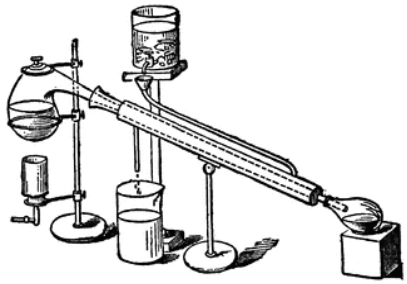
SOUTHWEST RETORT



SIXTY-EIGHTH YEAR **SEPTEMBER 2015**

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

published by
The Dallas-Fort Worth Section, with the cooperation of five other local sections of the American Chemical Society in the Southwest Region.

Vol. 68(1) SEPTEMBER 2015

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The Southwest Retort is published monthly, September through May, by the Dallas-Ft. Worth Section of the American Chemical Society, Inc., for the ACS Sections of the Southwest Region.

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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.

JENKEM TECHNOLOGY

The PEG and PEGylation Technology People

Job Title: Sales/Marketing Assistant

Name of Company: JenKem Technology USA Inc.

Nature of Business: Polyethylene Glycol (PEG) Polymers for Pharmaceutical and Biotech Applications

Job ID: JKUSA-20150501

Job Type: Full-time

Salary Range: Base salary $25,000.00 to $35,000.00; plus Sales Commission

Location: United States - Texas – Plano

Additional notes: Must be legally authorized to work in the United States. Local candidates preferred, no relocation benefits are provided for the position.

Job Functions: Sales and marketing for PEGylation products and services: provides quotations and information on product availability, and provides answers to technical questions to customers, by phone or email; processes orders, shipping, and payments; develops and maintains customer relationships; identifies and develops new customers and new markets for PEGylation products and services; and performs other tasks as assigned by the manager.

Job Requirements: Bachelor's degree or higher (Chemistry/Biology/Biochemistry or similar background REQUIRED); Excellent interpersonal and communication skills; Excellent reading, speaking, and writing skills in business English; Good arithmetic skills and attention to details required; Proficiency in the use of Microsoft Word, Excel, PowerPoint, and Outlook required; English/Chinese bilingual preferred; Ability to work independently required.

To Apply:
Interested candidates should submit a cover letter including salary expectations, and an updated resume at email: hr@jenkemusa.com. Please do not call, we will contact only select candidates.

hr@jenkemusa.com.

SERVICES and ANNOUNCEMENTS

FIFTY YEARS AGO IN THE SOUTHWEST RETORT

Dr. Pauline Beery Mack, head of Texas Woman's University Research Institute, has been selected by NASA to study what happens when astronauts are subjected to weightlessness for several days. She monitors their condition with an X-ray densitometer. The astronauts are evaluated by this method before launch and immediately after recovery, even before they can shave, shower, or eat. Dr. Mack has been with the TWU Research Institute for 13 years. She is a past winner of the ACS Garvin Medal.

In the Dallas-Fort Worth area, Texas Woman's University faculty spent some of the summer attending a variety of conferences. Those faculty members were Robert W. Higgins, Anne E. Terry, Helen A. Ludeman, Everett C. Hurdis, William L. Mecay, Lyman R. Caswell, and Andrew C. Proray. Faculty from Arlington State College (now UT-Arlington) who attended summer conferences were Ann Benham, Lee Johnson, Rayford Hoyle, and Margaret Willoughby. At TCU, Dr. H. C. Kelley has received a three year Welch Foundation grant. Faculty attending the Organic Symposium in Tempe, AZ, were Professors M. Reinecke, J. D. Hodgkins, and W. B. Smith.

The Robert A. Welch Foundation has given the following universities $1,000,000 for the establishment of Welch Chairs: Baylor University, University of Houston, and Texas Tech University.

At Texas Tech University Professor Henry Shine has received a two-year $62,626 grant from the Air Force Office of Scientific Research to study the chemistry and electron spin resonance of ion radicals. New faculty members at Texas Tech are Pill Soon Song in biochemistry and Donald Scott in physical chemistry.

At Texas A&M University Welch Professor Frederick Duke has resigned his position to become Professor of Chemistry at Purdue. Dr. Ralph Zingaro has returned from a leave of absence from Oak Ridge National Laboratory.

T. J. Bond is the new chair of the chemistry department at Baylor. W. O. Milligan has joined the Baylor faculty as research professor, while continuing in his current position as Director of Research for the Welch Foundation.

