New Faculty Join Chemical Engineering Department

The K-State chemical department is excited to add two talented chemical engineers to its faculty. Bin Liu and Placidus Amama will both join the department in August as assistant professors. Following is a bit more about the two newest professors in the department.

**Bin Liu**

The chemical engineering department will soon be able to complement the experimental research conducted in most laboratories with simulations to gain a deeper insight into chemical processes, thanks to the addition of Bin Liu. Bin was born in Shenyang, a large industrial city in northeast China, and went to Dalian University of Technology where he received his B.S. degree in chemical engineering in 2003. He received his Ph.D. in chemical engineering at the Colorado School of Mines in 2008 where his research involved studying hydrocarbon decompositions on nickel surfaces using a multi-scale modeling approach. After receiving his Ph.D., Bin became a postdoctoral associate at Argonne National Laboratory, where his research became more focused on the use of first-principles methods, such as density functional theory, to study a variety of heterogeneous catalysis problems to increase our understanding of the catalytic transformations of biomass-derived molecules.

Continued on page 5
The start of the fall semester has me thinking about major milestones of the past, as well as the future of the department. This year K-State is celebrating its 150-year anniversary with special exhibits, commissioned artwork, a lecture series and many other activities. In relation to our own history, chemical engineering was first established as a curriculum at K-State in 1924 under the department of chemistry and became a separate department in 1940. Since then, we have continuously grown and improved.

Toward that end, two new faces, Bin Liu and Placidus Amama, are joining the department this fall, the first new faculty added since 2006. Both have tremendous energy, enthusiasm for learning and excellent engineering experience. They will be great additions to the department.

On a sadder note, the department suffered the loss of two of its members this past year: Professor Emeritus Walter Walawender and postdoctoral researcher Vasanta Pallem. Both are truly missed.

Arrival of the new faculty is propitious, as the number of students in the department is increasing rapidly. This fall, CHE undergraduate students will exceed 250, the largest enrollment in department's history. Of this group, more than 90 are entering freshmen. Students are drawn to chemical engineering by the many opportunities it affords, despite being one of the most difficult disciplines on campus. CHE students remain some of the most academically talented on campus. Sixty of our continuing undergraduate students—approximately 160 sophomores, juniors and seniors—receive scholarship support. Four of the 18 CHE students receiving their B.S. degrees in May 2012 graduated with honors. These graduates continue to be in demand by industry, with last May’s graduating class taking jobs in Kansas, New Mexico, Iowa, Louisiana, Missouri and Wisconsin.

Students and faculty are taking advantage of the newly renovated research laboratories on the second floor of Durland Hall. This project has increased the department’s footprint of research laboratory space by 2,000 square feet, brought the laboratories up to current safety standards and provided facilities more suitable for the current research activities of the department. More than 80 students, faculty, staff, family and alumni attended an open house showcasing these facilities last September. More recently, the undergraduate computer laboratory has been renovated with funding given in memory of Schawn and Weesam Alkatib. Both of these laboratories are impressive, and have inspired and motivated our students and faculty.

As part of the university-wide K-State 2025 visionary process, the department has been setting goals which include graduating more B.S. and Ph.D. students, adding faculty and gaining additional recognition for our research.

Our faculty strive to provide our students the best possible education. This fall we look forward to hosting more great speakers for our undergraduate assembly and our graduate seminar. Jerald L. Schnoor, a member of the National Academy of Engineers from the University of Iowa, will present “Water Sustainability in a Changing World” on Oct. 7. Alumnus Tim Taylor, executive vice president, commercial marketing, transportation and business development, Phillips 66, will speak to undergraduates on Oct. 24.

Associate Professor Jennifer Anthony attended the Wakonse Conference on College Teaching in Michigan this past May, where the stated goal was to renew and strengthen professors’ enthusiasm for teaching, including learning new, best practices for improving student learning. Previously, Professors Larry Glasgow, Keith Hohn and John Schlup have attended this workshop.

By looking back and keeping our strong heritage in mind, while at the same time looking forward and implementing innovative ideas, I am confident the next decade will bring amazing changes to the department.

James H. Edgar
Kansas State University has named James Edgar, department head and Tom H. Barrett Professor in Chemical Engineering, as a university distinguished professor, the highest honor the university bestows on its faculty. It was given following a university-wide competition conducted by the provost.

Edgar pioneered research on the crystal growth, epitaxy, characterization and device fabrication of wide band-gap semiconductors, including nitride and boride compounds rather than the more common silicon. His advancements have improved the materials used in microelectronic devices, such as laser diodes, that have revolutionized communications, transportation, lighting, medicine and consumer applications.

Edgar has received more than $9 million in research funding from the National Science Foundation, U.S. Department of Defense and U.S. Department of Energy. He has authored or co-authored more than 150 papers in scientific journals, edited two books, and presented more than 25 national and international lectures. He has served as the William H. Honstead Professor in Chemical Engineering. He also has received the Commerce Bank Distinguished Graduate Faculty Award, College of Engineering Research Excellence Award, Making a Difference Award and the Sigma Xi Outstanding Scientist Award. He spent sabbaticals at the Naval Research Laboratory and Radboud University in the Netherlands.

