

# SOUTHWEST RETORT



SIXTY-FOURTH YEAR

**MARCH 2012** 

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

#### published by

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Editorial and Business Offices: Editor: Connie Hendrickson, 802 South Jefferson, Irving, TX 75060; 972-786-4249; <u>retort@acsdfw.org</u> Copy Editor: Mike Vance: <u>vance2276@gmail.com</u> Business Manager: Kirby Drake, 9715 Dartridge, Dallas, Texas, 75238-1827; 214-553-9810; kbdrake2000@yahoo.com

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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 <u>retort@acsdfw.org</u>. Deadlines are the 7<sup>th</sup> of each month.



**Positions Available**: Two (2) qualified doctoral level scientists to work on a recently-funded project in nanoscale materials, effective immediately. Due to the nature of the funding source supporting these positions, US citizenship/permanent residency status is

required. Interested individuals contact *Jeff Coffer* (<u>j.coffer@tcu.edu</u>) or by phone at (817)257-6223.



**Position Wanted**: PhD experienced in computational chemistry and structural biology is looking for either academic or industrial position in DFW area. Extensive experience in programming and high performance computing, with years teaching and petrochemical industry experience. Contact **Daniel Guo at** 

anyguo@gmail.com or by phone at 214-883-8190.



#### Position Wanted:

*Laboratory technician full-time DFW area:* Recent graduate with experience in chem, organic, and environmental chem labs looking for full time lab tech work in the DFW area. Takes and executes

instructions quickly, efficiently, and effectively. *Will Colbert*, <u>colbertw@gmail.com</u>, 832-217-6975





## FIFTY YEARS AGO IN *THE SOUTHWEST RETORT* March 1962

There are two ACS tour speakers for this month. Dr. Robert W. Parry of the University of Michigan will speak on three possible topics. They are "Ammonia Addition Compounds of Boron Hydrides and their Derivatives," "Bridge Cleavage Reactions of the Group III Elements," and "Fools, Fuels, and Molecular Geometry." The second speaker is Dr. Ernest Grunwald of Bell Laboratories in Murry Hill, NJ. His two topics are "Rate and Mechanisms of Some "Instantaneous Proton Transfer Reactions" and "The Structure of Extra-Thermodynamic Relationships."

The 1962 ACS Regional Meeting will be held Dec. 6-8 in Dallas. The General Chair of the meeting is **Dr**. Raymond C. Sangster of TI, and the Program Chair is Dr. C. Gordon **Peattie**, also of TI. The five divisions of chemistry will be represented, and there will also be five special symposia. The special symposia and the names of their chairs are Biomedical Chemistry, Dr. R. J. Speer, Wadley Research Institute: Chemical Education, Dr. John J. Banewicz, SMU; Polymerization Chemistry, Mr. Eli Perry, Monsanto, Texas City; Process Instrumentation, Mr. M. J. O'Neal, Shell, Houston; and Surface Phenomena, TBA. The divisional chairs are: Organic Chemistry, Dr.

Paul Blatz, Socony Mobil Field
Research Lab, Dallas; Physical
Chemistry, Dr. William H. Watson,
TCU; Analytical Chemistry, Dr. Phil
Kane, TI; Industrial and Engineering
Chemistry, Dr. C. M. Oualline, Jr. TI;
and Inorganic Chemistry, TBA.

**Dr. W. T. Gooch** of Baylor University has compiled a history of the Central Texas Section. In the spring of 1917 at the call of Dr. G. S. Fraps, State Chemist, a number of ACS members gathered together at College Station to organize a Central Texas Section. The only previous local section in Texas was the Southeast Texas Section. comprising the Houston-Beaumont area. The initial group included Dr. Fraps, Dr. C. C. Hedges and Mr. S. E. Asbury of College Station, Drs. J. R. Bailey and E. P. Schoch of the University of Texas, Mr. W. W. Battle of the State Food and Drug Laboratory in Austin, Mr. Fred Forter of Fort Worth, Mr. N. C. Hammer of Dallas, and W. T. Gooch from Baylor. The plans for the new section were to have one meeting a year in Waco and to include all members of ACS residing in the area bounded by the University of Texas and Texas A & M on the south and Dallas-Fort Worth on the north. Waco was to serve as the headquarters. (Interpretation by reporter E. Thomas Strom. This meant that the old Central

Texas Section included the present Central Texas Section, the Texas A&M Section, the Heart o' Texas Section, and the Dallas-Fort Worth Section.) Initially, one meeting a year was held in Waco. Later, an additional meeting was held, alternating between a southern and a northern city. In 1937, it was decided to split the section to reduce travel times. Waco remained with the southern group, still named



Central Texas. In 1939, Texas A&M and Baylor withdrew to form a section of their own. Dr. Gooch's compilation includes a list of Central Texas Section officers from 1918 until 1934-35.