Jacob Sacks of the University of Arkansas won the Outstanding Faculty Achievement Award for his research in biochemistry.

UT-Austin faculty members who went to overseas conferences last summer included W. A. Noyes, Jr., W. Wade, and M. J. S. Dewar. New faculty members include John C. Gilbert, Lynn B. Rodewald, Alan Wingrave (organic) and Stephen E. Webber and John M. White (physical). Professor H. S. Schechter will be visiting professor this next year at the University of Edinburgh.

Contributed by

E. Thomas Strom

Fuel Cell Powered Vehicles Revisited

By

John E. Spessard, PhD, PE

A fuel-cell vehicle uses a fuel cell to power its electric on-board motor. The fuel cell has three parts. They are an electrolyte, an anode and a cathode. The most common fuel cell uses a polymer electrolyte membrane to separate the anode and cathode. Hydrogen gas is the fuel and it reacts with atmospheric oxygen to provide the electric energy. The two potential-fuel-cell powered vehicles that I will deal with in this article are fork lifts and automobiles.

Some claim that the fuel cell has zero emissions. This is true only if you consider just the cell operation and not the hydrogen generation. Industrially, hydrogen is obtained from methane with the carbon being converted to carbon dioxide and traces of carbon monoxide. One then can argue that hydrogen can be obtained from the electrolysis of water. This ignores the pollution generated by the production of electricity. Continuing the argument, the electricity can be provided by renewable energy. The availability factors for wind and solar electricity are 35% and 25% of rated capacity. One could oversize the facilities and use energy storage technology. But this would require prohibitive amounts of very expensive land. Fuel cells for vehicular use MUST be located with easy access to major highways and railways.

Forklifts

The fuel-cell forklift occupies a niche market. It is used in very large indoor facilities such as Walmart, Sysco Foods and Fed Ex. With two- and three-shift operations, forklifts need to be available for twelve or more hours per day. There need to be enough forklifts to justify the expense of having a hydrogen recharging facility. Because of the need to preserve indoor air quality, fossil-fuel-powered fork lifts (propane, gasoline or diesel fuel) are undesirable.

The common electric-powered forklifts use lead acid batteries. The lead acid battery powered forklift can operate for about 8 hours a day. Recharging requires 8 hours with another 8 hours being needed to cool the batteries after recharging. For multi-shift operation, at least one extra battery pack is necessary. Anyone who drives a car is aware of some of the limitations of lead acid batteries. The fork lift batteries have about a five-year life. If a fast charge option is needed to get the lift quickly back in service, the battery life is reduced to about three years. The batteries are less effective near the end of their service life. Also, cold-weather performance can be unreliable.

The heavy lead batteries in the back of the forklift eliminate the possibility of the forklift tipping because of a heavy

front-end load. Also the technology for lead recycling is well established.

The fuel-cell forklift can operate 12 or more hours on a single hydrogen charge. Further, the operator can recharge the lift with hydrogen in three to five minutes. The hydrogen dispensing facility is located outdoors. This provides safety and, unlike the lead battery recharger, it does not take up valuable under-the-roof floor area. The fuel-cell forklift is more expensive than the conventional fork lift but a Federal Credit of the lesser of 30% of the purchase price or $10,000, offsets some of this. For the large multi-shift indoor facility, the fuel-cell forklift with a higher cost is practical. There are about five thousand such units in operation.

There are safety concerns. The hydrogen is carried at a pressure of five to ten thousand pounds per square inch. The tank may be safe but any valve, connection or fitting can be a potential leak. A hydrogen flame is colorless and can be detected only by the schlieren pattern of the surrounding air. The hydrogen-powered forklifts are recent arrivals and are relatively new. Car owners know all too well how problems appear as equipment ages. Recycling or disposing of the fuel-cell components at the end of service life may become an issue.

Lithium-ion batteries have been considered as an alternative to the lead acid battery. The current obstacles are the higher cost of the lithium-ion battery, which is $400-$700 compared to $150 to $400 for the lead acid battery. The lithium-ion-battery-powered forklift requires a rear counterweight to avoid front end tipping. There is also the issue of disposing of or recycling spent batteries.

Automobiles

The hydrogen-powered fuel-cell forklift is existing technology. The similar automobiles are precommercial. As of 2014, Honda had built and leased 45 vehicles. Production started in 2008. Hyundai has built and leased 54 vehicles. Toyota began sale in Japan of the Mirai on December 15, 2014. Its "sticker price" was $57,400. There is a government incentive of $19,600. An informed estimate is that Toyota is losing $100,000 on each vehicle sold. This makes economic sense since the manufacturers are getting production experience and road testing fairly cheap.

