

Chair's Welcome

Dear Chemistry alumni and friends. I would like to let you know about some of the recent developments in the Chemistry Department at UCR. We continue to recruit outstanding new faculty and students to our program. The Department currently has 26 Chemistry faculty (6 Distinguished Professors), approximately 110 Ph.D. students (the largest graduate program in the College), 55 postdoctoral scholars, and 130 undergraduate majors. This year we are searching for two new faculty, one in Organic, and one in Materials Chemistry.

Last year we hired two new Theoretical/Computational Chemists: Assistant Professors **Gregory Beran** and **Chia-en 'Angelina' Chang**. Dr. Gregory Beran received his Ph.D. degree with Professor Martin Head-Gordon at UC Berkeley and performed Postdoctoral Research with

Professor William Green at MIT. Dr. Beran's research focuses on developing first principles computational approaches to Surface and Materials Chemistry. Dr. Chia-en 'Angelina' Chang received her Ph.D. degree with Professor Michael Gibson, at the University of Maryland, and she conducted Postdoctoral Research with Professor J. Andrew McCammon at the Howard Hughes Medical Institute at UC San Diego. Dr. Chang's research focuses on developing new computational approaches to Biomolecular Chemistry.

The Chemistry Department has benefited from the construction of 3 new buildings for chemical teaching and research. An Annex to Pierce Hall, completed in 2000, contains 12 research laboratories. In 2003, our Organic Chemistry teaching labs moved into the new Science Laboratories 1 building. And, in 2005 all of the

research labs from Pierce Hall moved into a new 70,000sf Chemical Sciences Building with laboratories for 28 research groups.

The Chemistry Department continues to provide an outstanding environment for graduate and undergraduate studies. We have excellent facilities equipped with state-of-the-art instrumentation, and our faculty are routinely honored with both national awards for research and campus awards for excellence in undergraduate teaching and research.



Please feel free to browse our departmental website (<http://www.chem.ucr.edu>), for up to date information about our department, seminars, facilities, and faculty research programs.



Pierce Hall Annex –
Research Laboratories



Science Laboratories 1 –
Organic Teaching



Chemical Sciences –
Research Laboratories

Chemistry Department Highlights for 2006–07

September 2007. Professor **Francisco Zaera** was named the 2008 recipient of the ACS Arthur W. Adamson Award for Distinguished Service in the Advancement of Surface Chemistry.

August 2007. The 8th International Conference on Heteroatom Chemistry was held at UCR during Aug. 13-16, 2007. An international group of chemists discussed new developments in s and p block chemistry (also known as heteroatom chemistry).

July 2007. Associate Professor **Yinsheng Wang** and his graduate student Yan Zou reported that the expression and post-translational modifications of HMGA1 proteins in human breast cancer tissues are correlated with the development of malignancy. This finding may lead to molecular biomarkers for the diagnosis of breast tumors.

July 2007. Assistant Professor **Yadong Yin** and his group showed that they can control the color of a solution of iron oxide nanoparticles by means of an applied magnetic field. This result may offer improvements in display technology.

April 2007. Distinguished professor of Chemistry **Guy Bertrand's** group developed a cyclic alkyl amino carbene capable of efficiently storing hydrogen. This discovery may help overcome hydrogen storage limitations in hydrogen-powered vehicles.



April 2007. Associate Professor **Michael Marsella** was awarded the Academic Senate Distinguished Teacher Award, UCR's highest award for excellence in teaching and mentoring of students.



May 2007. Professor **Thomas Morton** was awarded the 2006-07 UCR Honors Program Professor of the Year.

April 2007. Professor **Cindy Larive** was awarded the 2007 J. Calvin Giddings Award for Excellence in Education, awarded by the Division of Analytical Chemistry of the ACS.

April 2007. Associate Professor **Ludwig Bartels**, and

Graduate Student **Greg Pawin** were featured in an article in the Riverside Press-Enterprise on nanotechnology research in the Inland Empire.

February 2007. Distinguished Professor of Chemistry **Christopher Reed** received a Special Creativity Award from the NSF worth \$351,000 for the impact his work with superacids has had on organic and inorganic chemistry.

January 2007. The French CNRS highlighted **Guy Bertrand's** work as both a senior CNRS research director and also Distinguished Professor of Chemistry at the University of California, Riverside.

January 2007. Assistant Professor **Christopher Bardeen** reported synthesizing nanorods of an organic material that increase in length by 15% when illuminated with ultraviolet light. *J. Am. Chem. Soc.* 128, 15938 (2006).

January 2007. **Francisco Zaera** was appointed Senior Editor of the Journal of Physical Chemistry C.

November 2006. Distinguished Professor of Chemistry **Francois Mathey** established a China-California Connection for carrying out phosphorus research collaboratively between UC Riverside and Zhengzhou University.

Chemistry Department Highlights for 2006–07

October 2006. The Coblentz Society elected Distinguished Professor of Chemistry **David Bocian** as the 2007 recipient of the Bomem-Michelson Award. The award is dedicated to the memory of A. A. Michelson, developer of the interferometer.

September 2006. The Director of the National Science Foundation, highlighted the research of **Dr. Bartels** group – identifying the efforts as a frontrunner in molecular IT.

