

Newsletter, Spring 2009
Department of Chemistry
University of Tennessee at Chattanooga

Chemistry Department Moves to Temporary Quarters

The Chemistry Department moved to its temporary quarters in July 2008, in preparation for the Grote Hall renovations. We are located in the cream-colored modular buildings on Collins Street, behind the Challenger Center. We're excited about the Grote Hall renovations, which will include new HVAC, fume hoods, plumbing, electrical, and elevator. Chemistry will be permanently situated on floors three and four. Third floor will house Biochemistry, General Chemistry, Physical Chemistry, fifteen offices, a huge computer lab, and two classrooms. Fourth floor will be home to Advanced Organic and Inorganic, Quantitative Analysis, Organic, and Instrumental Lab, two offices, faculty research labs, a classroom, and the chemistry library.



Knight Appointed to Full Professor

Dr. Kyle Knight was honored with a promotion to full Professor, in recognition of his many wonderful contributions to the department and the university. He has been an outstanding teacher, mentor, researcher, and leader. Dr. Knight joined the Department in 1998. Congratulations, Dr. Knight!

Potts Appointed to Associate Professor

UTC has recognized the outstanding teaching, research, service, and leadership of Dr. Gretchen Potts by promoting her to Associate Professor and awarding her a UC Foundation Professorship. Dr. Potts joined the Chemistry Department in 2002 and has made many valuable contributions to the department and the university. Congratulations, Dr. Potts!

Grote Chemistry Scholars 2008-09



The Department of Chemistry is very proud of its Grote Scholars for the 2008-09 year. In 1976, Dr. Irvine Grote and his wife, Nita, established the endowment for the scholarship program. Dr. Grote served on the faculty from 1931 to 1969 and as chairman of the department from 1941 to 1964. The Grote Scholars are: **Jordan Foutch** (Liberty, TN); **Zachary Perry** (Ringgold, GA); **Adam Higgs** (Columbia, TN); **Cassie Brooks** (Greeneville, TN); **Grayson Golden, Vijay Patel, Hitesh Vashi, Marko Bajic, Jin Cheng, Sean Dunn, and Rishi Naik** (all six from Chattanooga, TN). We are very proud of these wonderfully talented students.

Website

Home addresses change more quickly than email addresses, so we invite you to visit our updated website at www.utc.edu/Academic/Chemistry to share your update news/addresses/email

addresses with us. If you would like to share your news with us, but don't wish to make it public, please let us know that as well. If we have your current email address, we can share our news with you in that manner. We receive a lot of returned mail due to a very mobile population. We thank Dr. Gretchen Potts for her outstanding work with the website. At the end of the newsletter, catch up with the activities and news of your fellow classmates.

Departmental Thesis Projects

Since Spring 2007, five chemistry students have Departmental Thesis Projects completed or in progress: (1) **Sarah Easparam**, "Characterization of Lead (II) Complexes by Spectroscopic Analysis;" (2) **Jessica Moerman**, "Analysis of Pollutants Released from Used Cigarette Litter;" (3) **Samuel Chill**, "A Facile One-Pot Conversion of Aldehydes into Nitriles and into Amides;" (4) **Rishi Naik**, "Progress Towards Self-Assembled Platinum(II) and Rhodium(III) Molecular Squares;" and (5) **Jennifer Gordon**, "Removal of Cholesterol from Solution by Adsorption on Carbon Powder."

Notable Accomplishments

Faculty and students have been very busy and productive. In the 2007-08 academic year, seven students earned Provost Student Research Awards totaling \$6,390, and in the 2008-09 academic year, nine students were awarded PSRAs totaling \$7,975. Faculty and students recently published a total of 11 research papers in the following scientific journals: *Inorganic Syntheses*, 2008; *Polyhedron*, 2008; *Main Group Chemistry*, 2008; *Journal of the Chemical Society, Dalton Transaction* 2008 and 2007; *Journal of Chromatography* 2008; *Geochimica Et Cosmochimica Acta* 2008; *Journal of Colloid and Interface Science* 200, 314, and 325; *Chemosphere* 73; *Synthetic Communications*; and *Microchemical Journal* 90.