The vehicles have been driven for over three million miles. There have been more than 27,000 fill-ups. Safety has not become an issue. The vehicles are designed for the hydrogen to be shut off in the event of a collision. All connections are designed so that leaks would be to the exterior. However, we know all too well about problems that have developed with automobiles of proven design and in full production. How well will a ten-year-old car hold up? The manufacturers are getting relatively cheap road testing. We know that our older cars need more unanticipated repairs. Our cars do not hold hydrogen at five to ten thousand pounds pressure. How would you feel about a 10,000 psi hydrogen carrying pipeline running under YOUR property?

The greatest obstacle is the lack of hydrogen refueling facilities. As of 2013, there were ten publicly accessible hydrogen-fuel-cell refueling stations in the United States. Eight of these were in California. That same year, California instituted a bill to provide 20 million dollars per year for ten years to build up to 100 stations. This has a cost of two million dollars per station. On this basis, a refueling station for a large warehouse or shipping station would have a similar capital cost. I have found no mention of the annual operating costs for such a station.

The American Petroleum Institute estimated that there were 153,000 retail gasoline dispensing facilities in the United States. The majority of these facilities cover much or all of their operating expenses by selling other products such as food, snacks, drinks and souvenirs. Can there be similar coverage for a much smaller network of hydrogen fueling stations?

From the ACS Press Room

What makes fireflies glow?

Experimental Support for a Single Electron-Transfer Oxidation Mechanism in Firefly Bioluminescence ***JACS***

About 60 years ago, scientists figured out in broad strokes the cascade of reactions that allows fireflies to produce light. It starts with a chemical called luciferin, which interacts with the energy-transporting molecule ATP. The product of that reaction then combines with oxygen, and this in turn releases light. Intermediate steps, however, have not been fully fleshed out. Bruce R. Branchini and colleagues wanted to explore potential mechanisms.

The researchers experimented with the enzyme luciferase, which boosts the initial reaction between luciferin and ATP, under varying conditions. In contrast to the commonly accepted model, the resulting data suggest that the transfer of a single electron to oxygen occurs during one of the final steps to spur light production. Other studies have pointed to the same mechanism, raising the possibility that it could be a unifying feature of the natural phenomenon.

The authors acknowledge funding from the U.S. Air Force, the National Science Foundation, the Hans & Ella McCollum ’21 Vahlteich Endowment and the U.S. Department of Energy.

...And Another Thing…

by Denise L. Merkle, PhD

My dad, Roland R. Merkle, is a wilderness survival expert. Recently he hasn't put in many miles on the Appalachian Trail, but not so long ago he happily ventured into all sorts of rugged conditions and challenging weather. (There's really no way to know if his setting out on a camping trip actually brought rain, but it seemed a likely correlation.) Anyway, since parents impart to their offspring the skills needed by future generations, my siblings and I grew up learning knots, navigating with a compass, how to pitch the perfect tent, and which way to walk if lost in the woods. Never camp in a dry creek bed. Don't sit on a pile of rocks. Don't sleep with your candy bar under your pillow.

Interestingly, to me at least, I have never felt the need to audition for one of the many reality shows that pit humans vs. harsh environments. Discovery Channel actually airs a show called *Naked and Afraid*, in which persons who are Naked and (presumably) Afraid use all their know-how to survive for 21 days in conditions most people can't even bear to view in National Geographic. Well, um. Thank you. BUT NO.

Although I do not want to show my admittedly rusty survival skills to the viewing public, my fascination with people's approach to adverse conditions led me last year to another survey, and my friends and colleagues received this e-mail:

You are stranded on a tropical island that has enough water and edible fruit to keep you from starving to death. There is enough vegetation to use as shelter. There are no poisonous snakes or poisonous foliage, nor are there any people—hostile or otherwise.

1. What three items would you choose to have with you?
2. Which companion would be most likely to result in your rescue? You may pick a historical figure (some suspension of reality is allowed), but you cannot choose to be alone. I had to add this stipulation because of the number of people who looked totally blissful when they contemplated being alone on the island.
3. What would you name your island?

So you see, this isn't survival, per se, but it is isolating and wilderness-y. Seven of the polled persons* (aka the Strandeds) rose to the challenge, with one pithy response being unrelated to the questions: "You simply do not have enough to occupy your time". I disagree. The importance of survival in any situation cannot be overemphasized. One never knows when one may be trapped in lab with only a snack machine in the student lounge to provide sustenance. Unlikely though the imaginary island may be, it's useful—and quite amusing. On to the results.

