

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 27 Chemistry faculty (6 Distinguished Professors), approximately 118 Ph.D. students (the largest PhD program in the College), 57 postdoctoral scholars, and 140 undergraduate majors. This year we are searching for three new faculty, in Bioanalytical, Atmospheric, and Inorganic Chemistry.

Last year we hired two new Organic Chemists: Assistant Professors **Richard Hooley** and **Catharine Larsen**. Dr. Richard Hooley received his Ph.D. Degree with Professor Martin Semmelhack at Princeton University and performed Postdoctoral Research with Professor Julius Rebek Jr. at the Scripps Research institute. Dr. Hooley's research will focus on the

synthesis of new biomimetic catalysts with the goal of creating synthetic catalysts that mimic the action of enzymes. Dr. Hooley also won two teaching awards at Princeton University. Dr. Catharine Larsen received her Ph.D. degree with Professor David MacMillan at the California Institute of Technology and performed Postdoctoral Research with Professor Stephen Buchwald at the Massachusetts Institute of technology. Dr. Larsen's research has focused on the reactivity and selectivity of a new generation of catalysts that produce enantiomerically pure products. Dr. Larsen's research will focus on developing new chemistry for the generation of new materials and the synthesis of natural products. Dr. Hooley and Dr. Larsen are great additions to our instructional program.

The Chemistry Department has benefited from the construction of 3 recent 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 teaching and research.

Eric Christensen

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

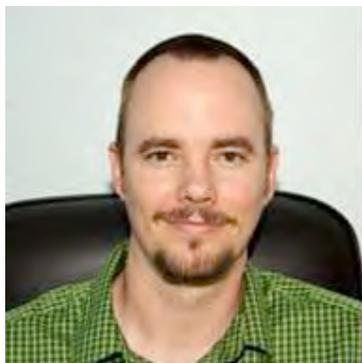
Chemistry Department Highlights for 2007–08



October 2008. John Limtiaco was awarded one of six US Pharmacopeia Graduate Fellowships. These awards promote education and training for standardization of drugs, food, and healthcare items. John is a third-year graduate student in the Larive group.



September 2008. Distinguished Professors Chris Reed and Guy Bertrand were both invited to give the two plenary lectures at the International Meeting on Boron Chemistry (XIII), which was attended by 300 chemists from 27 nations.



August 2008. Dr. Ryan Julian and Jolene Diedrich devised a photofragmentation approach for selective breakage of peptide backbones which can pinpoint phosphorylation sites.

June 2008. Professor Guy Bertrand and collaborators found a new, carbene-based gold catalyst for the formation of amines in a one-step fashion. This Green Chemistry breakthrough will allow the wasteful current two-step processes to be avoided.

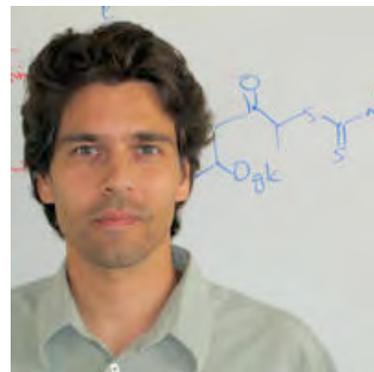


June 2008. Dr. Guy Bertrand was awarded the 2009-10 Sir Ronald Nyholm Lectureship of the Royal Society of Chemistry. The lectures concern subjects of interest to the Education or Dalton Divisions.



May 2008. Professor Michael Marsella was awarded the Undergraduate Honors

Program Upper Division Faculty Mentor of the Year Award.



May 2008. In a Satellite Radio interview, Assistant Professor Sean Cutler described how genetic, biochemical and chemical analyses are used to show that evolutionarily related enzymes can cause variation in drug response across biological kingdoms.



May 2008. A team led by Michael Pirrung offered a novel pathway for how anti-aging products (like EthylBloc and SmartFresh) block ethylene in plants, delaying the plants decay.

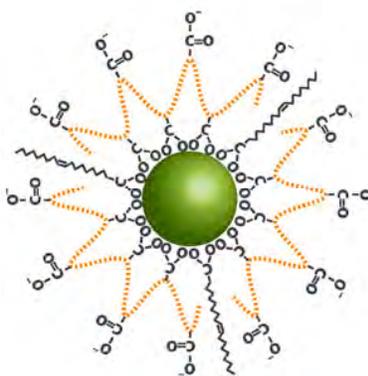
Chemistry Department Highlights for 2007–08



April 2008. The Inorganic Chemistry Division of the American Chemical Society awarded Vincent Lavallo, a third year graduate student in the Bertrand lab, a 2008 Young Investigator Award in a national competition. Vince gave his award presentation at the Philadelphia ACS meeting in August.

