

**OCTOBER, 2007  
D-FW ACS MEETING**

**THE HOCKADAY SCHOOL  
TUESDAY, OCTOBER 17, 2006**

**THE WERNER SCHULZ AWARD LECTURE  
“REFLECTIONS ON THE CHANGES IN TEACHING  
CHEMISTRY OVER THE PAST THIRTY YEARS”**

**AWARD WINNER ROBERT PATRIZI OF  
THE HOCKADAY SCHOOL**

**About the Speaker:** Robert (Bob) Patrizi received his B.S. degree in chemistry at Washington and Jefferson College in Pennsylvania. He came to SMU, where he received both an MA degree in secondary education and an MS degree in chemistry. After teaching stints at Cisterian Prep School, El Centro Community College, Richland Community College and the DISD, he was hired in 1984 as Chair of the Science Department at Hockaday. He received the John Killion Memorial Award, which is given by the Hockaday senior class to the teacher offering the greatest assistance to the student body. He has been active in ACS teaching activities, especially with ChemCom.

**Time and Location:** Social Hour: 6:00 p.m.  
Dinner: 7:00 p.m.  
Lecture: 8 p.m.

All functions are held in the Whittenburg Room.

It is not necessary to make dinner reservations to attend the lecture.

**Dinner Details:** The dinner is a buffet costing \$20. Members are financially responsible for reservations made but not used!

**Reservations:** Make reservations by Oct. 13th to **Melissa Humason**, SMU Chemistry Department, Tel. 214-768-7248, E-mail. ([mhumason@smu.edu](mailto:mhumason@smu.edu)).

**How to Get There:** Travel North on Central Expressway (Highway 75) and take the Forest Lane exit, going west. Turn left on Welch Road for about ½ block. Then turn left into the school entrance and parking lot. The Whittenburg Room is behind the main entrance hall.

**November Meeting** will be held Nov. 9th. Dr. Robert P. Bates, ACS Tour Speaker, will speak at UNT on “The Chemistry and Alchemy of Brewing.”



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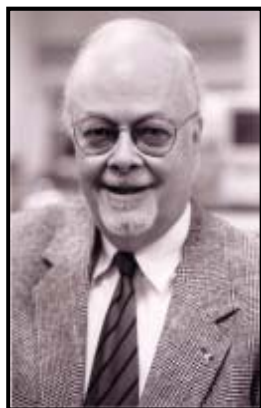
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## Houston Hosts SWRM 2006

The 62<sup>nd</sup> Southwest Regional Meeting (SWRM) takes place October 19 - 22 at the Houston Westchase Marriott Hotel. Contact the hotel directly for reservations and mention the ACS SWRM meeting to get the special meeting rate. SWRM 2006 is sponsored in part by the College of Natural Science and Mathematics and the Chemistry Department at the University of Houston. The theme of the meeting is "Nanoscale - Giga Vision."

Advance registration will remain open until September 25th at 5:00 pm EDT and may be accessed through the SWRM 2006 website, <http://www.chem.uh.edu/swrm06/>. This is an exciting year for regional meetings because in addition to having regional abstracts appear online on CAS, ACS Books will begin reviewing regional meeting papers for possible inclusion in their ACS symposium series.

Special events include a Symposium in Memory of John Margrave organized by Ken Whitmire, the Welch Summer Scholars Reunion, Precollege Teacher Workshops, participation by NOBCCHE and SACNAS, and an awards banquet.

Please contact co-chairs Joe Hightower at [jhigh@rice.edu](mailto:jhigh@rice.edu) or Mamie Moy at [mmoy@uh.edu](mailto:mmoy@uh.edu) for more details.

## National Chemistry Week 2006

National Chemistry Week will be celebrated October 22-28 this year. The theme is "Your Home - It's All Built on Chemistry." For activities and more information on this event visit the website: [http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=ncw%5Cncw\\_index.html](http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=ncw%5Cncw_index.html)

## ACS-Sponsored HS Chem Club?

The High School office at ACS is interested in hearing from high school chemistry departments that might be interested in sponsoring ACS-Sponsored High School Chemistry Club. We would also like to speak to any local section members interested in helping an area high school establish an ACS-Sponsored High School Chemistry Club. Want to learn more? We would enjoy hearing from you at [education@acs.org](mailto:education@acs.org).

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liquid fuels such as gasoline and diesel fuel.

Vehicles have been adapted to run on hydrogen (7). As would be expected, the fueled ranges are of the order of 50 to 60 miles. These are experimental vehicles that are very expensive to build and operate. They are much, much less practical than vehicles powered by either CNG or LNG.

People have realized the practicality in dealing with compressed or liquid hydrogen. In the classic Greek drama when the hero was in real trouble, the gods intervened, a process known as "deus ex machina" (God from a machine). The hydrogen advocates have resorted to this tactic. The "machina" is to adsorb large quantities of hydrogen on either an activated surface (platinum or palladium) or carbon nanotubes.

For this to be feasible, large quantities of hydrogen must be (1) adsorbed and then (2) desorbed without a huge expenditure of energy for the cycle. Further, the process must be repeatable over thousands of cycles. This has not been demonstrated to be feasible even in the laboratory. Taking technology from the laboratory to industrial applications is a very difficult and risky process (8). That is why they have pilot plants.