Three Strandeds chose to bring satellite phones, two of those included solar/

photoelectric generators to power the phones—and an (apparently) sacred iPad. The third phone was only intended to call James Bond for rescue, and then only after a few months of studying David Bronstein's book on the 1953 Zurich International Chess Tournament. Of course, in this scenario, a chess set was a requirement!

Fishing gear in various forms was important, as were a multi-purpose tool (with fish hooks), a machete, and an axe.

Some means of fire starting ranked high among the prized possessions, with a couple people bringing matches, and one bringing a fresnel lens**. The Stranded who will start fires with the lens also plans to snorkel with the gear he brought, and will have no need of rescue because his island companion will be his spouse.

Rescue. Rescue. Amelia Earhart was certainly sought but not found, which appears to be the point for the Stranded who would bring sunscreen, sun glasses and a beach towel—and whose home-away-from-home would be called Calgon Island. Les Stroud from *Survivorman* and *MacGuyver* may not lead to rescue, but the Strandeds who picked them will probably be very comfortable and well-fed. Gibbs (*NCIS*) and Spock (*Star Trek*) would lead to some clever survival-y activities, followed by beaming up, so naming the island would be unnecessary for this Stranded.

But how could one leave one's very own, eponymous island? Would one actually wish to be rescued from Shangri-la? Margaritaville? Might it be easier to leave Margaritaville after one realized that the prized possessions didn't include margaritas (an iPad, but no margaritas)? Calling the paradise Pelican Island for lots of pelicans or Turtle Island for lots of turtles is perhaps a bit obvious, but two Strandeds named the island after the hot-place-with-flames, one of these modifying the name to Purgatory, because it would not be quite as hot, and would not be forever.

No one mentioned a few of *my* go-to items: shoes, bug spray, and ziplock bags, but my favorite response for Item 1 was to bring *a book on how to survive in the wild*. And the companion would be *the person who wrote the book in item # 1*. Brava!

What is the point of all this, you ask? Be alert, be Thoughtful and, if you're ever stranded in the wilderness —or in lab— use your brain and your positive mindset. Dad will be proud.

*Anonymity was requested by some, so all respondents will be so, lest I slip.

** This person is not related to me.

From the ACS Press Room

Exposure to phthalates could be linked to pregnancy loss

Levels of Phthalate Metabolites in Urine of Pregnant Women and Risk of Clinical Pregnancy Loss
Environmental Science & Technology

A new study of more than 300 women suggests that exposure to certain phthalates — substances commonly used in food packaging, personal-care and other everyday products — could be associated with miscarriage, mostly between 5 and 13 weeks of pregnancy. The research, appearing in the ACS journal *Environmental Science & Technology*, is the first epidemiological study on non-work-related exposure to phthalates to provide evidence for the possible link among a general population.

Out of concern over the potential health effects of phthalates, the U.S. has banned six of these substances from use in certain products made for young children. But many are still included as ingredients in paints, medical tubes, vinyl flooring, soaps, shampoos and other items. Research on phthalates has shown that long-term exposure to low levels of the some of these compounds harms lab animals' health and can increase their risk for pregnancy loss. Additionally, at least one study found that female factory workers exposed to high levels of phthalates through their work were at a higher risk for miscarriage. But there is little epidemiological evidence of phthalates' effects on pregnancy among women with non-occupational exposure. Jianying Hu, Huan Shen and colleagues wanted to find out if there might be a link.

The researchers tested urine samples from 132 women who had miscarriages and 172 healthy pregnant women in China. They found pregnancy loss was associated with higher levels of urinary phthalate metabolites from diethyl phthalate (DEP), diisobutyl phthalate (DiBP) and di-n-butyl phthalate (DnBP). Although this doesn't prove that phthalates cause pregnancy loss, the study suggests an association exists that the researchers say should be studied further.

The authors acknowledge funding from the National Natural Science Foundation of China and the Beijing National Science Foundation.