#### **Russell C. Walker, William H. Watson, Jr.,** and **Robert W. Higgins** are the 1962 Directors of the Dallas-Fort Worth ACS Section.

contributed by Dr. Tom Strom

# **CONTEST!**

The DFW Section needs a logo and a slogan of its own, so the section is sponsoring ...with prizes!...a contest for each. Submit entries to <u>retort@acsdfw.org</u> as pdf or jpeg for logo and word format for the slogan.

## \$100 prize for each !

Deadline May 15 Winners will be announced in the September Retort.

#### NOTE:

May not incorporate or resemble any part of the national logo or slogan.

# WANTED

## YOU!

At the 24<sup>th</sup> International Symposium on Chiral Discrimination



**Ft. Worth, TX June 10<sup>th</sup> – 13<sup>th</sup>, 2012** 

(at the Hilton in downtown)

www.chirality2012.com

Chiral Separations, Spectroscopy, Synthesis, and More

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Plenary Lecture by Prof. Ron Breslow, Columbia University National Academy of Science Member on Origin of Chirality in Life

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Conference Organizers: Prof. Daniel W. Armstrong and Prof. Kevin A. Schug

Submit Abstracts by March 15 **Register Now** by April 15 info@chirality2012.com

### ...AND ANOTHER THING... DENISE MERKLE, PHD

#### **CHEMISTRY MINUTES**

We all know Chemistry Minutes, whether we call them by name - or not. I first heard the term in conversation with Professor Scot Boeringer. Scot, then a sociology graduate student at U Florida, was somewhat concerned about accompanying chemistry graduate student Melody Hartnup: "Each chemistry minute lasts between 15 minutes and three hours!" Scot began carrying a backpack of journals

to study during Mel's brief visits to lab.

Chemistry Minutes are not sixty seconds long - they're deceptive - and sneaky, too. Most commonly they lurk in phrases like, "Oh,

just wait in the car outside the building. Adding the next reagent will only take a minute!" or, "I just have to re-set the temperature of the incubator, and then I can leave...10 minutes, max!" and, "Gosh, I'm starving! Let me answer this question for this student, and I'll be there in 2 minutes."

Russian novels are read by those who have fallen victim to Chemistry Minutes. Entire English papers are penned. Phone plans are perturbed forever: "Yes! Yes! I'm calling again!



I've been in the parking lot for *hours*! Why are you still there? No, I have no idea why it is important to re-make the solution. A little bacteria never hurt anyone." Data usage rates soar. Relationships are seriously, if not irrevocably, strained by the appearance of Chemistry Minutes in the middle of a date, immediately before heading to the theater, a concert, a birthday party, the airport - the list goes on - and on.

Scientists accept them. Chemistry Minutes just *are*. No matter the nomenclature, they exist. Who hasn't

stopped by the lab to check a reaction, and many Chemistry Minutes later realized that dinner is over? Called a colleague to ask a quick question and missed a meeting that originally was far down on the schedule? The science, and the pursuit of science, is all-consuming. The need for

the experiment to go well, the student to understand, the buffer's pH to be correct, trump the thought of someone waiting at a table in a restaurant, sipping a nice beverage and looking, with increasing frequency, at a watch.



Chemistry is.

What's to be done about Chemistry Minutes? Those unaware of the pull of the molecule might say,

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"Planning! Better planning!" Planning is crucial to any good project, of course, but the nature of Chemistry Minutes is such that they are independent of planning. Better planning won't help. "Have some regard for others! What about your family?" That might work. Recently minted scientists certainly are more adept at integrating personal and work lives than many of those trained before the Information Age (Thank Goodness), but again, Chemistry Minutes win out. So, enhanced consideration makes some difference. but isn't really the answer.

Eureka! "Don't associate with anyone who doesn't understand Chemistry Minutes" is the motto for the scientist. Whether it's the hour-long few minutes in the lab or the life-eating paper that will take only three hours to write, associating only with those who can acknowledge Chemistry Minutes must be the only real option.

Is this a viable solution to the problem? Give me a couple minutes to think about it.

Editor's note: Chemistry minutes.....lab minutes....I was reminded of this last week visiting with my son, a postdoc in Boston. He always takes 10 (read 'em, ten) lab minutes for anything and everything. Unfortunately for him, I know some things....when you divide cultures it takes 10 minutes just for the trypsinization. **Busted!** 

## Contributors wanted!

The **RETORT** seeks articles on technical topics, scientific and opinion papers, as well as news items and announcements.

> DEADLINE: 7<sup>th</sup> of each month

Submit to retort@acsdfw.org





#### GROUND LEVEL OZONE MEASUREMENTS: MAN-MADE AND NATURALLY OCCURRING BY JOHN SPESSARD

#### A. Introduction

Concerned parties have advocated reducing permitted ground level ozone concentrations to as low as 60 parts per billion. In order to discuss this topic, it is necessary to differentiate between ozone generated by human activities and ozone generated by natural activities such as lightning, wild fires and biogenic emissions (e.g. pine trees...the reason the Smokey Mountains got their name).



