of dark chocolate keep piling up, and scientists are now homing in on what ingredients in chocolate might help prevent obesity, as well as type-2 diabetes. They found that one particular type of antioxidant in cocoa prevented laboratory mice from gaining excess weight and lowered their blood sugar levels. The report appears in ACS' *Journal of Agricultural & Food Chemistry*.

Andrew P. Neilson and colleagues explain that cocoa, the basic ingredient of chocolate, is one of the most flavanol-rich foods around. That's good for chocolate lovers because previous research has shown that flavanols in other foods such as grapes and tea can help fight weight gain and type-2 diabetes. But not all flavanols, which are a type of antioxidant, are created equal. Cocoa has several different kinds of these compounds, so Neilson's team decided to tease them apart and test each individually for health benefits.

The scientists fed groups of mice different diets, including high-fat and low-fat diets, and high-fat diets supplemented with different kinds of flavanols. They found that adding one particular set of these compounds, known as oligomeric procyanidins (PCs), to the food made the biggest difference in keeping the mice's weight down if they were on high-fat diets. They also improved glucose tolerance, which could potentially help prevent type-2 diabetes. "Oligomeric PCs appear to possess the greatest antiobesity and antidiabetic bioactivities of the flavanols in cocoa, particularly at the low doses employed for the present study," the researchers state.

DFW Section
MAY MEETING and EVENTS

Strategy Café

Saturday, May 10, we will meet at UT Dallas, 9-11am, at a **Strategy Café** to brainstorm about improvements to the local section and discuss potential bylaws revisions. If you are interested in helping shape the future of the local section,
RSVP to **http://bit.ly/1jVgvrp**.

Social and Happy Hour

Join us for an **end of semester** celebration on Tuesday, May 20, from 6:30-8:00pm, at Angela's at the Crosswalk in Plano. There will be appetizers, drinks, and hanging out with your favorite ACS members! RSVP **http://bit.ly/1kDctm3**

DFW Section Officers Page

Letter from the Chair

Dear colleagues,

I hope your semester and spring are wrapping up nicely. Below are updates about some exciting events and grants within the local section.

We had 54 student presenters and about 100 in attendance at the 47th Meeting in Miniature on Saturday, April 26, at Texas Wesleyan University in Fort Worth. Thanks to the Texas Wesleyan Chemistry Department and all of the judging volunteers who made this event happen, and congratulations to the top student presenters! The local section provided 12 monetary awards (1st place = $100, 2nd place = $50) to outstanding student presenters at the graduate and undergraduate levels.

May will wrap up our spring with 2 events—a Social and a Strategy Cafe. On Saturday, May 10, we will meet at UT Dallas from 9-11am to have a Strategy Café to brainstorm about improvements to the local section and discuss potential bylaws revisions. If you are interested in helping shape the future of the local section, RSVP and attend! (RSVP **http://bit.ly/1jVgvrp**)

For our May meeting, join me for an end of semester celebration on Tuesday, May 20, from 6:30-8:00pm, at Angela's at the Crosswalk in Plano. There will be appetizers, drinks, and hanging out with your favorite ACS members! (RSVP **http://bit.ly/1kDctm3**)

I'm happy to announce that our local section recently received a $500 grant from the ACS Committee on Environmental Improvement. Dr. Bob Landolt (Texas Wesleyan, emeritus) will work with Danny Dunn and Connie Hendrickson to use this funding to support Sustainability programming at the Southwest Regional Meeting (SWRM) in Nov. 19-22. Funding will support a keynote speaker as well as a general session. Congrats to Bob and the local section!

See you in May!