Hydrogen has been adsorbed on palladium (9). At about three atmospheres pressure, a compound appears to be formed with 0.5 moles of hydrogen per mole of palladium. On a weight basis that is about one gram of hydrogen per 212 grams of pallad-

ium. Palladium is not cheap! Carbon nanotubes are also very expensive. There would need to be a reversible adsorption and desorption over thousands of cycles. The technical feasibility is very questionable, and the economics are hopeless.

*Editor's Afterword: In Part 2, Dr. Spessard deals with the hydrogen fuel cell and some more promising methods for meeting the transportation problems of today and the future.*

### References

1. Chemical Rubber Company, *Handbook of Chemistry and Physics, 61<sup>st</sup> Edition*.
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3. Telephone Interview, Tom Bond, Garland Independent School District, May 31, 2006
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6. Texas Controller of Public Accounts, "Texas Request/Payment for Prepaid Liquefied Gas Decal", revised Mar. 13, 2006.
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## Southwest Retort

*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.

**Vol. 59 September, 2006 No. 1**

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Southwest Retort (USPS 507880) 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. Subscription rates are \$3.24 per year. Periodical postage paid at Dallas, Texas. **POSTMASTER:** Send address changes to American Chemical Society, Southwest Retort, Box 3337, Columbus, Ohio 43210.

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40 Zr 91.224	41 Nb 92.906	42 Mo 95.94	43 Tc (98)	44 Ru 101.07	45 Rh 101.07	46 Pd 106.36	47 Ag 107.87	48 Cd 112.411	49 In 114.818	50 Sn 118.71	51 Sb 121.76	52 Te 127.60	53 I 126.90
72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.207	76 Os 190.23	77 Ir 192.222	78 Pt 195.084	79 Au 196.967	80 Hg 200.59	81 Tl 204.38	82 Pb 207.2	83 Bi 208.98	84 Po (209)	85 At (210)
104 Rf (261)	105 Db (262)	106 Sg (266)	107 Bh (268)	108 Hs (270)	109 Mt (272)	110 Ds (285)	111 Rg (287)	112 Cn (289)	113 Nh (291)	114 Uuq (289)			

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gloves; and a face shield.

LNG and CNG work well enough for vehicles in fleet-type use where (1) the vehicles can be refueled from a single, site, (2) the vehicles can always return to the site for refueling, (3) the vehicles have down times when they can be refueled, and (4) trained employees are always available to refuel the vehicles.

Gasoline is produced at a refinery. It is transported to distribution stations by pipeline, railcar, or truck and from the distribution center to the service stations by truck. All transfers are at ambient temperature and pressure. The operation is simple enough that self-service is an option. Yet there is a large capital investment in this infrastructure. Handling either CNG or LNG would be much more complex and hazardous than gasoline. The capital investment for a CNG or LNG distribution system would be much greater than for a gasoline distributions center. This would be because (1) more refueling sites would be needed (reduced range) and (2) the system would be much more complex. Self-service would NOT be an option for either CNG or LNG.

CNG would require transfers at the production site, distribution center, and service stations. A compressor would be required for CNG at the service station to pressurize the CNG to 3600 psi. The limited range would require more service stations and more frequent refueling. It would require a new and more complex and expensive distribution center. All employees would need protective

equipment and extensive training.

LNG would require transfers of a cryogenic liquid. These transfers would require trained employees with protective equipment. I have seen tank trucks on the highway loaded with liquid nitrogen. However, ambient air is 79% nitrogen, and losses by evaporation are not a hazard. LNG losses out of a cryogenic tank would be a potential fire and/or explosion hazard.

**C. Hydrogen-Powered Vehicles**

Liquid hydrogen has such a low boiling point that the compressed gas would be a better option. If LNG and CNG are competitive, it follows that compressed hydrogen would be enough easier to handle than liquid hydrogen that liquid hydrogen would not be practical.

Operationally, running vehicles on hydrogen and CNG are comparable. But on a volume, basis, compressed hydrogen has about one-third the fuel value of CNG. Therefore, a 150-mile range would become a 50-mile range. That is unacceptable even for local fleet use. You could consider additional tanks, but these tanks are pressure vessels and heavy. You may remember wrestling heavy compressed gas cylinders in the laboratory.

Because of the even more limited range compared to CNG, there would be a need for even more fueling stations. The infrastructure requirements would require an even greater capital investment than CNG, which itself would be a more complex and expensive capital investment than for



Baylor (1941).

\*\*\*\*Continued from page 14\*\*\*\*  
a future issue of *The Southwest Retort*.

Dr. Knudsen received his \$1000 honorarium at the 51<sup>st</sup> Annual Oklahoma Pentasectional Meeting held April 1 at the Bartlesville Technology Center in Bartlesville, OK. The meeting featured 44 technical presentations in the various areas of chemistry. ACS

President **Dr. Ann Nalley** was a guest speaker and Oklahoma University chemical engineering professor **Dr. Daniel Resasco** was a plenary lecturer.

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\*\*\*\*Continued from Page 7\*\*\*\*  
200 miles. That is equivalent to 150 gallons of diesel fuel. (Unlike the GISD, "The T" was able to convert buses from diesel fuel to CNG.) The people who refuel their vehicles receive eight hours training plus an annual 1.5 hour refresher course. Steel-toed shoes are the only required personal protective equipment. The wheels must be chucked while the bus is being fueled. "The T" receives natural gas through an existing pipeline that delivers natural gas to their site. "The T" has a compressor that converts the gas to 3600 psi.