ACS DFW Local Section Meeting

Tuesday, September 29, 2015

2015 Doherty Award Presentation and Lecture
Dr. Dan Armstrong of the University of Texas at Arlington

Dan Armstrong is the Robert A. Welch Chair in Chemistry and Biochemistry at the University of Texas at Arlington. He earned his B.S. in Interdepartmental Science and Mathematics from Washington and Lee University, in Lexington, VA. Afterward, he earned a M.S. in Oceanography at the Texas A&M University, prior to completing his Ph.D. in Bio-Organic Chemistry from Texas A&M University. In his distinguished career, he has been the recipient of over 40 awards and citations. Of recent note, he was awarded the status of American Chemical Society Fellow, 2013; UTA Distinguished Record of Research or Creative Activity 2012; ACS Award for Separation Science & Technology, 2014; M.J.E. Golay 2014 Award; UT Arlington Distinguished Scholars Award 2014; and named to the Analytical Scientist's 2013 Power List top 20. He is also very active in the scientific community, acting as editor and associate editor of prestigious ACS journals and more recently co-organizing an international meeting "Chirality 2012," which was a tremendous success and featured several hundred scientific papers from all over the world.

Meeting details and registration:
University of Texas at Arlington
E. H. Hereford University Center, Carlisle Suite
300 W First St, Arlington,TX 76010

Social Hour: 6:00 - 7:00 pm
Dinner: 7:00 - 8:00 pm
Lecture: 8:00 - 9:00 pm

Menu: Chicken Picatta with sides
Plated vegetarian alternative available by request.
Meal includes tea, water, and coffee.

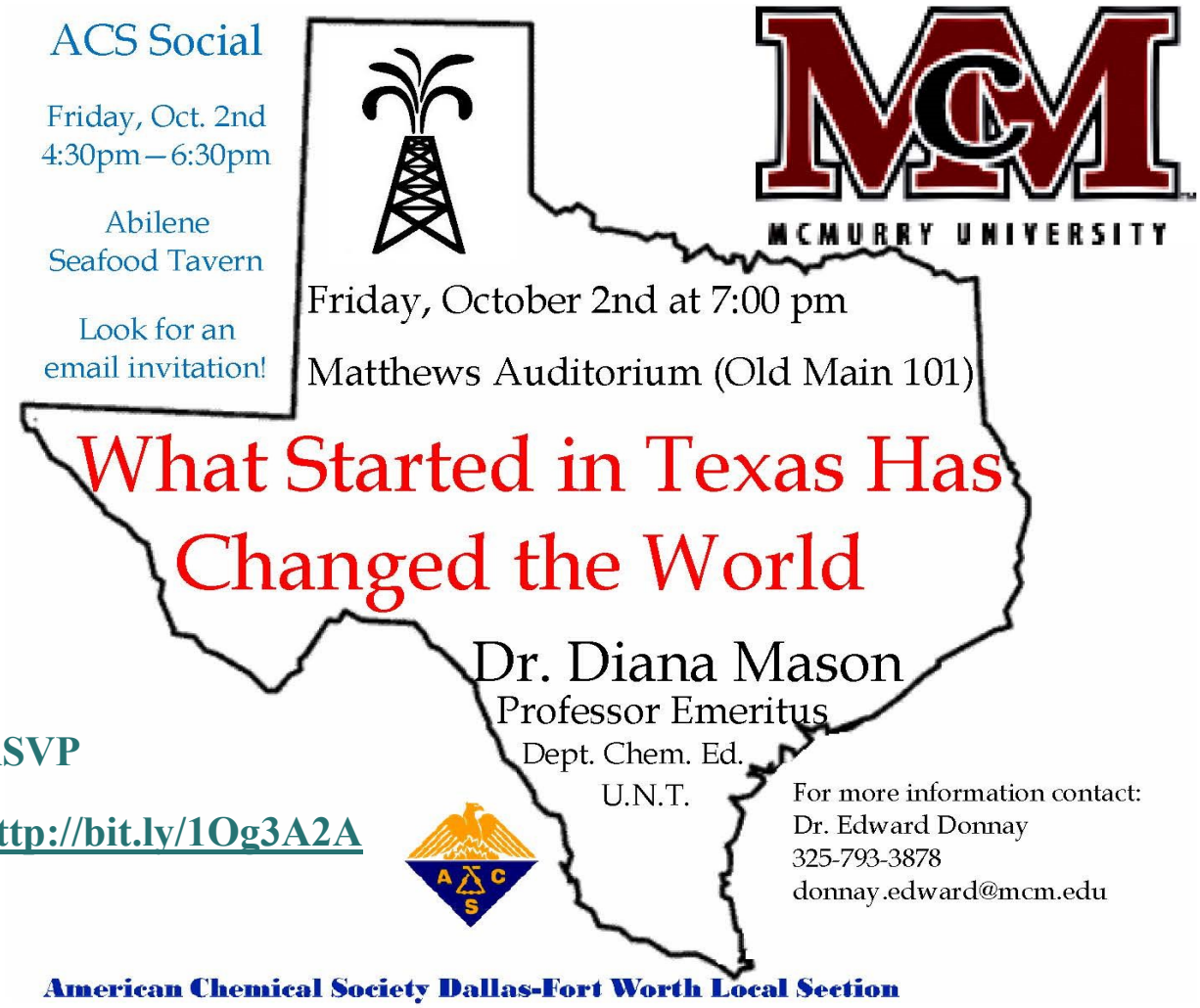
Cost: $20 per person in advance
$22 at the door