Faculty and students presented a total of 45 research papers at the following conferences: the Southeast Regional Meeting of the American Chemical Society (Greenville, SC in 2007 and Nashville, TN in 2008), the National Meetings of the American Chemical Society (Chicago, IL in 2007 and New Orleans, LA in 2008), the Conference on Lunar and Planetary Science (Houston, TX), the Southeast Theoretical Chemistry Conference (Bloomington, IN), Pittcon (New Orleans, LA), Council on Undergraduate Research (Berea, OH), the National Science Foundation meeting (Hilo, HI), and the Lunar Science Institute Conference (Livermore, CA). Faculty secured grant funding from the following agencies: National Science Foundation, Research Corporation, TN Water Resources Research Council, The ACS/PRF Fund, and Wheeler Odor Research Center.

Dr. Greg Grant traveled to Washington, D.C. in January 2009 to serve on a panel reviewing research applications for the ACS's Petroleum Research Fund. He also served as a reviewer for the NSF-RUI program, the ACS's PRF Fund for Type AC research grants and Research Corp's Cottrell College Science Award Grants (he has received five ACS PRF grants and three Research Corp grants). In the past 27 years, Dr. Grant has secured grants totaling more than \$1.4 million for research. He has recently also received a \$210,000 NSF grant and served as guest editor for a special issue of the journal *Main Group Chemistry* in 2008.

Dr. Jisook Kim has been very busy pursuing grants for her research and has received one from the NSF-MRI and two UC Foundation Faculty Research grants, one of which was \$25,000. Dr. Kim's research is multi-disciplinary, encompassing biochemistry, organic synthesis, chemical biology, toxicology, medicinal chemistry, and bioanalytical chemistry.

Dr. Kyle Knight concentrates on research which examines the chemical reactions of organo-metallic compounds and their use as catalysts in the transformation of small organic molecules.

Dr. Doug Kutz advanced his knowledge of reaction dynamics during his Spring 2008 sabbatical. He and his research student, Rishabh Shah, are using the computational chemistry software,

HyperChem, to examine the translational and vibrational energy dependence of the $F + H_2$ elementary reaction.

Dr. John Lynch and his research student, Ivan Zubkov, (now attending medical school at Loma Linda University in California) published "Development of algorithms for Automatic Titrations" in *Microchemical Journal* 90.

Dr. Rob Mebane collaborated with Dr. Dan Zuidema of Covenant College to produce publications in *Synthetic Communications*. He and one of his research students, Sam Chill, have submitted an invention disclosure to the UT Research Foundation.

Dr. Gretchen Potts was funded for \$2500 for a Faculty Summer Fellowship in 2008. She chaired and organized a workshop at the 2008 Pittsburgh Conference in March 2008; She chaired an oral session at the Greenville, SC SERMACS meeting in October 2007.

Dr. Tom Rybolt was invited by Nova Science Publishers, Inc. to write a chapter for the book, "*Graphene: Research, Technology and Applications*." A chapter entitled "Molecule-Surface Binding Energies from Molecular Mechanics: Nucleobases on Graphene" by Thomas R. Rybolt and Christina Wells (former UTC student and currently Vanderbilt grad student) was submitted and publication is expected in 2009. Dr. Rybolt also received \$20,000 in funding from the Wheeler Research Center for a research grant entitled "*Molecule-Carbon Surface Interactions for Odorant Control*."

Dr. Manuel Santiago was selected to join the editorial board of the *Journal of Applied Sciences* to assess research papers that have been submitted and observe the refereeing process. Dr. Santiago's research focuses on nucleic acid metabolism and carbohydrate /polymer chemistry. It includes protein metabolism, enzymatic studies and mutant isolation.

Dr. Steve Symes has received \$64,883 from NASA to continue his study of Martian meteorites (the total of the 3-year commitment has been \$113,867). He collaborates with Dr. Lars Borg of the University of New Mexico and they analyze the meteorites to determine when significant amounts of water were present on the surface of Mars. Dr. Symes recently served as a proposal reviewer for NASA's Mars Fundamental Research program and the Research Corp's Cottrell College Science Awards program. He has also served on two NASA committees to develop science priorities for a Mars Sample Return mission within the next decade, reviewed a journal article for *Geochemica Et Cosmochimica Acta*, reviewed three proposals from NASA's Mars Fundamental Research Program and reviewed a proposal from Research Corp. Dr. Symes is also involved in several other grants at the present time.

