Creager heads chemistry department

After a nationwide search, Clemson’s College of Engineering and Science (CoES) found its new chemistry department chairman in the ranks of current faculty. Stephen Creager, professor of analytical chemistry, has been named to the post, and he assumed his new responsibilities last August.

Creager has been a member of the Clemson faculty since 1995. He earned a B.S. in chemistry from Rensselaer Polytechnic Institute and his Ph.D. in analytical chemistry from the University of North Carolina. He was a National Institutes of Health postdoctoral fellow at the University of Texas from 1987 until 1989, and he taught at Indiana University for six years before coming to Clemson.

In 2003, Creager accepted the CoES Award for Faculty Excellence in the Sciences. The award recognizes the science faculty member who demonstrates the highest level of research achievement during the preceding year. In 2004, he was part of a three-person team that received the Crystal Flame Innovation Award. The citation was presented at FuelCellSouth 2004 in recognition of a large body of Clemson work related to fluorinated materials for fuel cells.

His research interests focus on electrochemical science and technology. Current work involves studies of new materials for electrochemical energy storage devices such as rechargeable lithium ion batteries and proton-exchange-membrane hydrogen fuel cells.

“We are very fortunate that professor Creager is leading the chemistry department,” CoES Dean Esin Gulari said. “He understands that furthering research and developing technologies hinge upon the advancement of the discipline of chemistry,” said College of Engineering and Science Dean Esin Gulari.
After the CGSO welcomed members back to campus in August with the annual departmental picnic, festivities continued throughout football season with two tailgating events (during the Florida State and Virginia Tech games). Another event to note is a co-sponsored seminar given by airplane crash survivor Alvaro Mangino in October. Mangino shared his story about the well-known crash of Uruguayan Air Force Flight 571 that occurred in the Andes Mountains in 1972 and the teamwork it took to survive. The film Alive chronicles the 72-day ordeal in the snow-covered mountains, defeating death in below-freezing temperatures.

CGSO also sponsored a hole at the SERMACS golf tournament at Furman University. The golf tournament benefited high school chemistry clubs in the Upstate of South Carolina. CGSO volunteers joined Dennis Smith’s Tiger Chemistry Road Show where chemistry and polymers were demonstrated to middle and elementary school students.

Upcoming events include bowling at Edgars, white-water rafting, rock-wall climbing, skiing/snowboarding and a trip to Six Flags Over Georgia in Atlanta. For a complete list of events, please visit the CGSO Web site at people.clemson.edu/~cgso.

Celebrating its fifth year under the direction of Lourdes Echegoyen, the Summer Undergraduate Research Program (SURP) in Chemistry was held for the 17th consecutive year this past summer. Funded by the National Science Foundation (NSF) Research Experiences for Undergraduates Program with additional funds from the chemistry department, CoES, Clemson’s Office of the Vice President of Research and Economic Development, and individual research grants, 31 students from all over the nation and the world engaged in novel research projects. The projects focused on three areas of current interest, including chemistry of advanced materials, chemistry of biological systems and chemistry education.

In addition to their involvement in research, students participated in professional tutorials and instrumentation workshops where they furthered their scientific training, improved their oral and written communication skills, explored graduate programs and careers for chemists, and studied professionalism and ethics within the scientific research endeavor.

ACS Student Affiliate News

Lots of exciting things to report! First, the American Chemical Society (ACS) spotlighted our chapter in the September/October issue of its student affiliates magazine, In Chemistry. In the same issue, you’ll find our ad for the undergraduate programming occurring at SERMACS. Our chapter (along with Furman) received a grant to organize the undergraduate programming for the conference.

To view a PDF of the magazine, visit acswbcontent.acs.org/education/student/inchemistry0907.pdf. You’ll find the Chapter Spotlight on page six, and the ad for SERMACS is on page 25. Hard copies of the magazine are available in the main office.

As if this were not enough great news, the society’s Committee on Education has bestowed a Commendable Chapter Award upon us for our activities during the 2006-2007 academic year. Only 10 percent of all student affiliate chapters reach this award level, and I believe we’ve already started another successful year. Our students will be recognized at the Undergraduate Awards Ceremony in New Orleans. — John Kaup

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Christopher Pollock has achieved many things during his time as a chemistry major at Clemson. The recipient of the ACS award two years in a row, he recently added the Warwick Chemical Foundation Prize to his collection of honors. The Warwick Prize recognizes an outstanding junior who intends to study chemistry at the graduate level.