What part of

permitted levels is made up by naturally generated ozone?

#### B.Analytical Methods for Ground Level Ozone

The "good ozone" is located in the troposphere and stratosphere. Christian Friedrich Schoenbein, a professor of chemistry at the University of Basel, Switzerland from 1828 until his death in 1868, reported ozone levels that were much lower than those reported today. Schoenbein developed an analytical method for ozone by using paper coated with starch and potassium iodide and measuring the developed color (however, Schonbein had more faith in his nose as an ozone detector). Other ozone measuring methods were developed, but the starch-iodide colorimetric method was the most sensitive, and variations of the starchiodide method were used until 1971. Actually, any gas capable of oxidizing iodide to iodine (NO<sub>2</sub> for example) will provide a reading with this method; thus, starch-iodide method results were reported as oxidants.

In 1971, the U.S. EPA approved an ozone determination method which measured the chemiluminescence generated by the reaction of ozone with ethylene. EPA assumed this method to be specific for ozone. In 1975, the California Air Resources Board adopted a spectrophotometric method replacing the starch-iodide technology, and the terminology for harmful materials was changed from oxidant to ozone. In 1979, EPA modified the chemiluminescent method by replacing ethylene with the dye Rhodamine B. In 1998, the EPA-approved method was changed to use the spectrophotometric absorption at 254 nanometers. In 2003, NASA had four satellites in orbit that measure ozone levels by this method. By simultaneously measuring total ozone and ozone generated by naturally occurring events, such as lightning and wild fires, NASA can differentiate between total ozone and naturally generated ozone.

#### C. Evolution of Ozone Exposure Standards

Some standards have been presented as a single digit: 1 ppb, for example. While 0.1 and 0.10 are numerically identical, the addition of a second digit makes for a much more stringent standard. At 0.10, 0.105 is a violation. At 0.1, 0.149 is not a violation but 0.150 is.



Frequent mention is made of a one-hour standard and an eight-hour standard. The one-hour standard is the more stringent; for example, if the standard is 100, and a 200 level is reached for one hour, with a one-hour standard, there is a clear violation. With an 8-hour average, morning or evening lower levels could reduce the 8-hour average to below 100. California regulatory agencies consistently used the one-hour standard.

In 1955, the Los Angeles Air Pollution Control District adopted a first level alert stage of 500 (0.5 ppm). Four years later, the California Legislature authorized the State Health Department to establish statewide standard of 150 (0.15 ppm). This was considered to be the lowest level at which eye irritation, vegetative damage and visibility reduction had been reported.

The California Air Resources Board was formed in 1957, and in 1969, the Board established a 100 standard. As it was reported as 0.1 ppm, the one significant figure made it less of a reduction than first appears. In 1970, the Board changed the standard to 100, expressed as 0.10 ppm. This standard was set to prevent the aggravation of respiratory diseases and to prevent or abate eye irritation. The second significant figure provided a significant reduction.

In 1971, EPA (started in December of 1970) set a one-hour national standard of 80 (0.08 ppm). In 1979, EPA reset the standard to 120 (0.12 ppm). In1997, EPA revised the standard to an 8-hour level of 80 (0.08 ppm). In 2003, EPA proposed revising the 80 (0.08 ppm) from an 8-hour standard to a one-hour standard; as cited previously, this is a significant reduction. Proposals have been made to further reduce the ozone level. Some environmental advocates have even suggested a 60 level in order to further reduce the ozone level.

#### D. Historic Ozone Level Measurements

Ozone measurements made in the last half of the 19th century were done using the Schoenbein iodide-coated paper method. The annual average daily maximum in the Great Lakes region

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was about 19. The annual average of European measurements was in the range of 17 to 20, with annual maxima reached in April to June. Issues are: (1) to what degree was the oxidant-ozone quantitative; and (2) what issues, such as humidity, air flow and exposure to sunlight, affect the results. At any rate, the 19th Century results are much lower than present day measurements. There is no accepted explanation for the discrepancy.



In a 2011 review, A.S.L. & Associates covered ozone levels at three "pristine sites:" Glacier National Park, Montana, Yellowstone National Park, Wyoming, and Denali National Park, Alaska. A.S.L. reported the fourth highest annual reading over a three-year period using an 8-hour peak reading. EPA measured ozone levels at Trinidad Head (a peninsula on the California coast that juts out into the Pacific Ocean), which was considered to be a pristine site. The results were published in a peer-reviewed paper. The fourth highest peak is significant in that EPA defines noncompliance as four violations over a three year period. Highest readings were obtained in the

spring: April and May and sometimes as late as June. This is consistent with the 19<sup>th</sup>-century European measurements. The fourth highest daily eight-hour maximums were Glacier National Park 56, Yellowstone National Park 65, Denali National Park 58 and Trinidad Head 53. The EPA 8-hour standard at that time was 80.