Awards Banquet

The 20th Annual Chemistry Department Awards Banquet was held on April 11, 2008. Chemistry majors and their guests enjoyed a wonderful banquet dinner and Dr. Dabney Dixon as our speaker. Dozens of our outstanding chemistry majors were recognized for their scholarship, research, and service. Awards and scholarships totaling \$62,000 were presented to honorees. April 17, 2009 will herald our 21st Awards Banquet.

2007-2008 Summer Undergraduate Research Programs (URP)

The Summer Undergraduate Research Programs of 2007 and 2008 were exciting times. In Summer 2007, 13 students worked 40 hours per week for ten weeks with 8 faculty conducting exciting research. In Summer 2008, 15 students and 8 faculty worked together for the same length of time. The URP was funded by the UC Fdn Grote Fund, National Science Fdn grant, and Wheeler Odor Center grant. One of the highlights of the program was a seminar by Dr. Robert Hancock of the University of North Carolina at Wilmington (2007), who spoke on his stimulating Inorganic Chemistry research. Another high point of each summer was the URP Summer Picnic, held at the TN Riverpark.

Student Affiliates' Activities

The ACS Student Affiliates Chapter has been very active and involved in promoting chemistry throughout our university and community. They have conducted science demonstrations at the Children's Discovery Museum, worked with Habitat for Humanity to raise funds, as well as worked to raise funds to support the club's activities through tutoring, dues, bake sales, and chemistry club t-shirt sales. They have also involved hundreds of other students in their Open Houses/potluck luncheons, Green Chemistry, and visits to Vanderbilt's PhD, MD, and the Interdisciplinary PhD programs. For additional fun, they held volleyball tournaments, miniature golfing events, and senior picnics. These students have worked as a team and developed great leadership skills.

Alumni News

Abbie Abbott Byrom (BA '05) will graduate with her medical degree in May 2009 from ETSU and will specialize in pediatrics.

Paul Akins (BS '85) received his MD/PhD in Neuroscience at UT Memphis in 1991. He completed Neurology residency (chief resident at Washington University in St. Louis in 1995). In 1997 he finished his fellowship in cerebrovascular disease and until 2006 was the director of a regional stroke program in Sacramento. He is now developing a neuro-critical care and comprehensive neuroscience center at Kaiser Sacramento.

Diana Minton Appleby (BS '06) had her first daughter days after her finals in May 2006 and her second daughter in July 2008. She plans to stay home with her children until they are in elementary school. After that, she hopes to attend graduate school and receive her PhD.

Elizabeth Bentzen (BS '02) successfully defended her PhD thesis in Fall 2008.

Elizabeth Boaz Burnette (BS '03) expects to finish her PhD in Spring 2009 in Biochemistry at Vanderbilt. She is currently a "Scientist in the Classroom" in Metro Nashville schools, conducting hands-on science lessons. Elizabeth would like to teach but is deciding whether it will be at the high school or college level.

Maikel Botros (BS '07) is attending medical school at ETSU Quillen College of Medicine.

Stacy Brown (BS '98) received her PhD at the University of Georgia in 2002. From 2002 until 2007 she was an Assistant Professor at the Citadel in Charleston, SC and currently teaches at the ETSU College of Pharmacy.

Shawn Carter (BS '99) finished his PhD at Oklahoma in December 2006 and then worked at OU Chemistry as a Postdoc in Charles Rice's lab with biogels on the NMR. He is now working with Alan Heyduk at UC Irvine on inorganic catalysts for the production of hydrogen from water.

Daniel Chatham (BS '07) is a medical student at the UT Health Science Center in Memphis.

Brad DeLay MD (BA '81) earned his MD degree from the Medical College of Georgia in 1985, completed a Family Medicine residency in 1988 in Greenville, SC, and has a private practice in Dalton, GA.

Rick Dooley (BA '77) is a physician in Knoxville.

William Ernest (BS '08) has been working in Biochemistry since graduation.