Pollock has also received one of 317 scholarships awarded by the Board of Trustees of the Barry M. Goldwater Scholarship and Excellence in Education Foundation for the 2007-2008 academic year. The faculties of colleges and universities nationwide nominated more than 1,100 mathematics, science and engineering students for this prestigious award. This year, Chris was one of two Clemson students who were named Goldwater Scholars. One additional Clemson student was awarded an honorable mention.

Other previous awards the Allentown, Penn., native has received include the department’s Outstanding Sophomore Chemistry Major Award, the Houghton Mifflin/ICUC First Year Chemistry Award, the Stanley L. Cramer Chemistry Award, Out-of-State Tuition Waiver, the Presidential Scholarship and the Philip Prince Alumni Presidential Scholarship.

When he’s not busy with his chemistry endeavors, Chris enjoys working out, hiking, creating Web sites, working with animals and reading nonfiction. After graduation, Chris is planning to attend graduate school in pursuit of a Ph.D. in organic or medicinal chemistry. He hopes to enter the pharmaceutical industry as a research chemist investigating the roles of chemicals in the human body.

Congratulations to our December grads!
Nine students graduated from Clemson’s chemistry department in December of 2007. We extend our sincerest congratulations and wish them well as they embark on the next leg of their careers in chemistry.

James Flowers, B.S.  
Berkley Gryder, B.S.  
Kristine Jecen, B.S.  
Lakita Nesbitt, B.A.  
Hongjuan Xi, Ph.D.

Madan Banda, Ph.D.  
Peter Hallac, Ph.D.  
Olena Kukoyanova, Ph.D.  
Amit Palkar, Ph.D.

2007-2008 Chemistry Department Award Winners
The Chemistry Department Honors and Awards Luncheon was held April 12, 2008, at the Madren Center and recognized these outstanding students:

Undergraduate Awards:
Mark Bernhard Hardin Prize in Chemistry — Sean M. DeGuire  
Warwick Chemical Foundation Prize in Chemistry — Christopher J. Pollock  
Senior Research Award — Justin D. Moody  
Chemistry Faculty Award — Ashlynn E. Dennis

American Chemical Society Award  
— Christopher J. Pollock, Ashlynn E. Dennis, Robert J. Gilliard Jr. and James N. Hodges

American Institute of Chemists Award  
— Jeremy L. Glass

Merck Index Award — Robert J. Gilliard Jr.

Houghton Mifflin/ICUC First Year Chemistry Award — Jessica N. Aldred

Chemical Rubber Company Award — Priscilla C. Phan

Outstanding Student in General Chemistry — Kristin M. Conrad and Ann M. Guggisberg

Outstanding Student in Introductory Chemistry — Holly J. Burchfield

Outstanding Student in Organic Chemistry — Stefanie H. Mitchell

Undergraduate Award in Analytical Chemistry — Michelle A. Ouimet

Outstanding Sophomore Chemistry Major — Juliana J. Coleman

Outstanding Chemistry Senior at Clemson University Award — Justin D. Moody

Graduate Awards:
Graduate Teaching Assistant Award in Chemistry — Jennifer J. Pittman

Graduate Researcher Award in Chemistry — Wendy L. Queen, Fenghai Guo, Changfeng Wu

Congratulations to all of our award winners!
Focus on Faculty

Dennis W. Smith has been selected on behalf of the Board of Directors of the Missouri State University Alumni Association to receive the Outstanding Young Alumni Award. Since the inception of the award in 1985, only 25 individuals have received this recognition. The Outstanding Young Alumni Award recognizes graduates of Missouri State University for extraordinary achievement in their personal and professional endeavors.

Dev P. Arya accepted the 2007 Horace S. Isbell Award in Carbohydrate Chemistry at the 234th Annual National Meeting of the ACS in Boston. This prestigious distinction acknowledges excellence in and the promise of continued quality of contribution to research in carbohydrate chemistry by a young chemist. Arya's research activities focus on nucleic acid therapeutics and synthesis of small molecule carbohydrate mimetics.

Luis Echegoyen won the 2007 Charles H. Herty Medal, an annual award presented by the Georgia section of the ACS, recognizing the work and service of outstanding chemists. Echegoyen is a former department chair and is currently serving a two-

Shiou-Jyh Hwu received the 2007 Faculty Achievement in the Sciences Award. This award is given to faculty in recognition of high achievement during the preceding year, including accomplishments, distinctions and awards within the past three years.

