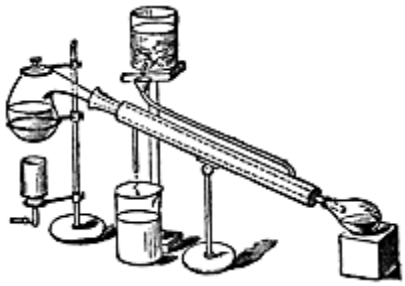
SOUTHWEST RETORT



SIXTY-FOURTH YEAR **December 2011**

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. 64 December, 2011(3)

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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. Contact the Editor for subscription and advertisement information.

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FIFTY YEARS AGO IN *THE SOUTHWEST RETORT*
DECEMBER 1961

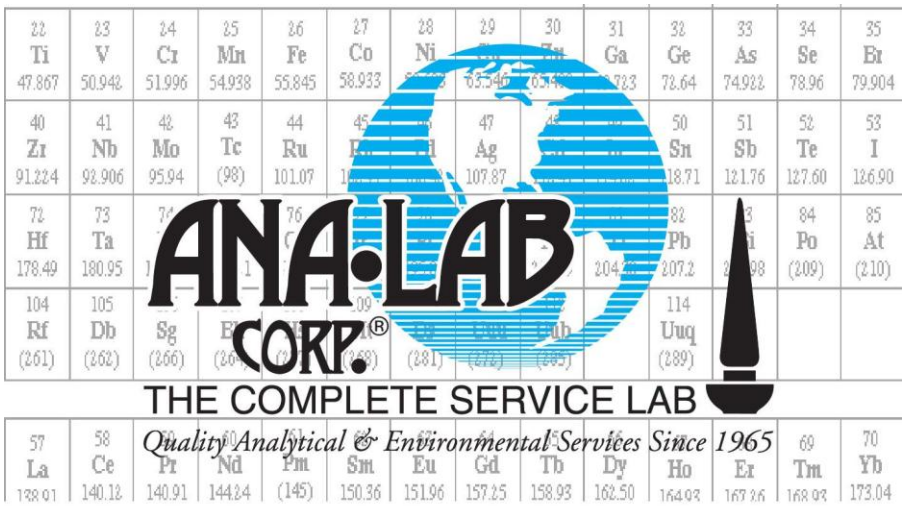
The winner of the 1961 ACS Southwest Regional Award was **Dr. Harry T. Lockte** of the University of Texas (*now UT-Austin*). Dr. Lockte was honored for his work on the analysis of compounds in petroleum. He gave an awards talk on Dec. 7 on "Some Nitrogen Compounds in Petroleum and their Origin" at the ACS Regional Meeting held in New Orleans. Further activities by UT faculty include a presentation in September by **Dr. P. S. Bailey** at the Organic Reactions Symposium held in Lake Placid, NY, two presentations by **Dr. Norman Hackerman** in October at the Electrochemical Society Meeting held in Detroit, and attendance by **Dr. A. J. Bard** at the Fifth Annual Varian NMR-EPR Workshop held in Palo Alto Oct. 23-27. **Dr. J. E. Boggs** received a two-year, $27,800 grant from NSF to study "Temperature Variation of Atomic Polarization," while **Dr. D. M. Himmelblau** received a $10,000 renewal grant from AEC to continue his work on "Liquid-Liquid Mass Transfer."

A new chemistry faculty member at Austin College is **Dr. Frank Edwards**. He comes from the University of Dubuque in Dubuque, IA, where he was head of the chemistry and science department. He received his Ph.D. in physical inorganic chemistry from Iowa State University. At Tarleton State College the Tarleton Science Club's 90 members and guests viewed an AEC film on the Nevada atomic tests at their Oct. 25 meeting. A narration was given by **Dr. P. A. Caraway**, who has previously worked on some of this testing. **Miss Jana Showalter**, daughter of Tarleton chemistry Professor **W. P. Showalter**, will marry **Dr. Alvie Lee Davis** of the Abilene Christian chemistry department. Texas Woman's University faculty member **Dr. Helen A. Ludeman** attended the 8th Conference for the Advancement of Science and Mathematics Teaching on Nov. 2-4 at the University of Texas. **Drs. Robert W. Higgins** and **Roy Beauchene** attended the Welch Conference in Houston Dec. 4-6. Dr. Higgins also attended the Symposium on Nuclear Education held Oct. 25-28 in Philadelphia.