#### E. To What Extent are Adverse Effects Caused by Ozone Imaginary?

Environmental standards are often set to protect the most susceptible members of the population. For ozone exposure this would be people with pulmonary and respiratory issues. If such a person reports a problem, it has been accepted that this is a real problem. However, it is clear that some reported problems are psychological rather than medical.

To even imply that this could occur is a "hot button" issue. Nevertheless, Food and Drug Administration (FDA) mandated tests of potential prescription medications seeking registration clearly show this. In double-blind studies where a placebo and the drug are given, the persons receiving the placebo report side effects as well as those getting the drug.

#### Sources Consulted

1. Mordecai B. Rubin, *The History of Ozone. The Schoenbein Period 1839-1868*, **Bull. Hist. Chem**., Vol.26, 2001, pp. 40-44. 2. California EPA, Air Resources Board, *History of Ozone and Oxidant Ambient Air Quality Standards*, last revised May 2005.

3. U.S. EPA, *History of Ground-level Ozone Standards*, last updated July 2011.

4. U.S. EPA, *Ground-level Ozone, Regulatory Actions*, last updated October 2011.

5. Joseph A. Cotruvo, U.S. EPA, *Procedures for Rounding-Off Analytical Data to Determine Compliance with Contaminate Levels Present in NIPDWR*, signed April 6, 1981.

6. ChemWiki, *Smog*. [history of smog, composition of smog and reactions generating smog]

7. University of California at Berkeley, Environmental Economics & Policy 101, Spring 2002, *All That Smog*. [An early history of the Los Angeles smog problem]

8. Fraser Cain, *Measuring the Earth's Ozone Levels With Four Satellites*, www.universetoday.com, July 15, 2003.

9. Frank McElroy (U.S. EPA), Dennis Mikel (Ventura County APCD) and Monica Nees (U.S. EPA), Determination of Ozone by Ultraviolet Analysis, Final Draft, May 1, 1997. 10. [No Listed Author], A.S.L. and Associates, *Background Ozone: A Historical Review*, last updated March 14, 2011

11. S.J. Oltmans et. al., *Background Ozone Levels of Air Entering the West Coast of the US and Assessment of Longer Term Changes*, **Atmospheric Environment**, Vol. 42, 2008, pp. 6020-6038.

12. A.S Lefon et. al., *Present-day Variability of Background Ozone in the Lower Troposphere*, J. Geophys. Res., Vol. 106, 2001, pp. 9945-9958.

13. [No Author], Texas Commission on Environmental Quality, *Dallas-Fort Worth: Ozone History*, last updated March 29, 2011.

14. Mark Estes (Texas Commission on Environmental Quality), *Background Ozone; Recent Research in the US and Texas*, paper presented at the Southeast Texas Photochemical Modeling Technical Committee Meeting, April 7, 2010.

15. Physicians' Desk Reference, Volume 58, 2004. Thompson PDR, Montvale, NJ 07645.

JUDGES and MODERATORS ARE STILL NEEDED FOR the 45<sup>TH</sup> MEETING-IN-MINIATURE of the DFW SECTION. The M-I-M is at the University of Dallas on April 21. Email Bill Hendrickson at hendrick@udallas or call 972-721-5069.



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## AROUND-THE-AREA

## DOHERTY AND SCHULZ AWARDS DEADLINE

Don't forget: you can still submit nominations for section awards. Nominations are *due by April 15*. Check out the previous **RETORT** for details or the section web site **acsdfw.org**.

### ANA-LAB

Ana-Lab Corp. in Kilgore is the recipient of the nationwide 2011 ACIL (American Council of Independent Laboratories) Seal of Excellence Award. The award was announced in New Orleans at the ACIL annual meeting.

The Kilgore-based organization is among 21 laboratories across the nation to receive such recognition. Among the 21, Ana-Lab is the only Texas laboratory.

"This award speaks well of Ana-Lab's employees and their commitment to standards judged by the ACIL," said **Charles H. Whiteside**, founder and president of the corporation. "We have grown with the standards of quality, and exceptional customer service. That's our foundation and our future."

To become a Seal of Excellence participant, testing laboratories must distribute satisfaction surveys to customers, and maintain proof of an annual ethics training program and an early detection system for questionable analytical practices, and submit a signed code of ethics.

Ana-Lab has regional offices in Amarillo, Dallas, Austin, Brownsville and Houston in Texas as well as in Shreveport, LA and Norman, OK. Laboratory services are at the corporate headquarters in Kilgore.

## UTA

Dr. Junha Jeon, Assistant Professor of Organic Chemistry, is UTA's newest faculty member. Junha was born in Busan, Korea, and received his BS and MS chemistry degrees from Sungkyunkwan University. He obtained his Ph.D. degree in organic chemistry in 2009 from the University of Minnesota under the direction of Dr. Thomas R. Hoye. After a postdoctoral appointment in organic chemistry at the University of Pennsylvania with Dr. Amos B. Smith, **III**, he joined the UTA faculty in August 2011. His research interests are in catalysis and in natural product synthesis. His wife, **Byungran So**, is a chemist also, and she is currently a post-doc at the University of Pennsylvania medical school.