Melanie Cooper was inducted as a fellow of the American Association for the Advancement of Science. This prestigious honor is bestowed upon members by their peers and recognizes meritorious efforts to advance science or its applications. Cooper was nominated in recognition of her contributions to curriculum development and research on teaching and learning in introductory chemistry courses.
year appointment as chemistry division director with the NSF. Echegoyen also received the Outstanding Research Award from Clemson's Alumni Association recognizing faculty members who demonstrate outstanding ability and commitment to research in addition to the Distinguished Alumnus Award given by the University of Puerto Rico, Rio Piedras.

**Darryl DesMarteau** received the 2007 Faculty Mentoring Award in recognition of his dedication to peer mentoring junior faculty and the enhancement of the college as a whole.

**Lourdes Echegoyen** was the 2007 recipient of the Award of Excellence in Teaching in the Sciences in recognition of her outstanding effort and accomplishment among the college's science faculty. Echegoyen has been described as a dedicated and effective teacher with the ability to entertain, engage and inform students.

Bill Pennington was honored with the Class of 1940 Douglas W. Bradbury Award. This award is given to faculty who have made outstanding contributions to the Calhoun Honors College. Students, faculty and administrators nominated Pennington based on his long-term commitment to the Honors Program. He was also recognized at the 2007 Spring Honors Awards Ceremony for Calhoun College Honors graduates.

**NEW FACULTY**

**Rhett Smith**

Rhett Smith earned his B.S. from the University of Toledo where he worked with Robert A. Flowers. He went on to attend Case Western Reserve University where he earned his Ph.D. and worked with John D. Protasiewicz. Smith was also a National Institute of Health postdoctoral fellow at Massachusetts Institute of Technology where he researched with Stephen J. Lippard.

Smith’s Ph.D. dissertation is entitled “Studies on Low-Coordinate Phosphorus Centers and Sterically Encumbered Ligands: Structure, Reactivity, Materials, and Catalysis.” His research focus includes the synthesis and applications of organic and inorganic materials for fluorescent sensing of biologically relevant agents such as neurotoxins, preparing small molecule models of enzyme active sites and uncovering environmentally friendly catalytic reactions.
Research Funding

Jason McNeill (PI) and Ken Christensen (Co-I) have been awarded an NIH grant (NIGMS) to support their research. The project title is “Polymer Dot Nanoparticles for Detection of Single Molecules in Live Cells.” The grant has a four-year term and a total budget of approximately $960,000.

Ya-Ping Sun was awarded an NIH grant to support his research project entitled “Exploratory Study of Carbon-Based Quantum Dots.” The grant has a three-year term and a total budget of approximately $555,000.

Bill Pennington received a collaborative research grant from the South Carolina Experimental Program to Stimulate Competitive Research and Institutional Awards to work on halogen-bonding, sulfur-containing molecules with Furman and Anderson universities.

Jason McNeill (Co-PI) has received a $2 million NSF grant with Clemson bioengineering professor Karen Burg (PI) to develop new tools and approaches for diagnosing breast cancer. The title of their study is “Emerging Frontiers in 3D Breast Cancer Tissue Test Systems.” The grant is with the EFRI program and has a three-year term. McNeill’s contribution will be to develop nanoparticles for 3D sensing of oxygen concentration in tumor models.

A team led by Melanie Cooper (PI) with co-investigators Calvin Williams and Roy Pargas has been awarded an NSF grant for their project entitled “OrganicPad: A Tablet PC-Based Interactivity Tool for Organic Chemistry.” The grant has a three-year term and a total budget of just over $311,000.

Melanie Cooper (PI) and Sean O’Connor (Co-PI) were awarded an NSF grant for their project entitled “Chemistry REU Site at Clemson: a Summer Undergraduate Research Program (SURP).” The grant has a three-year term with a total budget of approximately $310,000. Special recognition goes to Lourdes Echegoyen, who was the driving force behind obtaining this grant.

NEW FACULTY

Gautam Bhattacharyya

Gautam Bhattacharyya earned his B.S. from Brown University and his A.M. from Harvard University where he worked with E.J. Corey. He later attended Purdue University where he earned his Ph.D. and researched with G.M. Bodner. He was also a research fellow at Joslin Diabetes Center where he worked with S.E. Shoelson.