Mr. Thompson of "The T" told me that hydrogen-powered vehicles were prohibitively expensive. This may be due to the limited production rate.

"The T" pays the state an annual sticker tax instead of a per gallon or per cubic foot tax. The sticker cost for a transit bus that uses CNG, LNG, propane is \$444. For other vehicles the cost depends on (1) the weight of

the vehicle and (2) the number of miles driven (6). "The T" cited sticker costs for a Ford Crown Victoria: under 5,000 miles, \$126; 5,000 to 9,999 miles, \$252; 10,000 to 14,999 miles, \$378; and over 15,000 miles \$504. There is no federal tax.

As a comparison, consider a gasoline-powered vehicle that is driven 12,000 miles a year and gets 20 miles to the gallon. That is 6000 gallons with a federal tax of 18.4 cents and a Texas state tax of 20 cents per gallon. That is \$230.40. I leave it to the reader to decide what changes in state, federal and local taxes would result from an alternative fuel displacing gasoline or diesel fuel to the point where revenues were reduced.

Refueling with LNG requires about ten to eleven minutes through 40 gallon per minute hoses. The employees refueling the buses receive and need extensive training. DART requires protective equipment for refueling vehicles: boots; apron;

# Southwest Retort

FIFTY-NINTH YEAR

September 2006

## THE HYDROGEN POWERED AUTOMOBILE AND THE ATOMIC OXCART. PART 1.

by **Dr. John E. Spessard**,  
Environmental & Chemical Technology, 8827 Amador Ave., Dallas, TX  
75252

Tel.: 972-867-8989, E-mail: [johnspessard@yahoo.com](mailto:johnspessard@yahoo.com)

*Editor's Foreword. The extremely high gas prices of the last year have sensitized us all to the possibility of alternative fuels. Here Dr. Spessard applies his objective, rational thinking to one of the proposed alternatives.*

President Bush has recently recommended instituting a program to develop hydrogen powered vehicles to (1) reduce our dependence on foreign oil and (2) having more environmentally friendly automobiles. The chemical properties of hydrogen make such a project seem attractive. However, the PHYSICAL properties of hydrogen establish that it would be unworkable.

**A. Physical and Chemical Properties of Hydrogen, Fuels and Cryogenic Liquids**

Table 1 lists the energy available from some fuels. Hexane is presented as a representative fuel found in gasoline. Available energy is presented in terms of (1) per gram-mole, (2) per gram, (3) per cc of liquid, (4) per liter of vapor and, (5) a comparative basis

with hydrogen defined as 1.000. It is evident that hydrogen is a superior fuel on an equivalent weight basis. However, because hydrogen is comparatively so light, both as a liquid and a vapor, either the fuel tank would have to be much larger or the range of the vehicle would have to be much less.

Table 2 shows comparative

Table 1 Energy Available from Selected Fuels

Material	Mol. Wt.	Heat of Combustion (Kcal)				Comparative Energy H <sub>2</sub> = 1	
		per mole	per gram	per cc liquid	per liter vapor	liquid per cc	vapor per liter
Hydrogen	2.016	57.8	28.7	2.01	2.58	1.000	1.000
Methane	16.04	191.75	11.95	5.57	8.56	2.771	3.317
Ethane	30.07	341.25	11.35	6.49	15.22	3.229	5.904
Propane	44.11	488.49	11.07	6.48	21.81	3.223	8.451
Hexane	86.18	931.46	10.81	7.14	41.58	3.552	16.115

Table 2 Physical Properties of Selected Fuels

Material	Atmospheric B.P.		Density of Liquid	Critical Temp.		Critical Press. (psi)
	Deg. C	Deg. F		Deg. C	Deg. F	
Hydrogen	-252.8	-423	0.07	-240.18	-400.3	18.75
Methane	-164	-263.2	0.466	-82.1	-115.8	673
Ethane	-88.6	-127.5	0.572	32.2	90	708
Propane	-42.1	-43.8	0.585	96.8	206.2	617
Hexane	69	156.2	0.660	234.2	453.6	439
Nitrogen	-195.8	-320.4	0.808	-146.96	-232.5	49.17

physical properties of hydrogen, these selected fuels and nitrogen. Nitrogen is presented for comparative purposes because it is both a cryogenic liquid that many of us have worked with using Dewar flasks and a gas we have dealt with in compressed gas cylinders. Nitrogen's properties are also in the same range as natural gas (methane). This gives us an idea of

what to expect from natural gas.

Hydrogen is much more difficult to liquefy and to maintain as a liquid than any of the other listed fuels. The fuel value on a VOLUME bases, either as a liquid or a gas, is much less than the other listed fuels.

Liquid hydrogen is used to fuel space rockets. The high energy and light weight are an attractive com-

Oct. 19, Hisashi Yamamoto, University of Chicago, "Asymmetric Synthesis using Metal and Nonmetal Catalysts." Seminars are normally at 12 noon in Room L4.176, Biochemistry.

UT-Southwestern Biological Chemistry. Oct. 24, Jeff Johnson, UNC-Chapel Hill, TBA. Seminars are normally at 6:30 p.m. in Room L4.162, Biochemistry.

