

Shanks named Hoppe Professor



Professor **Jacqueline Shanks** has been named the first holder of the Manley R. Hoppe Professorship in Chemical Engineering. An Iowa State faculty member since 1999, her research team quantifies rates of chemical reactions in plant and microbial systems in several applications of benefit to society. These include developing plants that can significantly reduce

the cost of expensive pharmaceuticals, improving protein and oil composition in soybean seeds and remediating groundwater and soil contaminated with explosives using terrestrial and aquatic plants.

Shanks is a 1983 graduate in chemical engineering from Iowa State and received her PhD in 1989 from the California Institute of Technology.

The professorship was established through the estate of Manley R. Hoppe of Moline, Illinois. Hoppe was the chairman emeritus of Parr Instrument Company, a privately held corporation that engages in the design, manufacture, and sale of laboratory instruments and apparatus for testing fuels and for conducting chemical reactions and tests under heat and pressure. Hoppe earned his bachelor's and master's degrees in chemical engineering from Iowa State in 1932 and 1935, respectively, and also served on the faculty in the college prior to joining Parr Instrument Company.

Iowa State joins BioEMB

Last year Iowa State joined project BioEMB (Bioengineering Educational Materials Bank), an NSF-funded project to inject some bioscience material into regular undergraduate ChE courses rather than overhaul or replace courses. Professors Claire Komives at San Jose State and Erik Fernandez at Virginia are leading the project. Iowa State is currently the only "beta-test site" and will include some biorelated material (mostly homework problems and examples) in six courses. The materials are available over the Web, and some orientation for instructors is included.

Mallapragada named CBE chair

Professor **Surya K. Mallapragada** has been named chair of CBE effective August 16. Mallapragada, who has been a member of the faculty since 1996, is also fieldwork proposal leader for bioinspired materials at the U.S. Department of Energy's Ames Laboratory.

"Surya has an outstanding record of accomplishments in teaching and research," Interim Dean **James Bernard** said in announcing the appointment. "She was my first choice and the first choice of the search committee and of her CBE colleagues to take on this position. We look forward to Surya's leadership."

Mallapragada earned her BS at the Indian Institute of Technology in Bombay and PhD from Purdue University.

This past December, the American Association for the Advancement of Science named Mallapragada an AAAS fellow in recognition of "research in the field of biomaterials and biomolecular engineering, particularly for important scientific advances in polymer design, relevant to nerve cell regeneration and drug delivery." Her research group is working on bioinspired self-assembling nanocomposites, a bottom-up approach to materials design as seen in nature, and is also developing new biomaterials for drug and gene delivery and neural tissue engineering.

Mallapragada is also an elected fellow of the American Institute for Medical and Biological Engineering. Other honors include the Iowa State Foundation Mid-Career Excellence in Research Award, Big 12 Rising Star Award, invited participant in the National Academy of Engineering's "Frontiers in Engineering" conference, and named as one of the World's Top 100 Young Innovators by MIT's *Technology Review*.

Mallapragada succeeds **James C. Hill**, who has served as department chair since 2005.



Katzer presents L. K. Doraiswamy Lectureship

James Katzer, a chemical engineering alum, presented "Liquid Transportation Fuel Options" as part of the L. K. Doraiswamy Honor Lectureship in April. Katzer, who had more than 20 years of experience in the oil industry, retired in 2003 as manager of strategic planning performance analysis for ExxonMobil Research and Engineering Company. Prior to joining Mobil Oil Corporation in 1981, Katzer was a professor of chemical engineering at the University of Delaware where he was instrumental in establishing the Center for Catalytic Science and Technology. He holds a BS from Iowa State and PhD from MIT.

The Doraiswamy lecture series is named in honor of **L. K. Doraiswamy**, Anson Marston Distinguished Professor Emeritus in CBE and a former director of India's National Chemical Laboratory. The lecture series brings internationally recognized scientists and engineers to both Iowa State and the National Chemical Laboratory in Pune, India.