### ARKANSAS

**Charles L. Wilkins** has reached 50 years of membership with the American Chemical Society. He was awarded a ruby lapel pin and a 50-year membership card, which entitles him to free registration at all future ACS national and regional meetings.

**Professor Michael Krische** of the University of Texas at Austin gave the 2011-2012 Arthur Fry Lecture on April 2, 2012. His topic was "Formation of C-C Bonds via Catalytic Hydrogenation and Transfer Hydrogenation: Merged Redox-Construction Events for Organic Synthesis.

#### Department Chair Bob Cawley

attended the annual meeting of the American Association for the Advancement of Science, February 16-20, in Vancouver, BC, Canada. He is a member of the chemistry section steering committee.

The department is pleased to announce 3 new faculty hires. **Susanne Striegler** is coming from Auburn University and will join the Organic Division. **Wei Shi** is coming from the School of Medicine at Johns Hopkins University and will join the Organic Division. **Feng (Seymour) Wang** is coming from Boston University College of Arts and Sciences and will join the Physical Chemistry Division. The three will join the department in the fall of 2012.

## BAYLOR

#### **OBITUARY**

Albin George Pinkus was born on January 17, 1919, in Norwich Connecticut to Pauline Banal and Francisco Pié, and died on December 14, 2011 at the age of 92 years in Irving, Texas. A memorial service was held at 6:00 pm on December 23, 2011 at the Guerrero-Dean Funeral Home in Grand Prairie, Texas with the Rev. Jim Snyder officiating. Dr. Pinkus is survived by his brother Clarence H. Pinkus. He was recruited to work on the Manhattan project while he was pursuing his undergraduate degree at Columbia University, but enlisted as a private on his own accord in spite of being offered deferment from service. He served in the Army Corps of Engineers and was stationed in the northernmost island in Japan when the atom bomb was dropped. He had received promotions and rose to the rank of Staff Sergeant when he mustered out of the service to complete his B.S. degree in chemistry at Columbia. He then used his GI bill stipend to pursue graduate studies at the University of Illinois, where he received his M.S. degree, and subsequently his Ph.D. at The Ohio State University in 1952. That same year he joined the faculty at Baylor University, where he rose through the ranks to Professor of Chemistry until 1992, when he was named Research **Professor Emeritus.** 

## TCU

### National Chemistry Week 2012

TCU Chemistry Club will be again working with the Fort Worth Museum of Science and History, spearheading National Chemistry Week! Last year's event brought in over 4,000 guests and over 120 volunteers! If you're interested in participating for Fall 2012, please contact TCU Chemistry Club at <u>chemistryclub@tcu.edu</u>.

### **TEXAS TECH**

**Dimitri Pappas** received the Texas Tech University Chancellor's Council Distinguished Research Award in December 2011, and is recognized across the entire Texas Tech University system for his research accomplishments. Dr. Pappas's research is in the area of cell bioanalysis, with an emphasis on cancer, heart disease, and a host of other biomedical problems.

**Dimitri Pappas** and collaborator **Michael Mayer** published a paper in a special issue of *The Analyst* dedicated to "single" events. The special issue focuses on single cells, single molecules, and other stochastic events. Their paper focuses on the detection of single molecules in single, apoptotic cells using a new fluorescent probe.

On February 27, 2012, **Edward Quitevis** of the Department of Chemistry & Biochemistry, gave an invited lecture on "Translational and Rotational Diffusion of Probes in Glass-forming Liquids near the Glass Transition: Fluorescence Recovery after Photobleaching Measurements," at the Department of Chemistry at the University of Oregon.

The *Journal of Physical Chemistry B* has recognized **Edward Quitevis** for his article entitled "Effect of Cation Symmetry and Alkyl Chain Length on the Structure and Intermolecular Dynamics of 1,3-Dialkylimidazolium Bis(trifluoromethanesulfonyl)-amide Ionic Liquids," which was listed among the journal's Top 20 Most Cited articles of the last 3 years.

## TWU

**TWU** will host the **SENCER Center for Innovation – Southwest Spring 2012 Regional Conference** on April 14. See page 24 for more information.

#### TRINITY

## Noyce Fellowship in Teaching opportunity at Trinity

The fellowship is available to science, technology, engineering, and math degree holders with at least 3 years of professional work experience. It is a generous scholarship program to support a career change to teaching. Full tuition to complete Trinity's Master of Arts in Teaching program and a \$12,000 salary supplement each year for a 4-year teaching commitment are offered. Detailed information can

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*Trinity cont.* also be found at <u>http://web.trinity.edu/x2029.xml</u> or obtained by contacting Christine Reyes-Swank at 210-999-7589 or creyes1@trinity.edu.