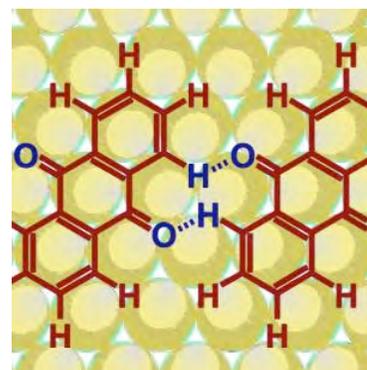
project "The Toxicity of Riverside's Creeks & Rivers: a study of the concentration of λ -cyhalothrin in irrigation runoff".

February 2008. Assistant Professor Ryan Julian received a CAREER Award from The National Science Foundation.



November 2007. A General Approach for Transferring Hydrophobic Nanocrystals into Water, published by the Yin group in Nano Letters was highlighted in Science Magazine as the Editors Choice.

high temperature superconductivity in non-oxide systems."



October 2007. The October 1, 2007 issue of Chemical and Engineering News highlights research on hydrogen bonding performed in the Bartels Lab, where the first quantitative measurement of hydrogen bond strength at a metal surface was achieved.



February 2008. The Chemistry Department Chair presents Leslie Chun (Grade 4) with a Science Fair Award for her project "How Do Clouds Form?" The Senior Division award was presented to Kelsey Blackston, (Grade 12) for her



November 2007. Distinguished Professor Robert Haddon was awarded the 2008 James C. McGroddy Prize for new Materials. The prize was awarded for "the discovery of



December 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.

Student Highlights for 2007-08

Graduate Student Highlight:



Stacie Eldridge has been awarded one of five prestigious national fellowships awarded by the Division of Analytical Chemistry of the ACS. The fellowship, sponsored by Procter and Gamble, provides a \$21,000 stipend to augment Stacie's UCR support. Stacie was an undergraduate at CSUSB and chose to pursue a Ph.D. with Professor **Larive**. Her research focuses on the development of sensitive microcoil NMR methods for

structural characterization of heparin oligosaccharides.

Stacie was also recognized as the inaugural recipient of the Sawyer Award, which was established to recognize the research accomplishments of an Analytical Chemistry graduate student in their third or fourth year. This annual award pays tribute to Professor emeritus **Donald T. Sawyer**, a long-time UCR faculty member.

Undergraduate Student Highlight:



Ryan Pedigo recently completed his B.A. degree in

Chemistry with a 3.8+ GPA and started medical school at UCLA this Fall. In addition to his outstanding academic record Ryan achieved A+ grades in his most challenging upper division courses.

As a freshman Ryan immersed himself in a research project with Dr. **Zaera** aimed at developing a vacuum reactor to study the high-temperature conversion of natural gas to hydrogen with metal-based catalysts. Ryan has coauthored a scientific publication, he has presented his research at conferences, and he was awarded a Deans Fellowship in 2006 for his Honors research thesis. Ryan also received an Outstanding Student Employee Award for his effort and devotion tutoring Chemistry in the campus Learning Center for three years. As a senior Ryan was selected as the Outstanding Student of the College (CNAS) for 2008.

Alumni Highlights for 2007-08



May 2008. UCI Prof. Barbara Finlayson-Pitts (UCR Ph.D. 1975) was awarded the Tollman Medal



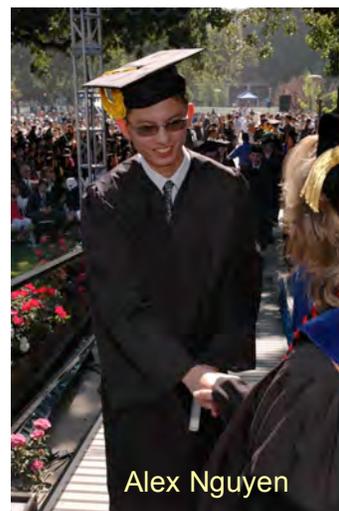
June 2008. Dr. Ricardo Morales (UCR Ph.D. 2007) was appointed Assistant Professor at the University of La Verne



September 2007. Willian H. Fenical, (UCR Ph.D. 1968), was honored with an UCR Alumni Award

Graduation 2008

B.S. & B.A. Ceremony June 2008 (40 B.S. & B.A. Degrees Awarded)



Above: a few photos.