At the university, Edgar has advised 27 advanced-degree students and directed the research of 22 undergraduate students. He is a member of the program assessment coordination committee, graduate college assessment review committee and chair of the chemical engineering graduate students committee. He also has served on the graduate council. He has taught nine different undergraduate courses and five different graduate courses. He also has been a symposium organizer for the Materials Research Society, a National Science Foundation review panelist and a reviewer for NASA’s postdoctoral program, among others.

Edgar joined the university in 1988 as an assistant professor. He earned his bachelor’s degree from the University of Kansas in 1981 and his doctorate from the University of Florida in 1987, both degrees in chemical engineering. He is a native of Hutchinson, Kan.
In Memory of Walter Walawender

Professor Walter (Walt) Walawender, Jr. died July 7, 2013, at the Mercy Regional Health Center in Manhattan, Kan. Walawender was an instrumental part of the chemical engineering department at Kansas State University for 42 years, impacting the lives of generations of students.

He was born Sept. 16, 1941, in Utica, N.Y. He completed his bachelor’s of arts in chemistry at Utica College and earned both his master’s and doctorate degrees in chemical engineering from Syracuse University. He started his academic career as an assistant professor in chemical engineering at Kansas State University in 1969. He was promoted to associate professor in 1975 and to full professor in 1981.

Walawender’s initial research focused on developing realistic models of blood flow, i.e. the rheology of non-Newtonian fluids form by liquid-solid suspensions. Later, his research interests switched to biomass—wood, corn and sorghum stover, rice hulls, etc.—conversion to energy-rich gases via fluidized-bed reactors. In later years, he studied the conversion of biomass resources to activated carbon for gas absorption and storage. Walawender’s research has withstood the test of time; even his papers that were published more than 20 years ago are still regularly cited.

To current and former students, Walawender, who many affectionately referred to as “Wally,” will best be remembered for his work with both the AIChE and Omega Chi Epsilon student groups. Walawender served as faculty advisor for the student chapter of AIChE from 1978 to 2011. Through his leadership, the student chapter of AIChE regularly was named “Outstanding Chapter of the Year,” receiving this award for 16 consecutive years from 1995 to 2010. For his efforts, Walawender was named the Outstanding Student Chapter Advisor by AIChE in 1999. At K-State, he received the Charles H. Scholer Faculty Award in recognition of his unique and innovative contributions to student learning beyond the classroom and laboratory, particularly for his support of student extracurricular activities.

Walawender is survived by his wife, Paula, and five children: Carol, Brian, Lisa, Jennifer and James.
Bin recently answered a few questions:

**What attracted you to K-State?**

Great efforts have been made at K-State chemical engineering, including expanding its research capabilities, which I believe will provide many opportunities in energy-related projects to realize my research goals in the next few years. The chemical engineering department is a close-knit community with a welcoming and supportive faculty. I really feel that, being a theoretician, my research is appreciated here. I could see there will be many opportunities to work with other faculty on campus to solve interesting problems.

**Describe the type of research program you will be building at Kansas State.**

At K-State, I am planning to build a research program based on electronic structure calculations and molecular modeling to bridge the gap between our knowledge in fundamental physics/chemistry and practical engineering issues. The problems we are interested in range from basic surface chemistry to heterogeneous catalysis, and materials science. Most of my research is strongly motivated by various energy-related issues we are currently facing. The studies we carry out are to understand complex reaction systems, advance our knowledge of catalytic material synthesis at the molecular level and push forward the efforts for intelligent design of materials to satisfy our energy needs. Some examples include physical and chemical properties of nano-structured surfaces, structural and compositional dependence of activities and selectivities for composite heterogeneous materials, and development and application of novel molecular simulation techniques.

**What courses do you plan to teach?**

In the fall of 2013 semester, I will be teaching CHE 735 – Chemical Engineering Analysis I, which is a graduate-level chemical engineering mathematics course. I will also be teaching CHE 320 – Chemical Process Analysis in the spring semester of 2014.

**Describe your teaching style.**

I want my students to acquire the necessary technical and analytical skills so they are able to apply abstract scientific concepts to solving real world problems. Therefore, I think the teaching materials should be arranged organically to foster the creative thinking of the students and stimulate their interest to explore the subject powered by their own curiosity. I also am aware that every student has different learning preferences, so I am going to tailor my lectures and employ diversified teaching formats so that students are engaged and able to learn on their own terms.

**What activities do you enjoy outside of work?**

Besides research and teaching, I like traveling where I can enjoy novel food items, and experience different cultures and life styles. Each journey makes me feel refreshed, and often leaves me with new perspectives and great ideas. Running and tennis are among my favorite outdoor activities.