Bhattacharyya uses qualitative research methods to understand how individuals learn, especially in the area of organic chemistry. While instructional materials are constantly developed to help students in organic chemistry courses, most are created without much understanding of how students learn organic chemistry because very little research has been done in the area. To make instructional interventions more effective, it is imperative to understand how students learn organic chemistry since observable behavior, such as the ability to solve a problem, does not necessarily imply comprehension of the underlying principles. Bhattacharyya’s research approach is similar to that of a synthetic organic chemist who attempts to understand the mechanism of a reaction before altering the conditions to fit a specific substrate.
The 2007 Southeast Regional meeting of the ACS was held October 24-27 in the Hyatt Regency Hotel in Greenville. Approximately 1,254 participants attended nearly 40 oral and poster technical sessions that focused on topics from across the discipline. Special events included plenary addresses by Richard N. Zare, Marguerite Blake Wilbur Professor in Natural Science at Stanford University and the 1981 Nobel Prize winner in chemistry; Roald Hoffman, Frank H.T. Rhodes Professor of Humane Letters at Cornell University; and a special symposium in honor of Darryl D. DesMarceau, Tobey Beaudrot Professor of Chemistry at Clemson.

The meeting was organized by the general chair, Timothy Hanks of Furman University, and the program chair, William Pennington of Clemson University. Julia Brumaghim and Melanie Cooper served as the finance chair and the educational program chair, respectively. In addition, a majority of the technical sessions and symposia were organized and chaired by faculty from our chemistry department, and our graduate and undergraduate students were very active in presenting papers and posters. Under the guidance of John Kaup, the undergraduate program chair, the officers of our ACS student affiliate chapter — Christopher Pollock, Ashlyn Dennis, Robert Gilliard and James Hodges — organized an outstanding undergraduate program that included two oral and two poster sessions and a variety of special events.

Additional information about the 2007 SERMACS meeting can be found online at www.sermacs2007.org.

CoES Exceptional Staff Awards Program

CoES held its annual Exceptional Staff Awards Program Luncheon in December. Dianne Harris and Nicole Hodgson from the chemistry department were included in the list of six outstanding administrative classified staff and three technical classified staff employees in the college. In addition to public recognition and a trophy, Dean Esin Gulari gave a $100 stipend to each recipient.

Congratulations, Dianne and Nicole!

Staff News

Those entering or calling the administrative suite for the chemistry department will be greeted with the friendly smile and assistance of our new administrative assistant, Frances Miller. Frances joined the administrative staff in October after working in the I.E. department of WestPoint Stevens. In addition to her receptionist duties, Frances will organize and arrange seminars; assist faculty, staff and students; and much more. She and her husband have two sons and two grandchildren. She enjoys amateur photography, hiking, scrapbooking and spending time with her grandchildren.

Laura Hupp was promoted to environmental health manager II in July. Initially hired in 1996, she is now responsible for building management issues, such as security, maintenance, repairs and renovations, as well as chemical and lab safety compliance. Laura is married to Harold Hupp, a Clemson professor, and they have two sons and a daughter. Laura and Harold spend their spare time on “the farm” raising beef cattle.

Chad Smith joined the department in November as the stockroom manager. His responsibilities include assisting faculty, graduate students and staff with ordering scientific equipment, materials and supplies as well as coordinating all the shipping and receiving needs of the department. After he graduated from Clemson, Chad worked for seven years as a research assistant at Clemson’s Coastal Research and Education Center in Charleston. He worked in the entomology lab helping to develop alternative ways to control agricultural insect pests without the use of harmful chemicals.
Thomas Green Clemson Academy Inducts a New Member

John Petersen was inducted into the Thomas Green Clemson Academy of Engineers and Scientists in April of 2008. Petersen is currently serving as president of the University of Tennessee where he leads a statewide system of campuses in Knoxville, Chattanooga, Martin, Memphis and Tullahoma.

During his time at Clemson, Petersen became a well-known chemist and embarked on a career as a science administrator. After serving as an associate dean for the College of Science and as head of the chemistry department at Clemson, he later became the dean of the College of Science at Wayne University and the chancellor and provost of the University of Connecticut.

In 1995, CoES established the Thomas Green Clemson Academy to recognize those who have brought distinction to Clemson University through conspicuous success in their careers, made significant contributions to society through professional or service activities and made notable contributions to the practice of engineering and science. Membership in the academy represents the highest honor the college bestows, so inclusion is limited to a select number of truly outstanding engineers and scientists. Honorees are either Clemson graduates or others who have a strong and direct association with CoES.