STUDENT SPECIAL!
The first 10 students to RSVP will receive a discounted meal price of $10 in advance and $12 at the door.

Payment by credit card will be available online in advance, but only cash or check will be accepted at the door.
After you RSVP, an invoice will be emailed to you to allow you to pay online with your credit card.

RSVP online: http://bit.ly/1M22FmT
by Monday, September 18, at 5:00 pm

Questions?
Please contact Chair-Elect,Steven Twaddle
twaddarama@yahoo.com



American Chemical Society Dallas-Fort Worth Local Section

Calling all native Texans and those who got here as fast as you could! A notable bull rider once said, "It ain't braggin,' if it's true!" If Texas was designated today as her own country, she would rank as the 11th richest country in the world. But why? This presentation highlights how the history of Texas has affected our status on the world's stage and how things that happened in Texas have made a difference. Discussed will be the advent of the discovery of oil, the addition of malodorants to natural gas, the fluoridation of municipal water supplies, a few special solutions, and the birth of nanotechnology. The top 10 stories imparted serve to make chemistry engaging and you'll get to leave with all the bragging rights that make Texas and Texans extraordinary. It's not just a tag line; it is really true! What started in Texas has changed the world.

Directions and a printable campus map: http://admissions.mcm.edu//visit/index.html

Parking is available in any campus lot. Enter Old Main (building 3) and Matthews Auditorium is on the first floor. An elevator is available on the east end of the building.

DFW SECTION OF THE ACS

LETTER FROM THE CHAIR

Dear Colleagues,

I hope that you all have had a wonderful summer break! I hope that the new semester has started off well and you all are ready for the upcoming events that we have begun planning!

I would like to introduce our Chair-Elect, Steven Twaddle, as he has worked hard this summer planning the fall events!

In the next few weeks, be prepared to see more information on our monthly meetings including the Doherty Award and Schulz Award dinners. Additionally, our local officer elections have begun and the polls will close on October 9, 2015.

As always, if you have any questions or concerns, please do not hesitate to contact me.

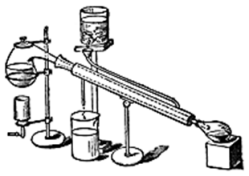
shana.marie.santos@gmail.com

All my best,

Shana Santos, DFW Section Chair

to send your articles, news items, and opinion pieces to the Southwest RETORT!

retort@acsdfw.org



American Chemical Society
Dallas-Fort Worth Section
48th Annual Meeting in Miniature

There were 70+ presentations at the annual M-in-M; here are the winners.

GRADUATE WINNERS

First Place

Do D. Nguyen	The University of Texas at Dallas	Session I
Mohammad Shawkat Hossain	The University of Texas at Arlington	Session II
Imalka Munaweera	The University of Texas at Dallas	Session III
Evelyn H. Wang	The University of Texas at Arlington	Session IV
Brian Stamos	The University of Texas at Arlington	Session V
Mercy Oyugi	The University of Texas at Arlington	Session VI

Second Place

Sahila Perananthan	The University of Texas at Dallas	Session I
Lawton A. Seal II	The University of Texas at Arlington	Session II
Naleen B. Jayaratna	The University of Texas at Arlington	Session III
Ruchika Bhawal	The University of Texas at Arlington	Session IV
Darshan C. Patel	The University of Texas at Arlington	Session V

UNDERGRADUATE WINNERS

Charles I. Shaughnessy	University of Dallas	First Place
Khoa X. Dang	The University of Texas at Dallas	Second Place
Bradley Moreno	The University of Texas at Dallas	Third Place

From the ACS Press Room

Blueberry extract could help fight gum disease and reduce antibiotic use

Wild Blueberry Polyphenols Trget Fusobacterium nucleatum and the Host Inflammatory Response: Potential Innovative Molecules for Treating Periodontal Diseases
Journal of Agricultural and Food Chemistry

Gum disease is a common condition among adults that occurs when bacteria form biofilms or plaques on teeth, and consequently the gums become inflamed. Some severe cases, called periodontitis, call for antibiotics. But now scientists have discovered that wild blueberry extract could help prevent dental plaque formation. Their report in ACS' *Journal of Agricultural and Food Chemistry* could lead to a new therapy for periodontitis and a reduced need for antibiotics.