### UNT

The 22<sup>nd</sup> International Conference on Chemical Education and 11<sup>th</sup> European Conference on Research in Chemical Education will be held in Rome, Italy, July 15-20. **Diana Mason, Kris Sherman** and UNT grad students **Robyn Ford, Tim Stephens**, and **Anna George** will be attending. Check out the web site: **http://www.iccecrice2012.org/** 

#### **MEETINGS**

**ISSF 2012** (10<sup>th</sup> International Symposium on Supercritical Fluids) will be held May 13-16 in San Francisco. More information and registration can be found at **ISSF2012.com**.

### NEW HYBRID "NOSH ASPIRIN" MAY BE ANTI-CANCER DRUG

Scientists have combined two new "designer" forms of aspirin into a hybrid substance that appears more effective than either of its forebears in controlling the growth of several forms of cancer in laboratory tests. Their report on the new NOSH-aspirin, so named because it releases nitric oxide (NO) and hydrogen sulfide (H<sub>2</sub>S), appears in the journal ACS Medicinal Chemistry Letters (R.Kodela et al., *ACS Med. Chem. Lett.*, **2012**, *3*(3), pp 257–262). NO and H<sub>2</sub>S are signaling substances produced in the body that relax blood vessels, reduce inflammation and have a variety of other effects. Previously developed designer aspirin releases NO in an effort to reduce aspirin's potential adverse effects in causing GI tract bleeding. Another designer aspirin that releases H<sub>2</sub>S also has anti-inflammatory properties and appears safe to the stomach.

Since NO and H<sub>2</sub>S are gases with



physiological relevance, and Kashfi's group had previously shown beneficial effects with both NO and

 $H_2S$  aspirins, they postulated that a new hybrid with both of these entities might be even more potent and effective than either one alone.

The new hybrid inhibits the growth of breast, colon, pancreas, lung, prostate and some leukemia cancer cells in laboratory tests. Some of the NOSHaspirins tested were more than 100,000 times more powerful against cancer cell growth than aspirin alone. Promisingly, the group reported that their hybrids did not damage normal cells.

From the ACS Press Room

## **MIRACLE TREE**

The latest episode in the American Chemical Society's (ACS) awardwinning "Global Challenges/Chemistry Solutions" podcast series describes how the seeds of the "miracle tree" can be used to produce clean drinking water.

The new water-treatment process, requiring only tree seeds and sand, could purify and clarify water inexpensively and sustainably in the developing world, where more than 1 billion people lack access to clean drinking water, scientists report.

Removing the disease-causing microbes and sediment from drinking water requires technology not always available in rural areas of developing countries. For an alternative approach, scientists looked to *Moringa oleifera*,



also called the "miracle tree," a plant grown in equatorial regions for food, traditional medicine and biofuel. The

research appears in ACS' journal *Langmuir* (*Antimicrobial Sand via Adsorption of Cationic Moringa oleifera Protein*, H. Jerri et al., Langmuir, 2012, 28(4), pp 2262–2268). In the podcast, Stephanie B. Velegol, Ph.D., a researcher at Pennsylvania State University, explains that past research showed that a protein in *Moringa* seeds can clean water. However, one approach creates water that cannot be stored, and the other approach is too expensive and complicated. The researchers wanted to develop a simpler and less expensive way to harness the seeds' power.

To do that, they added an extract of the seed containing the positively charged *Moringa* protein (which binds to



sediment and kills microbes) to negatively charged sand. The

resulting "functionalized," or "f-sand," proved effective in capturing labgrown *E. coli* and damaging their membranes. The f-sand was also able to remove sediment from water samples. The results open the possibility that fsand can provide a simple, locally sustainable process for producing storable drinking water, Velegol says.

The new podcast is available without charge at <u>iTunes</u> and from <u>www.acs.org/globalchallenges</u>.



## FIVE QUESTIONS FOR.....

Our March volunteer is Dr. Jeff Coffer, Professor of Chemistry at Texas Christian University.

ACS Activity: Former Awards Committee Chair of the DFW Local Section

# 1) How old were you when you realized you wanted to be a scientist?

Around 14 years old....(tough question...)

## 2) What event first triggered your interest in science?

Like lots of multiple kid families, I usually ended up with my older brother or sister's hand-me-downs. One of the hand-me-downs I received was an old Chemistry set that belonged to my brother (it was the sixties, if you couldn't tell already).

## 3) What part of your career is most fulfilling?

Two things:

(1) Seeing a student achieve some sense of intellectual maturity, whether it is a first year general chemistry student in a lecture course ranging to a more senior graduate student working in the lab. Any step on the road to thinking like an independent scientist is encouraging.

(2) The friendships that I have made at

various places over the years make the traveling more than worthwhile...

## 4) What would you change if you could?

Parental attitudes toward their children's schoolwork...at the moment, I think academic standards sometimes fall prey to self-esteem issues. As a society, we are not well served if we don't hold academic standards high.