John Flynn (BA '62) received his MS at Emory in 1964, and then worked as a Dupont chemist/engineer/tech rep, then for Getty Oil, Infortronics, and TA Instruments before retiring.

Mike Foster (BS '95) graduated from UT-Memphis Medical School in 2003, served a Psychiatry Internship at Portsmouth Naval Hospital in 2004. He completed Naval Flight Training and was designated a Flight Surgeon in 2005 and served a tour of duty in Iraq. He is currently a Marine Assistance Group (MAG-29) Surgeon and Senior Flight Surgeon at New River Marine Corps Air Station in Jacksonville, NC. Dr. Foster will leave the Navy in June 2009 and attend the University of Michigan for an anesthesia residency. He's married for 15 years, with six children.

Randi Gant (BS '06) is currently a third year grad student at Vanderbilt University and recently joined the McLean Laboratory.

Andrea Mitchell Goforth (BS '01) is an Assistant Professor of Chemistry at Portland State University. Dr. Goforth was awarded the prestigious and generous Burroughs Wellcome Fund award (a 5-year award). Her research is in the nano realm of inorganic chemistry.

Deanna Goods (BA '05) is teaching high school Physical Science in Memphis.

Kimberly Grimes (BS '01) completed her doctorate program in Medicinal Chemistry from the University of Tennessee Health Science Center in May of 2008 and is a post-doc research associate at the UT Health Science Center in Memphis.

Mallory Hacker (BS '07) is currently in the Interdisciplinary Sciences PhD program at Vanderbilt.

Elizabeth Hamilton Forrester (BS '00) received her PhD in Cancer Biology from Vanderbilt University and now teaches upper school chemistry and biology at Charlotte Latin School in Charlotte, NC. She also has two beautiful boys.

Jennifer Hall Moats (BS '03) has been working at W.R. Grace and completed her MBA at UTC in August 2008.

Krystal Harland (BS '98) works for a company inspecting nuclear plants. She is a Job Supervisor managing several inspectors and is on the road two-thirds of the year at plants around the country.

Jared Hassler (BS '07) is attending Medical School at UT-Memphis.

Lensey Hill (BS '04) received her PhD at the University of Alabama in August of 2008.

Charles Hodgin (BA '73) worked at Dupont in Chattanooga as a QC Supervisor, then worked for Georgia-Pacific as a QC supervisor. He is currently Health & Safety Manager in GP's chemicals division and also manages the medical surveillance program and coordinates behavior-based safety activities for the division.

David Holloway (BS '83) has been providing analytical chemical analyses of suspected controlled substances in support of criminal investigations since 1985 for the Tennessee Bureau of Investigation as a forensic scientist.

Alice Johnson Engle (BS '73) worked at Blue Cross/Blue Shield of Tennessee, then Leland, Inc. as a consultant, and BDM/TRW/Northrop at Grumman Woodmen.

Myron Jones ('94 BS) has earned his PhD in analytical chemistry (electrochemistry) from Oklahoma University and has a son and a daughter. He will pursue an academic position.

Paula Kilgore Nunley (BS '91) went to work for Alco in 1987, her freshman year, as a co-op student and has been there since for 20+ years. She and her husband, Steve (BS '96), had their first child in July of 2007.

Scott Kindelberger (BS '08) is pursuing his PhD in analytical chemistry at the University of South Carolina. He leaves the end of February for two months in Antarctica aboard the Nathaniel B. Palmer, an icebreaker which hosts research scientists.

Nathan Kokes (BS '06) is attending West Virginia Medical School.

Kelly Kovach (BA '97) is still working for FedEx as a pilot.

John Lee (BS '03) received his PhD from North Carolina St. University in organometallic chemistry. His work focused on the development of new homogenous ruthenium complexes for the hydroarylation of unsaturated substrates. His current work involves the design/synthesis of the metal complex and testing catalytic reactivity.

Willis Vincent Lord, Jr (BA '66) worked at Seagram Distillers in Louisville, KY from 1967 until 1986; he attended Graduate School at University of Louisville 1980 until 1986, and worked at Tennol Energy and TVA from 1986 to 1988. He is currently at Rohm and Haas Company in Philadelphia as a Distinguished Scientist.