Many people have had some degree of gum inflammation, or gingivitis, caused by dental plaque. The gums get red and swollen, and they bleed easily. If left unchecked, the condition can progress to periodontitis. The plaque hardens into tartar, and the infection can spread below the gum line and destroy the tissue supporting the teeth. To treat this condition, dentists scrape off the tartar and sometimes have to resort to conventional antibiotics. But recently, researchers have started looking at natural antibacterial compounds to treat gum disease. Daniel Grenier and colleagues wanted to see if blueberry polyphenols, which work against foodborne pathogens, could also help fight *Fusobacterium nucleatum*, one of the main species of bacteria associated with periodontitis.

In the lab, the researchers tested extracts from the wild lowbush blueberry, *Vaccinium angustifolium Ait.*, against *F. nucleatum*. The polyphenol-rich extracts successfully inhibited the growth of *F. nucleatum*, as well as its ability to form biofilms. It also blocked a molecular pathway involved in inflammation, a key part of gum disease. The researchers say they're developing an oral device that could slowly release the extract after deep cleaning to help treat periodontitis.

The authors acknowledge funding from the Laboratoire de Contrôle Microbiologique de l'Université Laval.

Around the Area

UT Dallas

Assistant Professor **Jiyong Lee** was awarded a grant from the Cancer Prevention and Research Institute of Texas (CPRIT) for research that may lead to more effective treatments for breast cancer. Assistant Professor **Jeremiah Gassensmith** was named the 2015 Outstanding Faculty Teacher Award from the School of Natural Sciences and Mathematics. Associate Professor **John W. Sibert IV** was named a 2015 Piper Professor by the Minnie Steven Piper Foundation of Texas. Associate Professor **Mihaela Stefan** received the 2015 Provost's Award for Faculty Excellence in Undergraduate Research Mentoring. Professor **Dean Sherry** received the Gold Medal Award from the International Society for Magnetic Resonance in Medicine (ISMRM) for his career-long research contributions to the field. Professor **Inga Holl Musselman** steps into the role of Acting Provost following Dr. **Hobson Wildenthal**, who currently serves as President ad interim of the University.

UT Arlington

Welch Professor **Daniel Armstrong** is this year's winner of the Dallas-Fort Worth ACS Section's Wilfred T. Doherty Award. Dan will honored at the September local section meeting to be held Tuesday, Jan. 29, in the Carlyle Room at the Student Center at UT-Arlington.

Professor **Frederick M. MacDonnell** and Professor **Carl Lovely** will be Interim Department Chair and Interim Department Associate Chair, respectively, for the 2015-2016 academic year.

Dr. **Kevin A. Schug** has been promoted to full professor. Over the summer he gave invited lectures at the University of Montana, the Conference on Small Molecule Science in San Diego, the International Network of Environmental Forensics Conference in Toronto, and the International Symposium on Chiral Discrimination in Boston.

Dr. **Alejandro Bugarin** attended the 16th Tetrahedron Symposium in Berlin June 16-19. He gave two poster presentations on his work on triazenes.

Drs. **Rasika Dias** and **E. Thomas Strom** attended last month's ACS national meeting in Boston. Dr. **Krishnan Rajeshwar** was the co-organizer for this meeting of a symposium on "Biological Inspiration for Environmental Sustainability."

Send your seminar schedules for the semester or the year to the Southwest RETORT!

retort@acsdfw.org

FIVE QUESTIONS FOR…

The first 5Q interviewee of the 2015-2016 Retort season is **Fred MacDonnell**, PhD, Interim Chair and Professor in the Department of Chemistry and Biochemistry at the University of Texas at Arlington.

Dr. MacDonnell is interested in many aspects of chemistry, and describes his current research as, "I've recently been focused on CO_2 reduction photochemistry, but have been interested in using photochemistry to tap solar energy and make fuels for decades now."

1. *How old were you when you realized you wanted to be a scientist?*

I don't know, but very young. I was always either making a gadget (more engineering) or potion of some sort (the chemist in me won out). I do recall making a super bubble-bath potion that worked fine except for the industrial strength cleaners I included… gave me a little rash.