Katie Walker
2014 Chair

SOUTHWEST REGIONAL MEETING 2014

Fort Worth, TX | November 19-22, 2014

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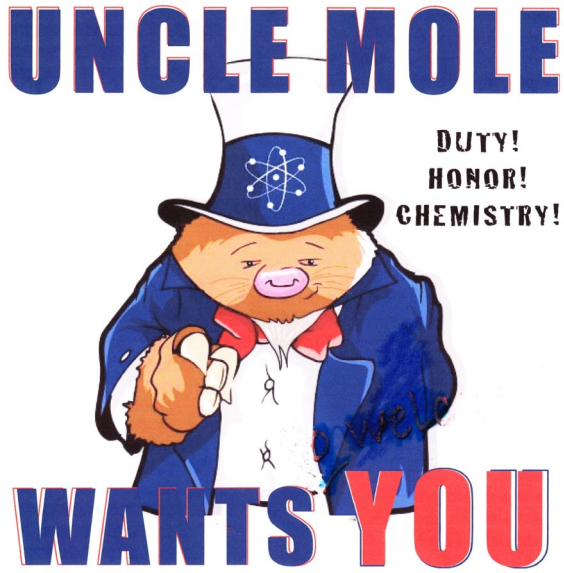
Now seeking potential SWRM '14 exhibitors and sponsors: Contact Exhibits Chair



To volunteer for the 2014 Southwest Regional ACS Meeting! SWRM 2014 will be held at the Fort Worth Renaissance Worthington Hotel, November 19-22, 2014.

From the ACS Press Room

Beer marinade could reduce levels of potentially harmful substances in grilled meats

Effect of Beer Marinades on Formation of Polycyclic Aromatic Hydrocarbons in Charcoal-Grilled Pork
Journal of Agricultural and Food Chemistry

The smells of summer — the sweet fragrance of newly opened flowers, the scent of freshly cut grass and the aroma of meats cooking on the backyard grill — will soon be upon us. Now, researchers are reporting that the very same beer that many people enjoy at backyard barbeques could, when used as a marinade, help reduce the formation of potentially harmful substances in grilled meats. The study appears in ACS' *Journal of Agricultural and Food Chemistry*.

I.M.P.L.V.O. Ferreira and colleagues explain that past studies have shown an association between consumption of grilled meats and a high incidence of colorectal cancer. Polycyclic aromatic hydrocarbons (PAHs) are substances that can form when meats are cooked at very high temperatures, like on a backyard grill. And high levels of PAHs, which are also in cigarette smoke and car exhaust, are associated with cancers in laboratory animals, although it's uncertain if that's true for people. Nevertheless, the European Union Commission Regulation has established the most suitable indicators for the occurrence and carcinogenic potency of PAHs in food and attributed maximum levels for these compounds in foods. Beer, wine or tea marinades can reduce the levels of some potential carcinogens in cooked meat, but little was known about how different beer marinades affect PAH levels, until now.

The researchers grilled samples of pork marinated for four hours in Pilsner beer, non-alcoholic Pilsner beer or a black beer ale, to well-done on a charcoal grill. Black beer had the strongest effect, reducing the levels of eight major PAHs by more than half compared with unmarinated pork. "Thus, the intake of beer marinated meat can be a suitable mitigation strategy," say the researchers.

The authors acknowledge funding from Universidade do Porto.

Around the Area

University of Texas at Dallas

Ruperto "Rain" Mariano, an undergraduate student working with Professor **Ken Balkus**, was awarded an NSF Graduate Research Fellowship. **Elizabeth "Liz" Rainbolt**, a graduate student working with Professor **Mihaela Stefan**, was awarded a Julia Williams Van Ness Merit Scholarship.

The **UTD Chemistry Student Association** was one of 56 ACS chapters to earn an Outstanding Chapter award and one of 74 chapters to be recognized as a Green Chapter for completing environmentally friendly activities.

UT Southwestern

The Department of Biochemistry at the University of Texas Southwestern Medical Center will be holding their **Excellence in Chemistry** symposium at 2:00 PM on May 20th. This year's symposium speakers will be **Ryan Shenvi** from The Scripps Research Institute (2:00 PM) and **Larry Overman** from UC-Irvine (4:00 PM). The symposium will take place in L4.176.