Four papers from Baylor were given at the combined Southwest-Southeast ACS Regional Meeting held in New Orleans in Dec. Authors were **Thomas Franklin** and **Charles Liang**; **H. D. Harlan** and **V. L. Tweedie**; **V. L. Tweedie** and **I. H. Song**; and **A. G. Pinkus** and **H. C. Custard, Jr.**

Recent seminar speakers at the University of Arkansas include **Dr. Norman Foster** from the U.S. Bureau of Mines in Bartlesville, **Dr. Y. Miyake** from Tokyo Educational University, and **Dr. A. W. Weitkamp** from the Whiting Laboratory of American Oil Co.

At the University of Houston **Dr. Ralph S. Becker** has been appointed to the Editorial Board for *Advanced in Photochemistry*. Faculty member **Dr. J. Oro** had six publications on geochemistry during the 1960-61 academic year, while **Dr. A. Zlatkis** had three such publications on analytical chemistry.



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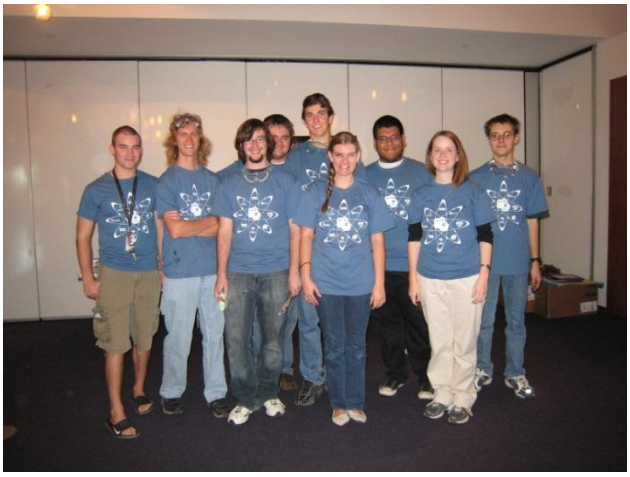
MORE NATIONAL CHEMISTRY WEEK PHOTOS



The Rick Smalley We Never Knew

By Sean O'Brien

In 1984 I moved to Houston for graduate school at Rice University. That summer I worked for Rick Smalley as a research assistant, then officially joined his group in the fall semester. I graduated in 1988 after an amazing four years of studying a new form of carbon, the fullerenes. In this brief essay I will describe some of his pre-carbon work so that we all may remember the genius physical chemist taken from us by leukemia in 2005.

In 1996, the Nobel Prize in Chemistry was awarded to Rick Smalley, Harry Kroto, and Bob Curl for the discovery of the fullerenes. This discovery overwhelmed and transformed Rice University Professor Rick Smalley's reputation. Few people remember or even realize that by 1985, when the fullerenes were discovered, Rick had pretty much earned his own Nobel Prize for pioneering work in physical chemistry, a Prize he would never receive.

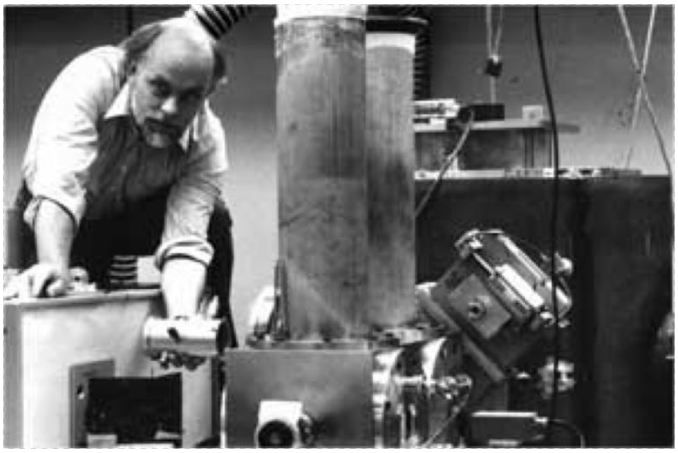
It's interesting that one of the reasons I wanted to work for him was his study of intramolecular vibrational relaxation. A UV laser excited a phenolic group which leaked its energy into a side chain. He then measured the fluorescence as a function of the length of the alkyl chain. This was beautiful spectroscopy and caught my imagination. This was one of several Smalley lab projects on which I would never work. Another wonderful spectroscopic study was the derivation of the structure of SiC_2, silicon dicarbide.