2

## FIFTY YEARS AGO IN THE SOUTHWEST RETORT

*Editor's Comment: September, 1956, was the first time The Southwest Retort published a September issue.*

The D-FW ACS Section in August suffered the loss of two former chairs of the section. **Dr. Madison Marshall** died of a heart attack at age 50 in Decatur, AL. Dr. Marshall lived in Denton from 1937 until 1951 while a member of the chemistry faculty at the Texas State College for Women (now *Texas Woman's University*). He left TSCW in 1951 to join the research staff of Chemstrand Corp. While at TSCW he carried out a considerable amount of research with grants from the Research Corporation of America.

**Dr. Lewis Fetzer**, age 78, was a nationally known authority on industrial chemistry. He was a Dallas physician since 1916. He was the holder of a Ph.D. from the University of Munich and an M.D. degree from George Washington University. In 1949 he was appointed to the Board of Industrial Health by President Truman and was later reappointed to the Board by President Eisenhower.

**Gordon Teal** of TI, Chair-Elect

of the D-FW section, recently gave several lectures at the University of Texas and at Texas A&M. **Archie Broodo** has recently joined the TI Research Division. He previously worked at Convair in Fort Worth.

At Magnolia Laboratory (*later Mobil*) **C. Bradley Tucker** was promoted to Research Chemist. **Bill Whalen** attended a Gordon Conference in July. **George Nabor** is the proud father of **Kenton Eliot Nabor**, born Aug. 11.

At the Texas State College for Women, **Dr. Robert W. Higgins** spent the summer at Oak Ridge National Laboratory doing research. **Dr. William Mecay** did research in Callery, PA this summer. The college has received a \$50,000 gift from **Mr. and Mrs. H. J. Lutcher Stark** of Orange, TX to equip a new x-ray research laboratory and to also buy an electron microscope.

At Baylor **Dr. Virgil Tweedie** took seven students on plant tours in the Houston area as part of the industrial chemistry course. **Dr. John S. Belew** has joined the Baylor faculty. He is a native of Waco and the first person to receive a B.S. degree from

Finland this summer to present the paper "Silylanilino Derivatives of Phosphorus and Boron" with co-authors **P. Devulapalli, A.K. Ghosh, and J. Cui.**

**Tracy Hanna** attended the Organometallic Gordon Conference in July 2006. Her poster, "New Bisphenol Ligands for Polymerization Catalysts and Coordination Complexes" was among six posters out of 75 selected for oral presentation. Undergraduate **Joseph Holland** received a \$1500 Science & Engineering Research Center grant to do research in the Hanna group this Fall.

## OCTOBER METROPLEX SEMINAR SCHEDULE

*Seminars are occasionally cancelled or postponed. Check departmental websites for the most up-to-date information.*

**UT-Arlington. Oct. 6,** Edward Eyring, University of Utah, "Catalysts for Water Gas Shift Production of Hydrogen." **Oct. 13,** Elena Gallopin, Rutgers, "Semiconductor Nanoparticle Sensitization: Effect of Saturated and Unsaturated Linkers." **Oct. 20,** Jung-Mo Ahn, UTD, "Development of Peptidomimetics and Their Biomedical Applications." **Oct. 27,** Robert Toressi, University of Sao Paula, Brazil, "Redox Reactions of Conducting Polymers in Ionic Liquids." (*Note: This seminar begins at 2 p.m.*) Seminars are normal-

ly at 2:30 p.m. in Room 114, Baker Chemistry Research Building.

**UT-Dallas. Oct. 11,** James Norwick, UC-Irvine, "Mimicry of Protein Structures and Interactions with Unnatural Amino Acids." **Oct. 18,** Donovan Haines, UT-Dallas, "Cytochrome P450: Drugs, Bugs, and Brains." **Oct. 25,** Michael Wong, Rice, "Nanoparticle Engineering of Hybrid Microcapsules as Encapsulation Agents." Seminars are normally at 12 noon at CN120.

**University of North Texas. Oct. 27,** Brent Gunnoe, NCSU, "Late Transition Metal Complexes with Non-dative Heteroatomic Ligands: Exploitation of Filled dp Manifolds for C-H Activation and Catalytic N-C, O-C and S-C Bond Formation." Seminars are normally at 3:30 p.m. in Room 106, Chemistry Building.

**Southern Methodist University. Oct. 12,** James Nowick, UC-Irvine, "Mimicry of Protein Structures and Interactions with Unnatural Amino Acids." Seminars are normally at 3:30 p.m. Call Dr. Patty Wisian-Neilson for room number.

**Texas Christian University. Oct. 4,** Brent Sumerlin, SMU, TBA. (*Note: This seminar begins at 4 p.m.*) Seminars are normally at 11 a.m. in Lecture Hall 3, Sid Richardson Science Bldg.

**UT-Southwestern Biochemistry. Oct. 5,** Matt Francis, UC-Berkeley, "TBA. **Oct. 12,** Alfred Goldberg, Harvard Medical School, "New Insights into Proteasome Function: from Protein Degradation and Antigen Presentation to Cancer Therapy."

Evaporation provides cooling just as liquid nitrogen can be kept in a Dewar flask. The rocket's fuel tanks are topped off just before launch. The entire fuel supply is consumed in a few minutes. This is a lot different from needing to park or drive a fueled vehicle on the street for even 30 minutes. Hydrogen emission into ambient air would be unacceptably dangerous.