University of Arkansas

Publications

Katikaneni R, Ponnapakkam T, Matsushita O, Sakon J, Gensure R. Parathyroid hormone linked to a collagen binding domain (PTH-CBD) promotes hair growth in a mouse model of chemotherapy-induced alopecia in a dose-dependent man ner. ***Anticancer Drugs, in press***.

Katikaneni R, Ponnapakkam T, Matsushita O, Sakon J, Gensure R. Treatment and prevention of chemotherapy-induced alopecia with PTH-CBD, a collagen targeted parathyroid hormone analog, in a non-depilated mouse model. ***Anticancer Drugs 2591:30-8, 2014***.

On the Go

Joshua Sakon presented "Targeting mechanism of bacteria collagenase" at the 98th Annual Meeting of the Arkansas Academy of Science at Harding University, Searcy, AR, April 4-5. He also chaired the session Cell Molecular Biology at the meeting.

Suresh Kumar attended the Editorial Board meeting of the Journal of Biological Chemistry (the official Journal of the American Society of Biochemistry & Molecular Biology) in San Diego, CA, April 26-27.

Achievements

Suresh Kumar received the Fullbright Master Teacher Award on April 10, 2014.

Randy Espinal attended a business competition where he and his team won the competition. This was part of the graduate certificate in entrepreneurship program in which he participates.

University of Arkansas cont.

Faculty News

Rebekah G. Langston, an undergraduate in the Striegler lab, received a highly competitive 2-year NIH Postbaccalaureate Intramural Research Training Award to conduct research in Bethesda, MD and will relocate after graduation in May.

Also from the Striegler lab, undergraduate **Kailey A. Claunch** is a recipient of an Honors College research grant for spring, summer, and fall of 2014.

Undergraduate **Rebecca Simpson** received an Honorable Mention by the NSF Graduate Research Fellowship program. Programs were evaluated in April. The list of recipients and Honorable Mentions may be viewed at **http://www.fastlane.nsf.gov/grfp**.

Attention HS Chemistry Teachers

The ***East Texas Section*** of the ACS is offering a limited number of grants to High School Chemistry teachers in our area. We have two different grant programs:

1. High School Chemistry Program that will fund up to $500 for materials, chemicals or other resources for a chemistry-related project.

2. Chemistry Professional Meeting Support Program that will fund up to $500 for meeting registration or housing at a professional meeting sponsored by a chemical society, or by a science-related society.

To receive the support applications (electronic format only) please contact the grants program committee chair Dr. Bruce Hathaway (***brucehathaway@letu.edu***).

DFW Section

The DFW section has been awarded a Sustainability Minigrant by the ACS Committee on Environmental Improvement. Dr. **Bob Landolt** will work with **Danny Dunn** and **Connie Hendrickson** to use this funding to support Sustainability programming at the Southwest Regional Meeting (SWRM) in November. Funding will support a keynote speaker and a general session.

Sustainability addresses the major challenges of meeting society's energy needs now and in the future, feeding a growing population, and providing clean drinking water throughout the world. Chemists can have a vital role in each of these sustainability objectives.

University of Texas Arlington

The faculty awards ceremony on April 29 saw the following chemistry faculty honored: Welch Professor **Daniel Armstrong** became a member of the UTA Academy of Distinguished Scholars. The Distinguished Record of Research or Creative Activity award was given to Professor **Fred MacDonnell**. Dr. **Frank W. Foss** received the President's Award for Excellence in Teaching. **Dr. Peter Kroll** was chosen as the Outstanding Academic Advisor. **Dr. Junha Jeon** was given a Research Enhancement Grant for "A New Strategy for Total Synthesis of Macrolide Antibiotics."