When I joined Rick's group in 1984, he had been working metal clusters for a year. A laser would vaporize some metal atoms into a pulsed helium stream. The atoms would condense into clusters for a few microseconds before the helium pulse reached the end of the nozzle. The resulting supersonic expansion dropped the density and temperature to the point where no more clustering occurred. The supersonic jet entered the extraction zone of mass spectrometer where a UV laser would ionize them for mass/charge time of flight analysis.

Rick had recently measured the bond length of Cr_2. Using a chromium rod he generated Cr clusters, and then measured the absorption spectrum of the dimer using a technique known as resonant 2-photon ionization spectrosctopy (R2PI). In R2PI a tunable laser scans across an absorption band. A low power UV laser is used which by itself is not capable of ionizing the molecule. But when the first photon is absorbed the UV laser then ionizes the cluster. This converted a single absorption event into a single ion which could be easily measured using a sensitive ion detector.

Chemical reaction studies began in 1984 with the construction of a small nozzle piece which allowed the addition of chemical

species into the supersonic jet of the cluster source. This seemingly simple addition opened up an entire field of metal cluster chemical reactions, and was a critical part of the discovery of the fullerenes. This was my first project in his group as we reacted benzene to tungsten clusters. This small piece of the nozzle was the crucial element in the discovery of the fullerenes. C_{60} was discovered without it, but this chemical reaction nozzle proved that all the large even clusters were chemically inert. This was the stunning result which led to a December trip to Sweden in 1996.



By 1984 Rick had become an advanced programmer. He routinely wrote C and assembly code to use the hardware interrupt system in the IBM-PC as control of the timing of the experiments. The data acquisition program named Zeus used alternating hardware interrupts (named tic and toc) to fire the lasers, pulse the nozzle, and gate the ion detection electronics. All experiments in his lab through early 1986 were run on an 8-bit computer using C and assembly code. Try to imagine programming these for important tasks as you read this on a 64 bit computer or your iPad.

In 1985 I was assigned to work on semiconductor clusters and began to design and build the rotating disc cluster source. Rods of Si and Ge were fragile and easily broken. Rods of more exotic semiconductors such as GaAs or InP were not available. So I designed a source to hold semiconductor wafers. This source was critical to the C_{60} discovery, the old rod source could not have generated the extreme clustering needed to generate the famous "flagpole" mass spectrum of C_{60}. My first (and only) semiconductor experiment with this source was to study GaAs clusters.

The machine we used to discover the fullerenes was called AP2, because it was Rick's second apparatus. This machine had a simple static field time of flight mass spectrometer (TOF-MS). This machine was impressive and obviously important. But the TOF system was old hat by then.

Rick built three more major pieces of equipment in the mid 80's: The tandem time of flight mass spectrometer (TTOF-MS), the magnetic bottle photoelectron spectrometer (PES), and the ion-cyclotron resonance mass spectrometer (ICR-MS). All three began with the traditional laser vaporization cluster source, the clusters then entered one of these 3 chambers for various experiments. These 3 pieces of equipment each stood roughly 20 x 20 ft by 10 feet tall, consuming a huge portion of the 3rd floor of

the Space Science Building. By 1986 they made the Smalley lab the center of the physical chemistry universe.

The TTOF system used a pair of time of flight mass spectrometers to study a single cluster mass by photodissociation. The system allowed alternating pulsed streams of baseline clusters versus experiment, alternating at 10 cycles per second. In 1987 a professor from McGill asked if he could study AgFe clusters on this machine for a few days. Ag and Fe are immiscible metals, so the bimetallic clusters were expected to show intriguing behavior. Over a period of 24 hours we used this machine to generate enough data for a long paper.

In 1986, a year after the initial discovery of the fullerenes, Rick's work on negative metal ion clusters was still running full blast. Rick along with Ori Chesnovsky, designed and constructed the PES. Here he used a UV laser to detach electrons from anion clusters and instead of a second mass spectrometer the electrons were focused by a magnetic field onto the detector. The energy of the ejected electron was related to the binding energy of the anion, and he obtained beautiful spectra of the electron energy levels of many different anionic clusters.