Amanda Mansfield Finley entered Medical School in 2006 and now is a third year student at WVSOM in Lewisburg, WV.

Bradley McKeown (BS '07) is attending graduate school at North Carolina State in organometallics.

Lindsey Miller (BA '07) will work a 10 week internship at GA Tech with the Aquatic Chemical Ecology program starting the summer of 2009 with Dr. Martial Talliefert.

Robbi Presswood Moorhouse (BS '83) first worked as the Quality Assurance Manager at a Coca-Cola Bottling Co., then Post-Baccalaureat at UTC for teaching certification, and has been a Chemistry teacher in several Hamilton County schools for the past 19 years.

Dean Norris (BA '88) is a health physics specialist at UC-San Francisco Office of Environment Health and Safety, after having spent nine years in the paper chemical industry with tech sales/management/product development, and six years of adventure travel. He also is a board certified Radiation Therapist.

Sarah (Eva) Prince (BS '07) is attending medical school at the University of TN at Memphis.

Sarah Sewell Pierce (BS '03) finished her post-doc at Vanderbilt University in the Biomedical Engineering department and is now Assistant Professor of Chemistry and Engineering Science at Cumberland University in Lebanon, TN.

Charles (Chuck) Sisson (BS '05) is a grad student in chemistry at Clemson University. He has been encouraged by his mentors to pursue an NSF Fellowship.

Karen Smith Kim (BA '89) married David Kim, graduated from Washington University School of Medicine, finished her Pediatric Residency and started her own pediatric office, which expanded into two locations in Savannah, GA. During this time she also had seven children and is now looking for colleges for the oldest child.

Carrie Stewart Metcalf (BS '04) graduated from the University of Georgia College of Pharmacy with a Pharm.D. in May 2008. She is planning to attend a UT-Memphis Community Practice Residency at Wilson Pharmacy in Johnson City, TN.

Kathy Quarles Cannon (BS '80) has worked in analytical and environmental chemistry, consulting, microscopy (asbestos), client services, and business development.

Courtney Swafford Stewart (BA '04) began graduate school at UTC in 2004, married Jonathan Stewart in 2005 and started teaching 7th and 8th grade at Sequatchie Co. Middle School. She had their first son, started teaching Physical Science and became the head softball coach all in 2007, and in 2008 added Chemistry to her current teaching schedule.

Tarshay Tate Boyd (BS '03) has been working full time while attending the University of Memphis part time for her MS in Chemistry with a concentration in Analytical Chemistry.

Jason Thompson (BS '03) started in the Pharmaceutical Sector at UCB Bioproducts, Inc. in North Augusta, SC, then went to work in the Water Utility Industry with the Commissioners of Public Works and has been there ever since.

Lawrence (Larry) Thompson (BS '01) received his doctorate in Biochemistry in 2006 and has been working in Cynthia Peterson's lab in the Biochemistry, Cellular, and Molecular Biology department at the University of Tennessee. He and his wife, Stacey, have two children.

Meetal Vashi (BS '08) began optometry school at the Southern College of Optometry in Memphis in Fall 2008.

Charles Veazey (BA '65) graduated from the Medical College of GA, then specialized in vascular surgery, which he practiced for almost 30 years, before retiring in 2002. He also was on the clinical faculty of Medical College of GA.

Christopher (Nigel) Welch (BS '08) is a graduate student at the University of Alabama.

Christina Wells (BS '08) attends graduate school at Vanderbilt University in the Interdisciplinary Graduate Program in Biomedical and Biological Science to earn her Ph.D.

Musukwa Wiza Given (BS '01) worked as a tutor/teacher at the International Tutorial College from 2002 to 2003, and then worked at Kafue Sugar as a Process Chemist from 2003 to 2004. From 2004 to present, she has been a Scientific Officer II at the National Institute for Scientific and Industrial Research in Zambia.

Matt Zoerb (BS '06) is in his third year of graduate studies at UC-Berkley. He has passed his oral qualifier and is now a PhD candidate. Matt is interested in femtosecond spectroscopy.

Ivan Zubkov (BS '08) is attending Loma Linda School of Medicine.