Letter from the Chair



Dear Colleagues:

It has been an eventful four years for the CBE department during my term as chair—one year longer than I had agreed to. In a few weeks Professor **Surya Mallapragada** will take over as chair for a three-year term, and we expect great leadership from her. This will be my last newsletter to you.

Some noteworthy events over the last four years:

Name—In 2005 the department was renamed, adding “biological” to recognize various thrusts in the department.

Personnel—Four faculty members were promoted to the rank of professor (Surya Mallapragada, Balaji Narasimhan, Derrick Rollins, and Brent Shanks); lecturer Stephanie Loveland was promoted to senior lecturer; five assistant professors joined the department (Aaron Clapp, Eric Cochran, Laura Jarboe, Jennifer O’Donnell, and Ian Schneider); and several staff members were promoted (Jody Danielson, Linda Edson, and new hire Christi Patterson, who replaced Wendy Ortmann).

Dean’s office—Dean Mark Kushner resigned in 2008, James Bernard served as interim dean, and Jonathan Wickert assumed the post July 1; and we lost Balaji Narasimhan, who became an associate dean, and Derrick Rollins (part time), who became assistant dean.

Advisory Council—New members added were Mary Jane Hagenson, Peter Hemken, Terry King, Bob Lane, Leigh Thompson, and Darsh Wasan.

Vision—Thanks to the advice of many of you, the department has developed a new vision (“to be internationally recognized as being the best at exemplifying the dual commitment of outstanding research and serving students”) and a new strategic plan.

NSF Engineering Research Center for Biorenewable Chemicals (reported on in the fall 2008 newsletter)—CBiRC was formed as the result of an \$18.5 million NSF grant, the first such center at Iowa State.

REUs (Research Experiences for Undergraduates)—The first REU program (BioMAP) in collaboration with Tec de Monterrey has been renewed, and one associated with CBiRC is starting up.

Honors—Faculty, students, staff, and alumni continue to receive awards. Professor Jackie Shanks was just named the Hoppe Professor (see article on page 1), Professor Surya Mallapragada has assumed the Stanley chair, and Professor Eric Cochran has just been notified that he has received an NSF CAREER Award (more about this in a future newsletter).

Placement—Jobs are there; fewer are available, yet starting salaries are still the highest in the college.

Ranking—The Iowa State ChE graduate program ranking in *U.S. News & World Report* has improved four places in the last three years (now at #31, in the top 25%, or #14 among public universities).

Enrollment—We have more than 400 undergraduates (and are still growing) and more than 60 graduate students, plus 15 or more postdocs and visiting scholars.

Alumni relations—We have tried to keep in better contact with you with more attractive and informative newsletters and some alumni events.

Many of you are concerned—as are we—about the economy and declining state support to the universities. To keep chemical engineering at Iowa State strong, we need your help more than ever. We are seeking support for faculty development (named faculty fellowships, professorships, endowed chairs, and graduate fellowships) and facilities (named laboratories and lab renovations, planning for a future building addition), and we also depend on the generosity of alumni for general support that is used for our seminar series, student programs, field trips, and many other activities. Let us know if you’d like to help. The annual giving from many of you is especially appreciated. Much of what we do not only prepares students for careers in chemical engineering, but also contributes to solving societal problems in energy, health, food, materials, manufacturing, sustainability, environment, and security.

Best wishes,

James C. Hill

Energy fellowship established

James Katzer and his wife, Isabelle, have established a new endowed graduate fellowship dedicated to energy research in the Department of Chemical and Biological Engineering. The fellowship will support graduate students whose research aims to foster new and innovative energy-related research in CBE.

Summer 2009 | Issue No. 19

Published by the Department of Chemical and Biological Engineering, College of Engineering, 2114 Sweeney Hall, Iowa State University, Ames, IA 50011-2230; www.cbe.iastate.edu; jchill@iastate.edu

Prepared by Engineering Communications and Marketing, College of Engineering ECM 09511

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CBE senior assumes ELP leadership role

When Spirit Lake native **Michael Kalkhoff** arrived at Iowa State in 2006, he was one of 17 scholars in the inaugural class of the Engineering Leadership Program (ELP). Now a senior in chemical engineering with a minor in biology, Kalkhoff will apply the skills and talents he has developed over the last three years to his role as ELP student director for 2009–2010.