Rick's graduate students Mike Alford and Tapani Laaksonen built the ICR which used a large magnetic field to trap ions for extremely long periods of time (sometimes measured in hours). The trapped ions could be selectively ejected to leave behind a single mass cluster to be studied by chemical reactions or photodissociation. Rick Smalley in many ways reminds me of Steve Jobs (or perhaps vice versa). Jobs didn't invent the mouse or the MP3 player. Rick didn't invent R2PI, or metal clusters, or photodissociation, or ICR-MS, or PES. Rick had a genius level ability to combine disparate techniques into a single experiment which resulted in world class scientific results. Steve Jobs didn't work in a vacuum and neither did Rick. Each needed talented people under him to turn out stunning results. Rick's drive and determination led those to bigger and better achievements than they would have otherwise accomplished. Whether it was Saturday morning group meetings, or late Friday night repairs on a broken vacuum pump Rick was constantly in the lab, running equipment, and staying on top of every detail.

Had he lived to a ripe old age Rick probably would never have joined Madame Curie, John Bardeen, and Frederick Sanger as two-time Nobel Laureates. The fullerenes, and later the nanotubes, were such a profound part of his life that even he may have lost track of his lofty position in the 1980's. Physical chemistry probably would not have put Rick in a position to visit the seats of power, testifying to Congress and visiting the Oval Office. So I'm sure he had no regrets. But he really should have been offered a Nobel for his PChem work. He deserved it.

AROUND-THE-AREA

UTD

Assistant Professor **Jie Zheng** was awarded $1.2M in CPRIT funding for his proposal "Targeting the Acidic Tumor Microenvironment with Renal Clearable and pH Responsive Luminescent Gold Nanoparticles". Professor **Rocky Draper** and Associate Professor **Paul Pantano** were awarded an Air Force Phase-I SBIR with Medical Nanotechnologies Inc. for their proposal "Enhanced cytoplasmic delivery of therapeutics by NIR and graphene oxide-mediated thermally-induced endosome/lysosome leakage."

DFW

Bill Carroll of Oxychem has been elected Chair of the ACS Board of Directors for 2012. HE is also the recipient of the 2011 Harry & Carol Mosher Award by the Santa Clara Valley Section which is meant "to recognize and encourage outstanding work in chemistry, advancing chemistry as a profession, and service to ACS". Bill donated the stipend back to the SCV Section to be applied to an award for chemistry professors at 2-yr colleges.

Judges needed for Regional Science and Engineering Fair

Judges are needed for the 2012 Beal Bank Dallas Regional Science and Engineering Fair on Saturday, February 25, 2012 in Fair Park, Dallas. The fair is both a high quality competition and exhibition for the best middle and high school research projects in the north Texas region; nearly one thousand exhibitors are expected. To get more information, check the judges' page at **drsef.org.** If you cannot find the answer there, email specific questions to scifair@physics.smu.edu

BAYLOR

Bikram Subedi of the Chemistry and Biochemistry Department gave a 20 minute oral presentaion on "Dioxins, Furans and Polychlorobiphenyls in Fish, Crabs, and Clams from San Jacinto River Waste Pits" at the SETAC National Meeting (Society of Environmental Toxicology and Chemistry 32nd National Meeting 2011). His presentation won the Best Platform Presentation Award, Second Place. There were 786 total oral presentations at the meeting.

UTA

Rasika Dias gave an invited talk at the ACS Southwest Regional Meeting held in Nov. 2011at the symposium on "Main Group Chemistry: A Continual Source of Fundamental New Knowledge and Applications in Everyday Life." He also gave seminars

recently at the New Mexico State University, the University of Nevada, and Texas Woman's University.

U Arkansas

Julie Stenken has received a two-year NIH Exploratory Developmental Research Grant (R2l) entitled "In Vivo Brain Dialysis of Neuropeptides and Neuroimmune Signaling Proteins." This work seeks to develop analytical chemistry methods to collect and detect cytokine proteins to allow for rapid translational medical treatments for humans. R21 grants are meant to encourage high risk/high return research efforts.

Fall 20ll **ACS National Meeting** & Exposition, Denver, August 28-Sept. 1: **Bob Gawley** attended as the program chair for the ACS organic division. **Colin Heyes** presented a poster "Connecting the Physical Chemistry of Biofunctional Quantum Dots at the Ensemble and Single Molecule Level."