**B. Compressed Natural Gas (CNG) and Liquid Natural Gas (LNG) as Vehicle Fuels**

Methane as liquid natural gas (LNG) and compressed natural gas (CNG) has been used to power motor vehicles. That both have been used demonstrates that they are competitive with neither having a clear-cut advantage. I interviewed representatives of the city of Dallas (CNG), the Garland Independent School District (CNG), DART (LNG) and the Fort Worth Transit Authority ("The T") (2,3,4,5). They provided insights of the advantages and limitations of these fuel systems. Their experiences with CNG and LNG provide a perspective on the challenges facing hydrogen-powered vehicles.

Cars and buses both ran satisfactorily with both CNG and LNG. CNG was stored in cylinders at 3600 psi. The city of Dallas operates For Crown Victoria's and small Hondas. The fueled range is about 125 miles. This may include some freeway driving. The Crown Victoria's have five fuel tanks that are about three feet long and 12 to 14 inches in diameter. Conversion requires taking out the entire gasoline system.

The Garland Independent School District (GISD) operated CNG-powered vehicles. GISD now operates diesel-powered buses. They can't be converted from diesel to CNG (so they say). The big buses had a 60 to 70 mile range, and the smaller buses had a 40 mile range, about 1/3 that of gasoline-powered buses. The fuel bottles were about five feet long and two feet in diameter. A big bus had six bottles. The CNG was at 3,000 to 3,200 psi. The conversion cost was about 50% of the cost of the bus. GISD received subsidies and grants. These rendered the program economic.

DART ran buses powered by LNG. The LNG tanks were insulated double walled with vacuum between the walls or Dewar type vessels. The tanks held 15 to 1000 gallons of LNG. 260 to 300 gallons of LNG are equivalent to 120 gallons of diesel fuel. The price per mile was about ten cents more for LNG, but recent diesel price increases have eliminated most if not all of this difference. DART pays a state tax on LNG.

The Fort Worth Transit Authority ("The T") operates CNG-powered buses. "The T" has converted about 96% of their buses to CNG. Their fuel tanks operate at 3600 psi and weigh 225 pounds each. Originally these tanks weighted 500 pounds, but lighter tanks are available that still comply with American Society of Mechanical Engineers (ASME) codes. A big bus will have four to eight tanks and will have a range of

\*\*\*\*Continued on Page 20\*\*\*\*

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## UNT'S BROSTOW HONORED

UNT material science professor **Dr. Witold Brostow** received a signal honor at the most recent PolyChar Conference held April 17-21 at Nara Women's University in Japan. He was the recipient of the Paul J. Flory Polymer Research Award for his work on the prediction of longterm reliability of visco-elastic materials and for his discoveries in tribology.



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## Heart o' Texas

**Baylor University** After 13 years of service to Baylor as Chair, **Dr. Marianna Busch** has decided to step down. Dr. David Pennington will be Interim Chair. New lecturers are Dr. Bernard Heyns and Dr. Tom McGrath. Colloquium speaker Sept. 1, Dr. Mary Lynn Trawick, Baylor.

## South Plains

**Texas Tech** Welch Professor **William L. Hase** gave a plenary lecture entitled "Direct Dynamics Simulations of Atomic-Level Gas Phase Organic Reactions: Post-Transition State Dynamics" at the Conference on Electronic Structure: Principles and Applications (ESPA 2006) held at Santiago de Compostela, Spain, July 18-21.

## Wichita Falls-Duncan

The next section meeting will be Sept. 27 at the Halliburton Technology Center in Duncan, OK. ACS tour speaker **Dr. R. Bruce King**, Regents Prof. of Chemistry at the University of Georgia, will speak on "Transition Metal Catalysis of Carbon Monoxide and Formate Reactions."

Section members attending the San Francisco ACS meeting include **Lance Brothers**, who will be taking an ACS short course, **Keith Vitense**, serving as councilor and on CEPA, **Tom Dealy**, serving on the International Affairs Committee, and **Ann Nalley**, ACS President.

## Dallas-Fort Worth

**UT-Arlington** Welch Professor **Dr. Daniel Armstrong** organized the session on "Advances in Separations" at the Rocky Mountain Conference on Analytical Chemistry held in Breckenridge, CO July 23-27. Fourteen members of his research group gave oral and poster presentations to the approximately 600 attendees from 20 countries. Also attending were **Dr. Dmitry Rudkevich** and his postdoc **Dr. Vaclav Stastny**. Rudkevich gave the paper "Supramolecular Materials and Methods for Separation, Storage, and Release of Gases," while Stastny talked on "New Ways to Separate and Use Carbon Dioxide." Rudkevich earlier gave a talk on "Synthetic Nanotubes" at the Joint International Symposium on Macrocyclic and Supermolecular Chemistry held in Victoria, B.C. June 25-30.

**Dr. Kevin Schug** and his postdoc **Dr. Peter Frycak** attended the 17<sup>th</sup> International Mass Spectrometry Conference in Prague Aug. 27-Sept. 1. Dr. Schug gave a talk on "Solution Phase versus Gas Phase Molecular Recognition by ESI-MS: Is the System Dependence of Phasic Correlation Generally Surmountable?" while Dr. Frycak gave a poster presentation on "Mass Spectrometric Measurement of Binding Affinity of Non-Covalent Complexes in the Presence and Absence of Solvent."