Below: a complete list of 2007-08 BS & BA degree recipients.

Summer 2007

Annie Tran
Queenie H. Y. Wan
Vera N.-C. Wong
Irina Krashennaya
Mital Shah
Latia Marie Tyson
Jonathan C. McNeil, Jr.,
Tri M. Tran

Fall 2007

Robert M. Abad
Minh-Chau T. Vuong

Winter 2008

Patricia Tung Lee
Sophia Khan
Tram T Vu
Danny Soe Si
Courtney Baotram Le

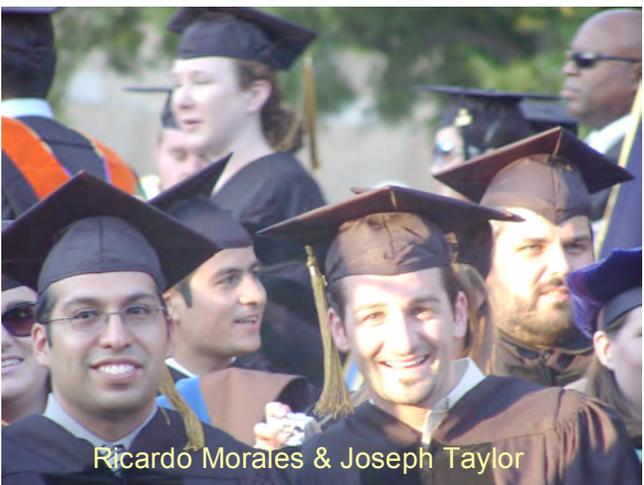
Spring 2008

Opal Y. Tam
Desiree M. Flores
Madison L. Franken
Nicholas M. Delano
Kelly L. Theel
Richard S. Tan
Whitney A. Ngo
Thao P. Nguyen

Alex P. Nguyen
Thanh T. Pham
Joochan Kang
Chih-Yuan Chen
Karen R. Chu
Juan Rizo
Piotr Gawecki
Gloria M. Goslin
Douglas J. Herrick
Melanie A. Nelson
Ryan A. Pedigo
Jeffrey J Schmidt
Abraham Shenghur
Anh X. Nguyen

Graduation 2008

Ph.D. Ceremony June 2008 (16 Chemistry Ph.D. Degrees Awarded)



New Equipment & Facilities Improvements

This year the Analytical Chemistry Instrumentation Facility (ACIF) added new instrumentation to the comprehensive facilities (<http://acifws1.ucr.edu/acif/>)



A Waters GCT Premier GC-MS capable of accurate mass measurements was acquired through an NSF-CRIF grant submitted by Dr. Larive.