The paper "High Accuracy Benchmark Calculations on the Benzene Dimer Potential Energy Surface," by **Peter Pulay** and postdoc **Tomasz Janowski** (Vol. 447, Issue l-3, 15 October 2007, pp 27-32) continues to be the second most highly cited paper in Chemical Physics Letters during the past five years.

Roger Koeppe presented "On the Treatment of Dynamics during Solid-State NMRAnalysis of Membrane Proteins," by **Roger E. Koeppe and Vitaly V. Vostrikov** at the Southeast Regional NIH IDeA meeting in New Orleans, Sept.22-24.

Joshua Sakon presented "Medical Application of Clostridial Toxins; 2) Collagenases," at the XIII International Congress of Bacteriology and Applied Microbiology XIII International Congress of Mycology hosted by the Federation of Microbiological Societies of Japan, Sept. 6-10.

TCU

Undergraduate **Sandi Deng** was awarded a 2012 ACS Student Leadership Award, one of only 15 in the United States. Ms. Deng is the president of the TCU ACS Chemistry Affiliates Club, mentored by **Prof. Kayla Green**). Prof. **Tracy Hanna** gave a seminar titled “Bismuth Aryloxides; Monodentate, Chelating, and Calixarene Ligands” at the ACS Southwestern Regional Meeting in Austin TX in November.

acsdfw.org

NOMINATIONS NEEDED!

Doherty and Schulz Awards: Call for Nominations

Nominations are invited for the 2011 Wilfred T. Doherty and Werner Schulz awards. Nomination forms are available online at **acsdfw.org.** This year's chair is **Dr. Claire Bambrough,** Brookhaven College (972)-860-4214 cbambrough@dcccd.edu. Nominations are due by April 15. Seconding letters may accompany nominations. Each nomination should contain a cover letter carefully highlighting the nominee's ccomplishments. Nominations remain active for five years but should be updated annually. The Doherty Award is given for excellence in chemical research or chemistry teaching, meritorious service to ACS, establishment of a new chemical industry, solution of pollution problems, and advances in curative or Preventive chemotherapy. The impact of these accomplishments may be either of local or national significance. Nominees may come from industry, academia, government, or small business. The nominee should be a resident member in the area served of the DFW Section, and the work on which the award is based should have been done here. The honorarium for the Doherty Award is $1500 and an engraved plaque. A photo of the Doherty Award winner will be displayed permanently in the Gallery of Doherty Award winners, Berkner Hall, UT-Dallas.

The Schulz Award is given to high school chemistry teachers like the late Dr. Werner Schulz, who bring that something extra to the teaching of chemistry. The nominee or nominator need not be ACS members. Nominees should show excellence in chemistry teaching as demonstrated by testimonials from students and fellow teachers, results in student competitions, and diligence in updating and expanding scientific/ teaching credentials. A photo of the Schulz Award winner will be displayed for one month at the Science Place 1 in Dallas, and then the photo will be displayed permanently in the Gallery of Schulz Award winners, Science Bldg., Tarleton State University. A traveling plaque stays at the winner's high school for the year of the award. Winners will normally receive their awards and give their lectures at fall meetings of the section.

Remember, a continual flow of high quality nominations is needed in order to maintain the quality of these awards; please keep those nominations coming in.

PRINT AND POST!

January 2012

DFW ACS Meeting

acsdfw.org

Meet DFW's New Young Investigators

Learn about exciting research in the DFW Section

Saturday, January 28, 2012, 9 A.M. to 2:00 P.M.
Sid Richardson Building, Texas Christian University, Fort Worth, Texas

Updates and details on registration, directions, and parking will be posted at
http://faculty.smu.edu/pwisian/Jan2012.htm

Speakers (as of 11-5-11)

Frank W. Foss, UTA
Peter Kroll, UTA
Roshan Perera, UTA
Rob Petros, UNT
Youngha Ryu, TCU
Mihaela C. Stefan, UTD
Justin Youngblood, UNT
Jie Zheng, UTD

Invitation to all POSTDOCTORAL RESEARCH ASSOCIATES
in the ACS-DFW Local Section

All postdocs from the DFW section are invited to present a poster on their current research from **noon to 2:00 pm**. This is an excellent opportunity to network in the local section, meet local academic and industry leaders, and or develop collaborative research projects.
Please send your name, email address, a descriptive title, authors, and affiliation to Patty Wisian-Neilson at pwisian@smu.edu by **Wednesday, January 25, 2012**. Posters will be pinned to 2 x 6 foot poster boards.