**TCU Bob Neilson** traveled to the 11th International Symposium on Inorganic Ring Systems in Oulu,



quantum chemistry symposium on May 30 hosted by the Royal Society of Chemistry at the University of Sheffield. **Ryan Tian** presented a seminar at the Biomedical Engineering Forum at UALR. Undergraduate **Jana Gertsch** and recent graduates **Andrea Henrichs** and **Andrew Cogbill** gave poster presentations at the Oklahoma NSF EPSCoR Annual Conference.

**Don Bobbitt, Roger Koeppel, David Paul, David Vicic** and **Charles Wilkins** were among a delegation of professors who traveled to Russia in late June to investigate international collaborations with Moscow faculty, including future REU exchange programs. While in Russia, Wilkins also presented the keynote lecture in mass spectroscopy during the International Congress on Analytical Sciences on June 27. **Bob Gawley** gave an invited lecture on June 12 at the 16 IUPAC Conference on Organic Synthesis held in Merida, Yucatan, Mexico. He also presented a poster June 19 at the Gordon Research Conference on Stereochemistry in Newport R.I. **Jack Lay** reviewed proposals at NIH July 17-19. Graduate student **Gavin Jones** gave a poster presentation at the Gordon Research Conference on Organometallic Chemistry July 9-14 at Salve Regina University in Newport, R.I.

**Matt McIntosh** was chair of the Gordon Conference on "Organic Reactions and Processes" held July 16-21 in Smithfield, R.I. **David Vicic** and graduate student **John Hutchi-**

**son** gave presentations at the conference. At the American Crystallographic Association Meeting held in Honolulu July 22-27, presentations were made by **Joshua Sakon**, graduate students **Fei Guo** and **Cynthia Sides**, and postdoc **Leena Philominathan**. Several from the department attended the National IDeA Symposium of Biomedical Research Excellence held in Washington, D.C. July 21-22. Presentations were given by **Bob Gawley, T. K. S. Kumar, Joshua Sakon, Frank Millett**, graduate student **Anna Miller**, and postdoc **Stephanie Schouteeten**. **Ryan Tian** presented a poster at the Gordon Research Conference on "Nanostructure Fabrication" held July 16-20 in Tilton, NH. **Charles Wilkins** gave a paper at the 17<sup>th</sup> International Mass Spectrometry Conference in Prague, Czech Republic, Aug. 27-Sept. 1.

**Dr. Jennifer Gidden** has joined the Statewide Mass Spectrometry Facility as a mass spectrometry specialist. **Lucas Moore** has joined the Vicic lab as a postdoc. An article by **Bob Gawley** is listed as one of the five most accessed articles in *J. Org. Chem.* during first quarter 2006.

New graduates **Drew Cogbill** and **Danis Copenhaver** will spend the 2006-2007 academic year in Belize laying the groundwork for a future UA service learning project. Undergraduate **Megan Evans** was one of 19 UA students taking part in the first study abroad program in Sub-Saharan Africa sponsored by the Fulbright College.


## HENDRICKSON OF AR'KON WINS GREEN CHEMISTRY AWARD

Local D-FW chemist **Dr. Connie Hendrickson** of Ar'kon Consultants in Irving teamed with NuPro Technologies of Winston-Salem, NC to win a prestigious Presidential Green Chemistry Challenge Award in the small business category. These awards went to four companies and one academician selected from some 90 nominations. Ar'kon and NuPro developed novel flexographic printing washout solvents and alternative solvent-recycling systems, which have lower emissions of volatile organic compounds. The partners hold a number of U.S. and foreign patents on these systems. They received their awards June 26 at a ceremony held at the National Academy of Sciences in Washington, D.C. There was a nice write-up of the technology and award with pictures on p. 25 of the July 10, 2006 issue of *C&EN*. **Connie Hendrickson** is a past president of the American

Institute of Chemists, was General Chair for the 1998 ACS National Meeting held in Dallas, was Program Chair for SWRM-2004 and is a past chair of the D-FW ACS section.

## CASWELL PAPER HONORED

Occasional *Southwest Retort* writer and retired TWU chemistry professor **Dr. Lyman R. Caswell** has been selected to receive the ACS Division of the History of Chemistry Outstanding Paper Award. This award is given to the author of the best paper published in *The Bulletin for the History of Chemistry* over the past three years. Dr. Caswell, who now lives in Seattle, WA, was honored for his paper "Andres del Rio, Alexander von Humboldt, and the Twice-Discovered Element," *Bull. Hist. Chem.*, **2003**, *28*, (1), 35-41. Later this year we will be publishing a book review by Dr. Caswell.

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## DON'T FORGET THOSE LOCAL SECTION DUES!

It won't be long until you will be receiving your 2006 dues statement from ACS. Among the various charges on your statement will be a listing for optional local section dues. Since it's optional, you will be tempted to forget about it. **Please** pay that small sum; don't cross it out. Those optional dues make a world of difference to the programs that your local section can offer. They are *vital* to your local section, so go ahead and pay them. You won't miss the money, but your local section surely would.

## REGIONAL ACS SECRETARY- TREASURER WANTED!

The Southwest ACS Region is seeking an energetic individual to succeed **Dr. Kenneth Ashley** as Secretary-Treasurer of the Southwest Region. Responsibilities, which are not onerous but are crucial to the continued health of the Region, consist of administrative duties such as bookkeeping and bill paying, communication of information to sections within the Region, maintenance of records and archival material, and making preparations for the Regional board meeting, which occurs on the last day of each year's Southwest Regional Meeting. A commitment of at least two years would be most helpful to the Region. For more information or to volunteer to perform this important function, contact **Dr. Denise Lynn Merkle** at ([dmerkle@sciconsult.com](mailto:dmerkle@sciconsult.com)) or at 817-921-0029.