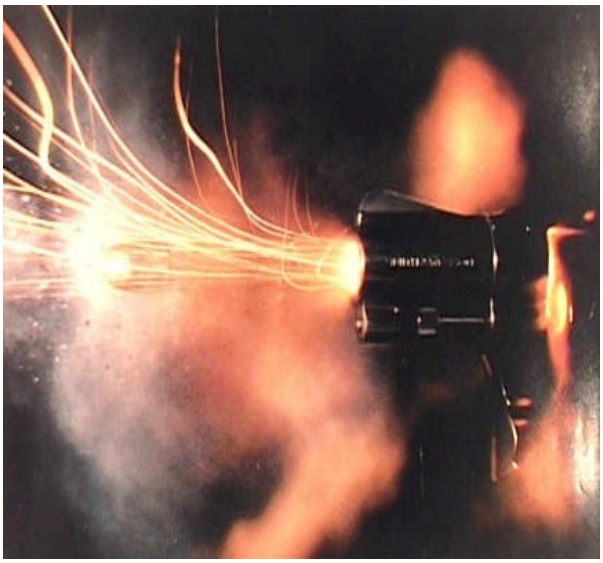
Real-life CSI: What can investigators really tell from gunshot residue?

Attenuated Total Reflectance-FT-IR Imaging for Rapid and Automated Detection of Gunshot Residue
Analytical Chemistry

The popular TV series "CSI" is fiction, but every day, real-life investigators and forensic scientists collect and analyze evidence to determine what happened at crime scenes. In a study published in the ACS journal *Analytical Chemistry*, scientists say they have developed a more rapid and accurate method that could allow crime scene investigators to tell what kind of ammunition was shot from a gun based on the residue it left behind.

Igor K. Lednev and Justin Bueno point out that when someone fires a gun, burnt particles from the bullet spray out of the weapon onto a shooter's hand, clothes, furniture and other surfaces nearby. The presence or absence of that residue says whether a gun was discharged and — based on its location on clothing and other surfaces — who and what was near the weapon when it was fired. But current analysis methods can only re-create a crime scene story in hazy detail. The most widely used technique today specializes in detecting the heavy metals that some ammunition contains. Newer bullets, however, aren't necessarily made with heavy metals, making analyses much more difficult. Also, existing methods require expensive equipment and a lot of time, luxuries law enforcement can't afford. To bring real-life CSI closer to what's hyped on TV, Lednev's team set out to find a new way to trace the ammunition used in a crime.

They developed a novel approach to improve gunshot residue "fingerprinting" that can rapidly detect a wider range of particles than existing methods. "Therefore the ability to detect these chemicals may indicate that a specific ammunition brand was discharged (or was not) during a shooting incident," the researchers state, adding that their work could also have applications in the fields of homeland security and counter-terrorism.



From the editor

This is the last issue of the Retort for Volume 66; we'll be back in September. But before that, you'll be getting emails and announcements with regards to SWRM 2014. The Southwest Regional Meeting of the ACS will be in Fort Worth in November (**SWRM.org**). The list of symposia, calls for papers, preregistration, and more will be hitting your mail box before the return of the Retorts.

One symposium in which I will be personally involved is that on sustainability; the DFW section has received a minigrant for this activity from the ACS Committee on Environmental Improvement. Sustainability addresses the major challenges of meeting society's energy needs now and in the future, feeding a growing population, and providing clean drinking water throughout the world. Bob Landolt was the moving force behind this minigrant application, and he called me to ask me to participate.
Now, if you have ever had Bob calling you to ask you to do something, you already know it's a lost cause trying to turn him down. Once you hear his dulcet tones, it's over; just say yes and get it over with!

Going hand in hand with sustainability, I will be the organizer of one on processes for water purification. This is an area of particular interest to me, both professionally and personally, and I hope that we see some interesting papers.

Sundance Square, the Stockyards, the Kimbell and the Amon Carter, and new, exciting ideas. From COWBOYS to CHEMISTRY...what more can you want?!

Best regards,
Connie