February DFW ACS Meeting

US Bureau of Engraving and Printing

Fort Worth Western Currency Facility

Carol Riggs from the US Bureau of Engraving and Printing will present to us the process of printing US currency, as well as the history of the Fort Worth Western Currency Facility.

Time and place (somewhere in Fort Worth) to be announced: Watch for announcements via email and at

acsdfw.org

Contributors wanted!

The RETORT seeks articles on technical topics, scientific and opinion papers, as well as news items and announcements. Submit to retort@acsdfw.org

The RETORT is seeking a
COPY EDITOR
Experience in newsletter construction and Word preferred

Email retort@acsdfw.org

March 2012

DFW ACS Meeting

Presents

Inaugural Industry and Small Business Meeting

Saturday, March 24th, 2012

John G. Mahler Building's Great Hall, Dallas Baptist University

!! We are looking for companies interested in presenting via an oral presentation or sponsoring a table !!

Meeting Objectives:

1) Provide a platform for industry in the North Texas region to share what they are doing and/or the products that they provide.

2) Spur on collaboration with each other and/or academia in the area

3) Provide a platform for current students (post-docs, graduates, and undergraduates) to see what companies are in the area and begin networking for potential jobs.

4) Though it will not be a job fair, the networking aspects of it will certainly help current members in the section who are unemployed or about to enter the job market, while simultaneously help our local companies find strong competent potential employees loyal to North Texas.

5) Provide a potential fund raising activity for the local section to continue offering chemistry scholarships, awarding excellent high school teachers and professional chemists, and sponsor chemistry oriented activities such as this year's National Chemistry Week activities at Fort Worth Museum of Science and History where over 3,000 people participated in chemistry demonstrations put on by local universities in North Texas.

March 2012 Meeting cont.

From our 2012 Section Chair, Aaron Fletcher:

This year's meeting is the inaugural Industry meeting and I would love for you to be a part of it. The meeting will be on Saturday, March 24th at Dallas Baptist University, which is conveniently located between Dallas and Fort Worth.

I would like to invite you to present your company and its services/products via a 25 minute presentation with time for Q&A. It is my goal to have 5-10 companies present on their company. We will also have a breakout session over lunch where sandwiches will be provided and companies can have a table to present their services and products and allow for one on one conversations with our members. I hope to have 10-20 companies sponsor a table to present their company.

I encourage you and your company to help make this a wonderful meeting that provides a symbiotic relationship between you, your company, and all of our local ACS members. If you can be a part of our Industry and Small Business meeting please email me back at aaronf@dbu.edu or call at 214-333-5519. We are limited to only 10 oral presentations so reserve your spot now.

Aaron Fletcher, PhD
Chair Elect 2011-13, DFW Section

acsdfw.org

First Circular and Call for Papers

CHIRALITY 2012

Ft. Worth, TX

June 10th - 13th 2012

FEATURES

Plenary Lecture by Prof. E.J. Corey, Harvard University
1990 Nobel Laureate in Chemistry on *Enantioselective Chemical Synthesis*

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

International Chirality Medal Award Presentation and Address
Nominations are now being accepted

Presentations and Discussion Session on the Route to Commercialization of Chiral Drug Compounds

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Join us for the **24th International Symposium on Chiral Discrimination** in historic Ft. Worth, TX, Gateway to the West. See the conference website for more details on the extraordinary scientific and social program planned for scientists interested in all aspects of chirality.