## Chem Gems & Joules

This column will return next month.

Column editor Stephen Starnes of Texas A&M University-Commerce welcomes

*material for this column that would be of interest to chemical educators. Send your material by e-mail to [stephen\\_starnes@tamu-commerce.edu](mailto:stephen_starnes@tamu-commerce.edu)*

# AROUND THE AREA

## East Texas

**UT-Tyler** The Department of Chemistry welcomes **Dr. Randy Back**, Visiting Assistant Professor of Physics, and **Mrs. Christina Ragain**, Chemistry Lecturer. Dr. Back received his Ph.D. in physics from the University of Kentucky and served as a faculty member for eight years at the Louisiana School for Math, Science, and the Arts, located at Northwestern State University, Natchitoches, Louisiana. Mrs. Ragain received an M.S. in chemistry from Yale University in May.

**Dr. Tanya Shtoyko** spent this summer conducting collaborative research with **Drs. Karol and Ignacy Gryczynski** at the University of North Texas Health Science Center. **Dr. Jason Smee** was awarded one of four 2006 UT Tyler President's Faculty-Student Summer Research Grants.

**Dr. H. Neil Gray** has been awarded the university's first Minnie Stevens Piper Nominee/White Fellowship Award for excellence in both teaching and research. He has previously received the 2001 UT System Chancellor's Council Teaching Award, 2004 White Fellowship Award for Excellence in Teaching, 2005 Alpha Chi Outstanding Faculty Award, and the 2005 President's Scholarly Achievement Award.

## University of Arkansas

New chemistry and biochemistry graduates dominated commencement and other ceremonies this spring. **Danis Copenhaver** gave the greeting from undergraduates at the all university commencement. **Ami SriRamaratnam** was one of two student speakers at the Fulbright College commencement. Copenhaver, **Jennifer Pharr** and **William Reyenga** graduated as First Ranked Senior Scholars, students who earned at 4.0 GPA. They were among 27 total UA students receiving this honor. **David Deitz** received one of two Senior Honors Citation awards given by the Arkansas Alumni Association. Seven department majors graduated Summa Cum Laude, three graduated Magna Cum Laude, and two graduated Cum Laude. Fourteen department majors received the honor of Fulbright College Senior Scholar. This honor is given to seniors graduating with a 3.8 GPA or higher. Nine of the 62 undergraduates honored as Four-Year Honors Students were department majors. Eleven undergraduate majors were initiated into Phi Beta Kappa. Fifty-four undergraduates made the Fulbright College Dean's List.

**Roger Koeppe** was an invited speaker at the Spring meeting of the Material Research Society held in San Francisco. **Jon Baker** attended a

## STATEMENT FROM JAMES A. WALSH

I have served on six ACS Council committees. For two years I chaired the committee on Constitution and Bylaws. I understand the Society's governance structure and how it functions. My learning curve will be very short.

I am a long-time member of three ACS divisions. This year I am a member of the Committee on Division Activities and Chair of the Division of Professional Relations. As such, I am knowledgeable about the challenges and opportunities facing our divisions. I am sensitive to the issues of professional status and the career needs of members.

During my career I have chaired two local sections in quite different stages of their development. I am keenly aware of their importance to the Society, and I have observed first-hand some of the difficulties that threaten their very survival.

I am in my 24<sup>th</sup> year as a local section councilor. With this background, I know that I can work effectively with Council.

In addition to the leadership positions mentioned above, I was General Chairman of a successful Regional Meeting. During my academic career, I spent eight years as a Department Chair, two year as Presiding Officer of the Academic Senate, and two years chairing a committee that successfully guided a total revision of the Faculty Handbook (by reference a part of the faculty contract) through a multilevel approval process. Thus, I know what is required of one in a leadership position. I am experienced in motivating people, in building consensus, and in moving an agenda forward.

After over forty years of university teaching, I retired from the classroom and the research laboratory. However, I retained my interest in and enthusiasm for the future of our Society. Now I seek your vote for President-Elect of the ACS. \*\*\*\*\*

## KNUDSEN IS 2006 OKLAHOMA CHEMIST

This year's Oklahoma Chemist is **Dr. Ron Knudsen**, now retired from Phillips Petroleum Co. He was honored for his remarkable achievements in industrial chemistry. They include discovery of a unique nickel catalyst system for ethylene polymerization that is active in polar solvents, discovery of another nickel

system that selectively dimerizes ethylene to 1-butene, studies of the branching of long-chain branching on ethylene rheology, and development of a chromium polyethylene catalyst that is currently used in production of polyethylene resins. A profile of Dr. Knudsen will appear in  
\*\*\*Continued on page 20 \*\*\*

## STATEMENTS FROM ACS PRESIDENTIAL CANDIDATES

*Editor's Foreword: As is our usual practice in September, we are publishing 300 word statements provided to us by this year's four candidates for ACS president. The order of statements is alphabetical by last name. The percentage of ACS members voting for president has been shrinking year after year. Voting for president is one of the easiest things members can do and one of the most important. We urge you readers to read these statements carefully and then vote!*

### STATEMENT FROM BRUCE BERSTEN

To begin, I'm very pleased with our Society's new Vision Statement, "Improving people's lives through the transforming power of chemistry." How will I build on our new vision? I'll focus on a few key areas in which we can have a transforming effect:

**Education.** I coauthor a general chemistry textbook entitled *Chemistry: The Central Science*. That title reflects the message that my coauthors and I impart throughout our text, namely that chemistry is central to nearly all new scientific discoveries. As chemists, we need to convey that centrality to our students so as to stimulate their interest in the chemical sciences.