2. *What aspects of your career do you most enjoy?*

I love that I get paid to learn, which I would otherwise pay to do!

3. *Is there a focus of your research about which you are most enthusiastic? And if so, what is it —and why?*

We have made a 'breakthrough' in using solar energy to reverse the combustion of alkanes, i.e., turn CO_2 and water into liquid alkanes, which we've submitted for publication. I'm anxiously awaiting the reviews.

4. *Nothing's easy all the time. What is the most significant challenge to your enjoyment of your career in science?*

Efficient writing. I believe I write well and my papers are clear and to the point, but I am slow and wish I could do it with fewer rewrites.

5. *The ubiquitous 5th Question must be: Who is your Science Hero? And why?*

Fritz Haber and Carl Bosch for figuring out how to reduce nitrogen to ammonia on an industrial scale. It was truly a remarkable feat and they have literally fed billions of people. However, like many things that first appear as a blessing, it has a dark side. Without the Haber-Bosch process, we would not now have 7 billion plus people on the planet. Overpopulation along with our current dependence on fossil fuels is not sustainable and is what worries me most about my kids' future.

Thank you, Dr. MacDonnell, for participating in 5 Questions! To volunteer to be interviewed for 5Q, write to

retort@acsdfw.org.

Sprayable foam that slows bleeding may save lives

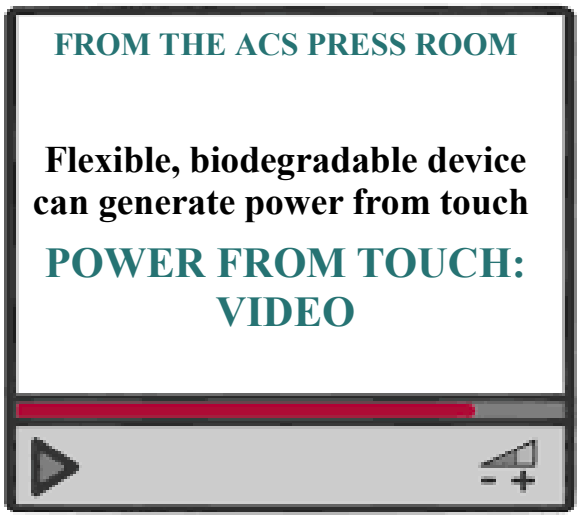
Sprayable Foams Based on an Amphiphilic Biopolymer for Control of Hemorrhage Without Compression
ACS Biomaterials Science & Engineering

Traumatic injuries, whether from serious car accidents, street violence or military combat, can lead to significant blood loss and death. But using a material derived from crustacean shells, scientists have now developed a foam that can be sprayed onto an open wound to stop the bleeding. They report their successful tests on pigs in the journal ACS *Biomaterials Science & Engineering*.

For some serious injuries to arms and legs, medics can apply pressure to keep bleeding in check. But for major trauma to the torso, particularly when it affects vital organs, compression can make the situation worse. Currently, first responders have no way to stop this kind of bleeding, which is a leading cause of death among young adults and the most common cause of death from combat-related injuries. Srinivasa R. Raghavan, Matthew B. Dowling and colleagues wanted to find a simple way to treat these wounds quickly.

The researchers developed a sprayable foam made of modified chitosan, a biopolymer derived from the shells of shrimp and other crustaceans that is already being used in other types of non-foam wound dressings. In tests on pigs, the spray reduced blood loss by 90 percent.

The authors acknowledge funding from the National Science Foundation.



From the editor

The sixty-eighth year of the **Southwest RETORT** begins with one new feature, which you probably already noticed. When I go to the ACS web site to pick up press releases (for the From the ACS Pressroom articles), I am always distracted by the videos. In the past I've included some but decided to make it a regular feature, because some are just too good to miss. Anytime you see this graphic, there is a video associated with it. In this issue, be sure to look at the video on sea sapphires...my personal favorite. If you have a good chemistry video, send it to the Retort and we can showcase it for you.

The Doherty Award recipient, Dan Armstrong of UTA, will give a talk at the section meeting at UTA on September 29. On October 2, at McMurry University in Abilene, Diana Mason will speak on *What Started in Texas Changed the World*, a brief history of chemical discoveries in Texas.

Send your advertisements, articles, notes, announcements, and seminar schedules for the Retort, as well as ***your*** chem videos…it's your publication.

Best regards,
Connie