Conference Organizers:
Prof. Daniel W. Armstrong, Professor and Robert A. Welch Chair
Prof. Kevin A. Schug, Associate Professor

On-Line Registration and Abstract Submission open January 2, 2012

www.chirality2012.com

Or e-mail us at: info@chirality2012.com

AN INTERVIEW WITH SEAN O'BRIEN

A Profile by E. Thomas Strom

Getting an award is certainly a rare event, so it follows that getting two awards in one year is highly unlikely. Have you ever heard of someone getting both the Nobel Prize for Chemistry and Physics in the same year? Of course not. However, this year Sean O'Brien of Texas Instruments has beaten the odds. He has won the D-FW Section's W. T. Doherty Award **and** the ACS Southwest Regional Award for 2011. The only previous D-FW winner of these two awards in one year was UT-Arlington's Rasika Dias in 2009. What makes this year so special is that the D-FW ACS Section achieved a double-double. Not only did Sean win the two awards, but this year Dr. Michael Trulson of the The Highlands School won the D-FW Schulz Award plus the Southwest Regional Award for High School Chemistry Teachers!

Obviously Sean is most associated with the discovery of the fullerenes, being part of the team that carried out that beautiful research, which was honored with 1996 Nobel Prize in Chemistry given to Drs. Smalley, Kroto, and Curl. We'll get to that in a little while, but let's begin at the beginning. Sean was born in Springfield, Illinois. He had a chemistry set at an early age and in the 8th grade had a microscope and telescope. He enjoyed taking TV sets apart, although he wasn't so good at putting them back together. He was raised by his mother, who was a nurse. He credits an outstanding high chemistry teacher, Ray Bruzan, with inspiring him to be a chemist. He then went to the University of Illinois where he received a B.S.Chem degree in 1984.

Those of us raised in the Midwest know of the Midwest's dirty little secret. It gets ***cold*** there in the winter! Consequently, Sean looked for graduate school in warmer climes, specifically Texas. That is how Sean wound up at Rice University with Rich Smalley as his mentor. Since the days of taking TV sets apart, Sean had improved his instrumentation skills so much that he was the designer of the rotating disc laser-vaporization cluster beam source that led to the discovery of the fullerenes. Nobel Laureate Harry Kroto testifies that Sean made important contributions to the fullerene research program and was a vital part of the fullerene team. As a consequence, Sean and fellow graduate student James Heath were invited to Stockholm for the Nobel Prize ceremonies. ***Retort*** readers with long memories will remember that fine two-part article Sean wrote about the experience.

Following the completion of his Ph.D., Sean spent two months in Japan at the laboratory of Dr. Eizi Hirota doing infrared work on carbon-3 and carbon-4. After that, Sean spent two years as a post-doc with James Kinsey at Rice. That work involved femtosecond Raman spectroscopy applied to molecular dynamics. In 1990 Sean joined Texas Instruments (TI) in Process Engineering R&D. With the exception of a short hiatus as Vice President of Process Engineering at MEMtronics, he has been at TI ever since.

Sean has had a varied career at Texas Instruments. Much of his work has been in surface chemistry. It is vital to have clean surfaces for chip processing. Sean also has been the liaison to the Nanoelectronics Research Initiative out of the Semiconductor Industry Association for the programs at Harvard and UC-Santa Barbara. He is currently a Senior Member Technical Staff working in the DLP-MEMS group (MEMS = Micro Electro Mechanical System).

Members of the D-FW ACS Section have fond memories of Sean's vigorous and constructive term in 2004 as Chair of the section. Sean met his wife Jennifer at TI, where she was working in analytical chemistry. They have three daughters: Holly, Mackenzie, and Cecilia. Jennifer currently teaches in the chemistry and engineering departments at SMU. Sean's hobbies involve readings about quantum mechanics and involvement in amateur astronomy through the Texas Astronomical Society.

Sean received his Doherty Award at a section meeting last September and his Southwest Regional Award in early November at the regional meeting in Austin. ***The Southwest Retort*** congratulates this fine physical chemist on his accomplishments and looks forward to his future scientific endeavors.

From the editor:

You will probably notice that we've changed a few things in this issue. First and foremost, the font size is larger….we had a number of comments regarding the readability in the web presentation. Right now we're keeping the style the same but that may be a change later (one thing at a time….it's true in lab and it's true here!).

Last month the Retort was placed on the web site ***issuu.com***, an online magazine site. Right now it's free, ***but*** they get to put ads and other publications on the page with us. Hopefully, we're going to get our own page soon. Another nice 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.

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 flip-page PC version, and a flip-page MAC version, all of which are downloadable and printable (the web version is not).

Best wishes for a good holiday season!

Connie

Dr.Ellen Steinmiller of the University of Dallas:

IS SHE READING THE NEW *RETORT*??!

YES!