## 5) Who is your Science Hero? and why?

Ooh ...lots of folks in this category.



One person who comes to mind is Judah Folkman, who is credited with seminal discoveries in the field of angiogenesis. He kept going with experiments testing

his main hypothesis (that cancer growth could be affected by altering blood supply to the tumor) for years, even when many of his contemporaries thought he was nuts.

Thank you, Dr. Coffer, for your interesting remarks! To volunteer to be interviewed, e-mail to retort@acsdfw.org.



## March 2012 DFW ACS Meeting INAUGURAL INDUSTRY AND SMALL BUSINESS MEETING

### Saturday, March 24th, 2012

John G. Mahler Building's Great Hall, Dallas Baptist University Contact: aaronf@dbu.edu

**Presentations and Table Hosts from the following companies:** 

Abbott	Ana-Lab	<b>Arkon Consultants</b>
<b>BioBasic USA</b>	ChK	CorsiTech
<b>GAF Corporation</b>	<b>Mettler-Toledo Inc.</b>	<b>Omn Scientific</b>
<b>Ricca Chemical</b>	SciConsult Inc.	Terracon
<b>TriQuint Semicond</b>	uctor Sovereign	<b>Pharmaceuticals</b>

- Provides a platform for local industry to the North Texas region to share what they are doing and/or the products they provide.
- Still accepting companies interested in sponsoring a table Contact Aaron Fletcher: <u>aaronf@dbu.edu</u>
- Companies looking for employers are encouraged to bring applications.
- Great networking opportunity for all members of ACS. Non-ACS members are welcome!!

#### **Registration of \$5.00 includes light breakfast and boxed lunches.**

• Payment by <u>cash</u> or <u>check</u> will be accepted at the meeting. Please note that you are financially responsible for reservations made but not used.

Morning refreshments: Scones, Muffins, Cinnamon Rolls, Coffee and Hot Tea. Lunch Expo: Box Lunches with choice of Turkey, Ham or Grilled Veggie Sandwiches, Chips, Fruit Cup and Cookies, Iced Tea and Water.

#### **RSVP to Melinda Davidson by 3/20/2012** Melinda Davidson – <u>melinda@dbu.edu</u> 214-333-5388

continued on next page

**Directions**: Dallas Baptist University, 3000 Mountain Creek Parkway, Dallas, TX 75211

**From Dallas**, take I-30 west to Loop 12 south to Spur 408 Patriot Parkway. Turn right on Kiest Boulevard, and you will see the school atop the second hill on your right.

**From Fort Worth**, take I-20 east to Mountain Creek Parkway exit. Turn left heading north on Mountain Creek Parkway. Cross Kiest Boulevard and enter the campus from the west.

John G. Mahler Student Center is located at the top of the hill and has a large fountain in front of it. You may park anywhere on top and the Great Hall will be seen as you enter the building.

## **Schedule of Events**

Saturday, March 24th Dallas Baptist University-Great Hall of Mahler Center

Coffee and registration
Welcome Aaron Fletcher, DFW Section Chair
CorsiTech Presents
Formulating Products and Technology Specific to Industry
Needs
Abbott Presents
Science and Innovation to Improve Health Care
Terracon Presents
In Situ Chemical Oxidation of Soil and Groundwater
Contamination
GAF Corporation Presents
Covering your Roof with Chemistry
ChK Presents
Biogenetic Silica and Nanophase Mn Oxide for Manufacturing
and Applications
Lunch Breakout Session
An Expo of Industry and Small Business Leaders
TriQuint Semiconductor Presents
Connecting the Digital World to the Global Network
Mettler-Toledo Inc. Presents
Polymers to Biomass - Developments in Thermal Analysis
Ana-Lab Presents
A Funny Thing Happened on the Way to the Barn
Omn Scientific Presents
SBIR Opportunities and Funding for Early Stage Technology
Development

## APRIL 2012 The Dallas Fort-Worth Section

of

## The American Chemical Society

presents the

**45<sup>TH</sup> ANNUAL MEETING-IN-MINIATURE** 

University of Dallas Saturday, April 21, 2012 8:00 am to 4:30 pm Gorman Lecture Center



Format: 15 min. talks Categories: Undergraduate Students and Graduate Students

## **Abstract Deadline: Thursday, April 5**

Standard ACS format: send to <u>hendrick@udallas.edu</u> as an MS Word attachment

Judges & Session Chairs needed: Please Volunteer!