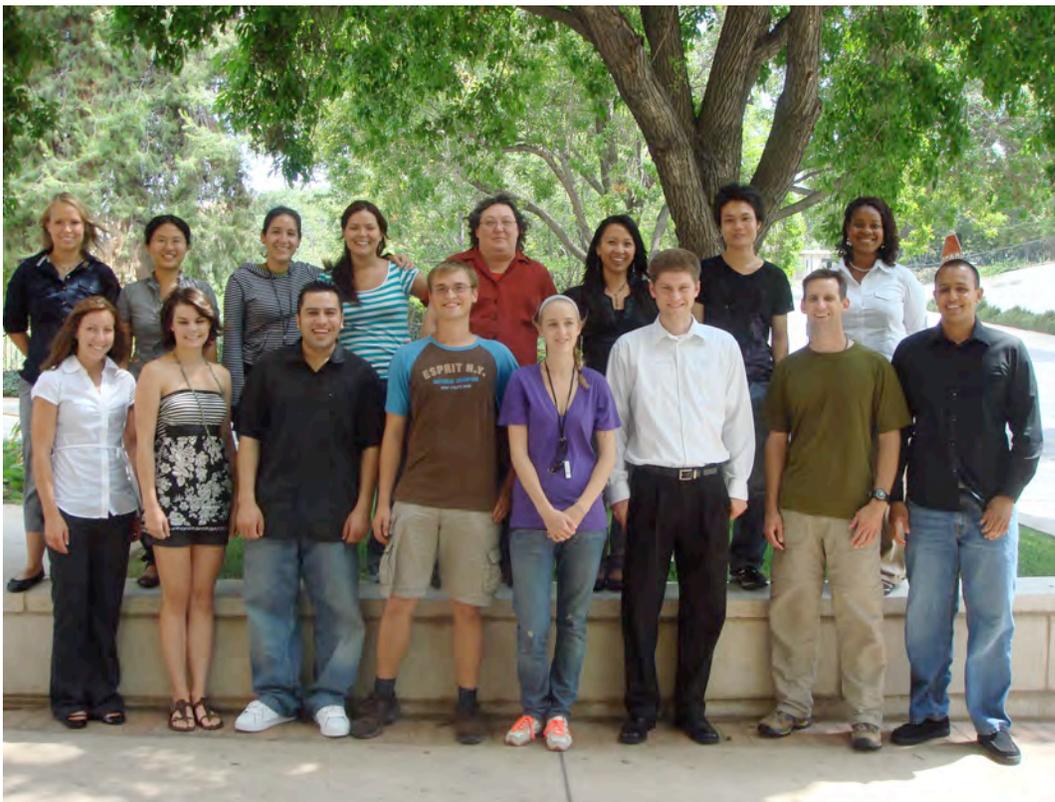


Three new probes for solid state studies were acquired for the Bruker 600MHz NMR, funded by an NIH grant submitted by Dr. Mueller.



An Agilent LC-TOF high-resolution exact mass instrument was acquired through an NSF-CRIF grant submitted by Dr. Pirrung

NSF–Research Experience for Undergraduates in Bioanalytical Chemistry



The Summer 2008 NSF-REU Bioanalytical Chemistry researchers. The program participants (research mentor) shown are, back row: Carolyn Jablonowski (Dr. Zhong), Xueying He (Dr. Myung), Nellymar Membreno (Dr. Larive), Claudia Meneses (Dr. Julian), Dr. Larive (Program Director), Nancy Taing (Dr. Zaera), Tan-li Hsu (Dr. Wang), and Kamara Linley (Dr. Cheng); front row: Lindsey Vick (Dr. Yin), Heidi Redden (Dr. Wang), Danny Ramos (Dr. Hille), Thomas Horn (Dr. Rabenstein), Bailey Dickey (Dr. Larive), Jacob Good (Dr. Bardeen), Robert Young (Dr. Rabenstein) and Michael Peralta (Dr. Pirrung).

During this past summer fifteen students from twelve different institutions, including 3 from UCR, participated in our National Science Foundation funded Research Experiences for Undergraduates (REU) program. During the 10-week summer program the students performed independent research in bioanalytical chemistry, broadly defined. Program highlights included a research in progress symposium, final poster

session, graduate school workshop and a seminar on industrial careers presented by UCR alumnus Dr. Michael Kahr (Ph.D. 1994).

The goal of the continuing REU program is to provide opportunities for promising undergraduate students to engage in full-time interdisciplinary research in bioanalytical, bioorganic and biophysical chemistry in a research community that stimulates interest in a scientific career. The

education and training of future scientists at the chemistry/biology interface is important for maintaining national scientific and economic competitiveness in these fields. The inclusion of bioorganic and biophysical chemistry reflects the blurring of traditional boundaries between chemistry subdisciplines and the reality that modern research projects often span two or more fields.

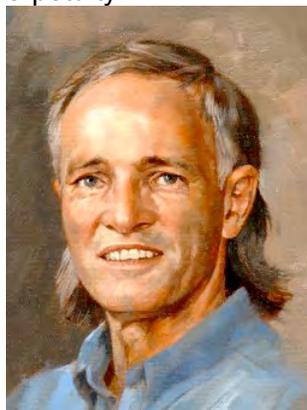
Thank you for your support



A gracious donation has established the **Hemant and Jayshri Kurani Endowed Fund in Chemistry** with the goal of establishing a \$100K endowment. The Kurani's son Ravi is a senior at UCR majoring in mechanical engineering and their daughter, Shirina is a high school senior.

The Kohler family has graciously offered to build the **Bryan E. Kohler Endowed Lectureship** from its current

\$45K level to a goal of \$100K. The annual Kohler Lecture has been a highlight of our seminar program and this donation will allow this tradition to continue in perpetuity.



The Donald Sawyer Award was established this year to recognize the accomplishments of an Analytical Chemistry graduate student in their 3rd or 4th year, awarded this year to

Stacie Eldridge. This annual award pays tribute to Professor emeritus **Donald T. Sawyer**, and is funded by contributions from Sawyer's friends, former students and postdocs, and current faculty.



The Chemistry Department would like to thank the U.S. Department of Justice (DEA), **Southwest Laboratory** for the donation of 2 modern GCs, 2 GC-MS instruments, and an FTIR for use in our Instrumental Analysis course and research laboratories.

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131