September 2006. The Sept. 2006 issue of Biophotonics Spectra magazine featured the work of Associate Professor **Quan (Jason) Cheng's** research group in an article entitled: 'FRET Ventures Out of the Lab'.

September 2006. Science News highlighted in its Sept. 16th issue the development of versatile, fragrant and convertible isonitriles by Professor and UC Presidential Chair **Michael Pirrung**.

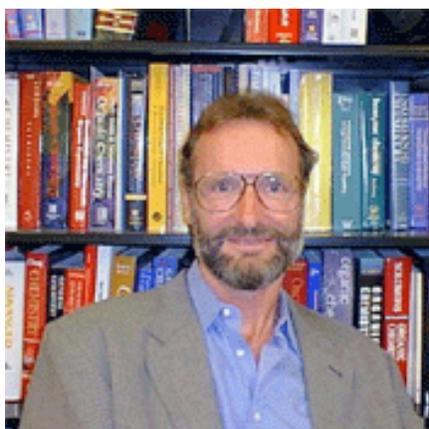
August 2006. Assistant Professor **Chris Bardeen** and Research Scientist **Kerry Hanson** showed that sunscreen can have a detrimental effect on skin by generation of free radicals if it is formulated to penetrate the skin too deeply.

July 2006. The American Institute of Physics selected **Dr. Bartels'** publication on 'Walking Molecules' as one of the Top 25 Stories for 2005. Other items on the list included the NASA Cassini Mission and the 2005 Nobel Prize.



July 2006. **Michael Pirrung** was honored as a European Inventor of the Year 2006. Dr. Pirrung was recognized along with S. Fodor and J. Read and L. Stryer for the invention of the DNA chip.

July 2006. The C&E News article (June 12, 2006) entitled "Zeroing in on Active Catalytic Sites" was devoted to a new technique developed by Professor **Francisco. Zaera** and postdoc **Hansheng Guo** reported in Nat. Mater. 2006, 5, 489.



May 2006. Distinguished Professor of Chemistry, **Christopher Reed** was awarded the Tolman Award by the Southern California Chapter of the American Chemical Society. Previous Awardees include Nobel Laureates

Grubbs, Zewail, Olah, Pauling, Cram, Boyer, and Roland.

April 2006. Distinguished Professor of Chemistry **Dallas Rabenstein's** paper (*Tetrahedron Lett.* 42 (2001) 7203) on the discovery and use of the disulfide bond-forming reagent trans-[Pt(en)₂Cl₂]²⁺ for the synthesis of the hormone calcitonin was the most requested chemistry journal article by Chemical Abstracts Service for a period in 2004-05 and remained the 2nd or 3rd most requested in 2006.



UCR Alumnus awarded Nobel Prize in Chemistry:

UCR Chemistry Alumnus **Richard R. Schrock** (B.A. 1967) was awarded the 2005 Nobel Prize in Chemistry for the development of the metathesis method in organic synthesis. In *January 2006* Professor Schrock, presented a Chancellor's Distinguished Lecture at UCR entitled "Basic Chemical Research and How it Led to a Nobel Prize".

Student Highlights

Graduate Student Highlight:

Vince Lavallo has been awarded one of only ten prestigious national fellowships awarded by the Division of Organic Chemistry of the American Chemical Society. The fellowship, sponsored by the Pfizer company, provides a \$24,000 stipend to augment Vince's UCR support. Evidence of research accomplishments is an important factor in the selection process.

Vince was a successful UCR undergraduate and chose to pursue Ph.D. research on the synthesis of novel carbenes, under the supervision of Distinguished Professor **Guy Bertrand**. These compounds offer an alternative paradigm in the continuing search for

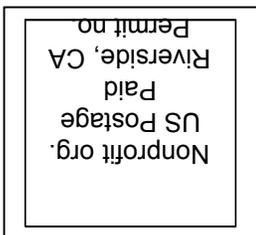
catalytic systems capable of efficiently transforming cheap and abundant molecules such as hydrogen and ammonia into useful amino compounds.

Undergraduate Student Highlight:

Melanie Chang recently completed her B.S. degree in Chemistry with a 3.8+ GPA and started graduate school at UCLA. Melanie received the Karin Moore Gandolfo Scholarship for her academic achievements, and a Nathaniel Coleman Scholarship (and a Dean's Fellowship) for research. Melanie took full advantage of undergraduate research opportunities at UCR, performing research projects with Professors Zhang, Morton, and Chronister. As a sophomore Melanie

implemented algorithms for fitting experimental data. In the Zhang Lab, Melanie used photoionization mass spectrometry to analyze the decomposition of tert-alkyl ether fuel additives. And, in the Morton Lab, she synthesized, 2,3,3-trimethylbutyl cellosolve.

Melanie took advantage of summer research opportunities. In 2005 she participated in the UCDC Program, where she performed an internship with the ATF Explosives Fire Research Lab, assisting in forensic fire reconstructions. In 2007 Melanie was awarded a summer internship at Lawrence Livermore National Lab where she performed spectroscopic measurements on hydrogen up to 2 million atmospheres pressure.



Department of Chemistry
University of California, Riverside
248 Chemical Sciences