# For more information, contact: Bill Hendrickson at <u>hendrick@udallas.edu</u>

Each presentation should be carefully planned for effective delivery in 15 minutes. This will be followed by an ~5 minute question, answer, and discussion period with your audience. Here is a set of guidelines (Ten Simple Rules for Making Good Oral Presentations) to keep in mind as you are preparing your presentation: http://www.ploscompbiol.org/article/info:doi/10.1371/journal.pcbi.0030077

Southwest **RETORT** 

### **Registration Deadline Monday April 2**

## **SENCER** Center for Innovation – Southwest Spring 2012 Regional Conference April 14 - SATURDAY Texas Woman's University 8:30 AM TO 3:30 PM

"SENCER and the Scholarship of Teaching and Learning"

WORKSHOP BY CARNEGIE SCHOLAR MATTHEW FISHER Matt Fisher, faculty member at Saint Vincent College and Carnegie Scholar, the SENCER Scholarship of Teaching Learning (SOTL) Coordinator, Senior Fellow of the National Center for Science and Civic Engagement, will facilitate the workshop.

SoTL has been described as inquiring into our students' learning. But what does that look like in real life? How does this work to help make teaching public and community property? How is SoTL different from just being a good teacher? How does this form of scholarship connect to the concerns of faculty?

Workshop participants will develop an understanding of important characteristics of the scholarship of teaching and learning, as well as a collection of information, tools and resources for engaging in this work for their own professional development. Participants will have the opportunity, as part of the workshop, to begin developing a question they want to investigate, and learning what evidence would be appropriate to gather as part of their project.

SENCER (Science Education for New Civic Engagements and Responsibilities) is an NSFfunded program of the National Center for Science and Civic Engagement. Learn more at <u>www.sencer.net</u>.

> There is no fee to participate, but we do need to plan supplies and food. Please pre-register by returning the form at the bottom of this email to <u>SCISouthwest@twu.edu</u> by Monday, April 2, 2012. Continental Breakfast and Lunch will be provided.

> > Workshop to be held in the Ann Stuart Science Complex <u>http://www.twu.edu/maps.asp</u> (Building 9 on the Denton Campus map) Texas Woman's University, Denton, Texas

Southwest **RETORT** 

## **PRINT AND POST!**







When: June 24-28, 2012

**Where:** The University of Baylor Mary Hardin in Belton, TX

(173 miles from Houston, 140 miles from Dallas, 61 miles from Austin, 140 miles from San Antonio)

**Cost:** \$250 (early bird pricing until May 25<sup>th</sup>) includes registration, all meals from Sunday night through breakfast Thursday, and lodging from Sunday night until Thursday (or \$125 for registration and all meals except breakfast-no lodging) \*\* Presenters save \$50 off the above prices!!!

#### Why should I go:

- 1. Get all of your Professional Development hours for the year!
- 2. The lowest cost chemistry conference you will find anywhere!
- 3. The University of Mary Hardin Baylor is a small beautiful campus with FREE PARKING!
- 4. Many workshops covering all levels of chemistry, from your lowest academic students to your brightest AP students!
- 5. It will be 5 days of Chemistry Fun!
- 6. Gets tons of ideas to implement in your classroom!
- 7. Door Prizes: everyone will win something!
- 8. Come see old friends and meet lots of new friends for networking!
- 9. World-renowned presenters Robert Becker and Ken Lyle!
- 10. Demos in the Dark: all the demos you can't do inside because they are too big or dangerous (you won't want to miss this)!

## For more info and to register: https://sites.google.com/site/act2tx

### Click link at bottom of webpage to register and/or present

## From the editor:

Several years ago, a student in my environmental science class gave a talk on providing drinking water for rural villages in Vietnam (T. Clasen et al., *Microbiological Effectiveness and Cost of Boiling to Disinfect Drinking Water in Rural Vietnam*, **Environ. Sci. Technol.**, 2008, 42 (12), pp 4255–4260). He is of Vietnamese parentage, but grew up in this country. In his talk, he said, "I never thought about it. I just turn on a faucet and good water comes out." I think that's true for all of us...we turn on faucets, drink water, flush toilets and never think about the technology that gets us there

One **RETORT** topic this week, the Magic Tree, the source of water-purifying protein and a cheap and fast way to provide clean water, is especially important for me. Water has always been an analogy: water in sewage, purified, is the same as water coming from a deep aquifer, from high clouds in the mountains. Yes, we provided the sewage, too, but we learn how to purify it. The lack of drinking water in various parts of the world is a serious and ongoing problem.

One of my goals for the next three years is the formation and funding of a foundation for the distribution of water purification tablets. Yes, there are already many foundations and organizations for clean water...but one more isn't going to hurt...there are not nearly enough.

Best regards,

Convie



Remember, the **RETORT** is on issuu.com. One good thing about *issuu.com* is that you can *subscribe* to your publication; if you put in your email (right next to the **RETORT** on the site), you will automatically get the **RETORT** when we post it. (*In order to subscribe, download, or print, you need to register with issuu.com; it's free and you can opt out of extraneous emails.*) The Retort is still and always will be available on the DFW section's website *acsdfw.org*. On that site, under *SW Retort*, you can access a pdf (just click on the *name of the month*), a flippage PC version, and a flip-page MAC version, all of which are downloadable and printable.