"We're trying to create an environment and provide the resources that will help people realize their full potential and become leaders in making the world a better place," Kalkhoff says. "It's not just for business or political leadership, but any kind of leadership scholars are interested in."

First-year activities that include a team-building retreat, skills development seminar, and service-learning project provide a support structure for freshmen to get involved. Kalkhoff, for example, became a leader for the Freshman Honors Program and worked on his first research project. Later, he worked in Professor Derrick Rollins' lab on diabetes research, and this summer he's part of the Research Experiences for Undergraduates program in the new NSF Engineering Research Center for Biorenewable Chemicals.



Kalkhoff joined the ELP leadership team his freshman year, helping with the application process for the 2007 class. In his sophomore and junior years, he was one of several student associate directors who planned programs and activities for the group. "I really liked the idea that I could be a part of the early development of the program," he explains.

A three-year leadership learning project, which the students select during their sophomore year, is a major component of the program. Kalkhoff, who wants to be a medical doctor, chose health care in the developing world. "It's too big of a topic for me or even the entire engineering student body," he admits, "but the idea is to learn about something and then figure out what you can do that will have an

impact both on others and on your future life."

Two organizations—Student International Medical Aid Club and Engineers without Borders (EWB)—provided Kalkhoff a way to get involved with international development work. He is in charge of the EWB health medical team and is the fund-raising chair.

This past May, Kalkhoff spent three weeks in Mali as part of ME 389X (Applied Methods in Sustainable Engineering and International Development), which he learned about through EWB. He worked on the water team charged with repairing water valves and testing a new water pump. But more importantly, it was an opportunity to work and interact with local villagers to see firsthand what life is like in a developing country.

Now back in Ames, Kalkhoff is eager to begin his role as ELP student director. "We have about 75 ELP scholars," he says, "but one of our focus areas for the future will be to find ways to incorporate the values we've learned in creating this pilot program so that all engineering students can benefit."

Ian Schneider joins the faculty

The department welcomed Assistant Professor **Ian Schneider** to the faculty in January. Schneider completed his BS in chemical engineering at Iowa State in 2000. After earning his PhD at North Carolina University in 2005, Schneider accepted a postdoctoral appointment at The Scripps Research Institute in San Diego. His research interests are in cell and biomolecular engineering and quantitative light microscopy.



Faculty/staff honors and awards

Robert Brown

Gary and Donna Hoover Chair in Mechanical Engineering
Iowa State 25-Year Club

Jody Danielson

Iowa State Professional and Scientific Excellence Award

Linda Edson

Iowa State 25-Year Club (35 years)

Surya Mallapragada

Fellow, American Association for the Advancement of Science
Richard Stanley Chair in Interdisciplinary Engineering

Richard Seagrave

Linton E. Grinter Distinguished Service Award, ABET

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Two alumni recognized for professional achievement



Two chemical engineering alumni—**Meiyu Shen**, PhDChE'99, and **Sridhar Desikan**, PhDChE'97—received the Professional Progress in Engineering Award at the 2009 Marston Club and Patent Dinner.

Shen is a mathematical statistician for the Food and Drug Administration (FDA), where she has developed several mechanism-based pharmacokinetic/pharmacodynamic models to describe the absorption, distribution, and disposition of drugs by the human body. The FDA has recognized her several times for outstanding technical contributions. Previously, Shen worked at Fox Chase Cancer Center modeling the effects of anticancer drugs.

Desikan is part of the leadership team for the Bristol-Myers Squibb (BMS) Biopharmaceutics and Analytical R&D in Bangalore, India. As a senior chemical engineer for DuPont Pharmaceuticals, his innovative work in crystal engineering resulted in identifying the most stable polymorph. At the BMS research center in Bangalore, Desikan is responsible for helping develop a state-of-the-art facility, identify equipment needs, assemble a diverse team, and provide training.