So how are we doing? Not as well as we could. As has been starkly described in the recent NAS report, *Rising Above the Gathering Storm*, we're producing a smaller number of U.S. science students. Further, our students often lack the critical thinking skills to contribute to important competitiveness initiatives. We in the ACS must be a stronger partner in addressing these issues. We need to be more transformational in education.

**Communication.** We're pretty good at communicating among ourselves, but less effective at taking our message to the rest of our world. Our Society must become more effective at communicating the positive message of chemistry to our stakeholders at all levels, from elementary school students and teachers to the legislators who control funding for basic and applied research. We need to be the strongest and most vocal proponents of the beauty and power of chemistry.

**ACS Structure.** Frankly, the ACS needs to transform the ways in which it conducts business. We need to look critically at our governance to make sure that we can transform ourselves appropriately as chemistry itself transforms. I will work with the Council and the Board to make positive changes in our evolving Society.

We, the ACS membership can work to improve our Society and make its voice clearer, louder, and more effective.

## STATEMENT FROM YORKE E. RHODES

**Connecting Past Traditions to the Future to Meet The Challenges of the 21<sup>st</sup> Century.** I am an optimistic enthusiast for chemistry and ready to stimulate interest in chemistry wherever I can speak. Whether it be at National, Regional, or Local Section meetings, to congress or state legislatures, to other science societies, to high schools, middle and elementary schools, to youngsters of all ages. We have wonderful stories to tell and tell them everywhere, we must. I will be an advocate for our society, for the sciences, and for you, wherever you are. And I can't do it all, so I'm going to ask all of you to work. We must reach out to all levels in our broader society to tell "The Chemistry Story", in whatever form and format you may choose.

**Chemistry is Change. Life Changes for us all. ACS Needs to Change, more quickly!**

We all need to be advocates for chemistry, advocates for science, for industry, for education, and as President of ACS I'll advocate for all. There are promising new approaches for teaching first-year college students unified, integrated science courses (*C&EN*, July 17, 2006, p.43). We must bring excitement to our beginning courses. We have more students involved in research-based learning in colleges, in inquiry-based learning in high schools (SEED and others), and we need to develop more discovery-based studies for elementary and middle schools. (My seventh grade science teacher instilled interest in astronomy and 50 years later I research in astrochemistry.) Invite me as a Tour Speaker---I've spoken at 90 Local Sections in the last ten years, and as President I plan to speak at more. We need new students for the development of the future of science.

We need stronger outreach to minority groups, to promote women scientists, to utilize senior chemists (Silver Circle) to our and their advantage, and to assist the employment of foreign-born scientists resident here. Local Sections and Divisions have enhanced finances as a result of my activity with six others on the President-Board Task Force for Funding. I believe Section's and Division's strength and activities can be enhanced by visitations from members, officers, and staff. I will propose regular visits to promote activity in new areas and modes. We all have so much to give, and there are so many issues that need action. I want to be the Action-President of chemist-scientists for all of you. Please cast your vote for Yorke Rhodes for President-Elect 2007. Your vote does count more than you think, because only about 15% of you vote.

*For more information, please see my website: [www.yorkerhodes.org](http://www.yorkerhodes.org)*

\*\*\*\*\*  
The power of ONE: Andrew Johnson failed to be impeached by the margin of only ONE VOTE. You too could make the difference in national leadership.

## STATEMENT FROM BASSAM Z. SHAKHASHIRI

**WE MUST DO OUR BEST FOR ACS, SCIENCE, AND SOCIETY.**

I am eager and able to accept the challenges and responsibilities of the presidency of the world's leading scientific organization to further serve the members of ACS and society at large. I ask for your vote to help me advance the mission of ACS, to maintain its preeminence, to strengthen its effectiveness, and to expand its contributions. I need your help for what is **BEST** for ACS:

Benefit and enable members to flourish scientifically, economically, and professionally.

Encourage creativity, innovation, collaboration, and competitiveness.

Stimulate connections, partnerships, and effective communications.

Teach chemistry well at all levels and communicate its importance to the public.

ACS is a *membership* organization, and we must retain and attract members. I want ACS to better serve its members and to advance the professional status of chemists. My agenda includes: assuring the viability of ACS as a membership organization, strengthening what ACS does best through its publications, meetings, divisions, and sections; increasing public and private support for research and education; assuring openness in ACS governance matters; advocating openness and integrity in the conduct of research and publication; addressing national security issues including chemical plant security and foreign scientist visas; dealing with globalization and its consequences; addressing environmental regulations; focusing on workforce needs and employment; enhancing quality, supply, and salaries of teachers; fostering international cooperation and collaboration in research and in education; promoting sustainable development; and improving scientific communications within and among different cultures.

The future of ACS depends of effective leadership and sustained member support. I will serve ACS as a grass-roots and uniting leader. I ask for your vote and for your collaboration to do what is best for ACS, for science, and for society.

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