---

**Placidus Amama**

_Nigeria to Japan to the United States is perhaps not the most common path for an aspiring academic, but that's the one Placidus Amama has taken to join the faculty in chemical engineering at Kansas State University. Raised in southeastern Nigeria, Placidus received a B.Sc. in chemistry in 1992 from the University of Calabar, Nigeria. He then pursued his Ph.D. in environmental engineering from Yokohama National University, Japan, on a fellowship sponsored by the Japanese Government. After receiving his Ph.D. in 2002, Placidus was a post-doctoral associate in the department of chemical engineering at Yale University, and at the Birck Nanotechnology Center at Purdue University as a NASA-INaC Fellow working on heterogeneous catalysis and nanomaterials. In 2006, Placidus worked as a research engineer for a start-up company in Silicon Valley, Nanoconduction Inc., where he was involved in the design and development of CNT-based thermal interface materials before moving to Wright-Patterson Air Force Research Laboratory as a research scientist. At AFRL, Placidus has been researching the growth termination of CNT carpets, and developed a rational approach for fabricating catalysts with high activity and long lifetimes for the controlled growth of high-quality CNT carpets._

Placidus recently answered a few questions:

**What attracted you to K-State?**

I was attracted to K-State by the world-class research programs on graphene and heterogeneous catalysis, which I believe will provide great opportunities for research collaborations. During my visits, the high level of synergy among the faculty in chemical engineering was obvious and very pleasing to see. Also, I enjoyed living in a campus town, West Lafayette, Indiana, so I believe I will enjoy living in Manhattan as well.

**Describe the type of research program you will be building at Kansas State**

My research program at K-State will focus on establishing a rational basis to guide the design and fabrication of active catalysts for the growth of CNTs, graphene and nanocarbon hybrid structures of predetermined properties for energy-related applications—Li-ion batteries, supercapacitors and microelectronic cooling. A critical aspect of my research will be to improve our understanding of the mechanistic phenomena associated with the nucleation, growth and...
You can increase the impact of your gift to K-State today by utilizing your company’s matching gift program. Companies encourage philanthropic behavior by matching their employees’ charitable donations to eligible organizations, including higher education institutions.

Depending on your individual company’s policy, your gift to K-State could be increased from one to three times for each dollar you contribute. Other individuals who may qualify for a matching gift program include spouses of employees, retirees, and members of board of directors. Matching gifts will also apply to your giving totals for K-State’s various donor recognition societies.

Does your company participate in a matching gift program? Find out by visiting www.found.ksu.edu/match. Through this website, you can also find specific information on your employer’s matching program and how to initiate a matching gift, or you can contact your human resources department.

We appreciate you taking advantage of this opportunity to enhance your gift to K-State. Contact the Engineering Development team at 785-532-7609 or danielley@found.ksu.edu for more information.
termination processes of nanocarbon during catalytic CVD. Therefore, my program will also focus on use of a variety of in situ and ex situ microscopic and spectroscopic techniques to probe the evolution of the catalyst and growth process of CNTs and graphene.

What courses do you plan to teach?
I plan to teach chemical reaction engineering and transport phenomena laboratory.

Describe your teaching style.
My overall teaching philosophy is to strive toward being an inspirational educator and to train students to be leaders among their peers in chemical engineering. My classroom teaching style involves the creation of an environment that will stimulate students to be active learners, and be able to think independently and creatively. To achieve this, I have to be well prepared, creative, up to date on the subject and approachable. Also, my teaching will emphasize equipping students with the necessary technical skills that will enable them to be adaptable in this age of constant technological change and highly interdisciplinary nature of most engineering jobs.

What activities do you enjoy outside of work?
I enjoy reading, traveling, and playing and coaching soccer.
Ugochukwu Nwagwu – Edgar (M.S.)
Dow Chemical
Dale Green – Hohn (Distance M.S.)
Trevor Ault – Hohn (Distance M.S.)

Sean Tomlinson – Anthony (Ph.D.)
Post-doctoral associate, K-State

Elizabeth Boyer – Rezac (M.S.)

---

Grant Fergerson
Talal Mouais
Zachary Stanley – Hospira
Zhanyu Zhu

Kevin Cooper – Koch Fertilizer LLC
Lauren Elder – Honeywell
Thomas Haynos – MGP Ingredients
Ashleigh Herd – General Mills
Luke Hibbeler – St. Louis University, law school
Nicholas Hughes
Jessica Long – Phillips 66
Bristen Lorg – HollyFrontier

Jaron Meyer – Cargill
Michael Raymer – Wolf Creek Nuclear Power Plant
Andrew Smith – Haliburton
Natalie Truman – Cargill
Cody Wark – Koch Pipeline
Trenton Wilke – University of Michigan, CHE grad studies
Kathryn Zalenski – Burns and McDonnell

---

Ahmed Ashoapathy
Kevin Cooper
Rylan Daleke
Lauren Elder
Jing Feng
Glenn Harfstone
Thomas Haynos
Ashleigh Herd

Luke Hibbeler
Aaron Hodson

Mayra Lopez
Bristen Long
Fabian Martinez
Christopher Mehrer
Jaron Meyer
Michael Orgin
Nicholas Hughes
Jessica Long

Andrew Smith
Natalie Truman
Corey Urban
Cody Wark
Trenton Wilke
Linning Sue
Kathryn Zalenski
A special issue of Industrial and Engineering Chemistry Research, Volume 52, 2013, was published in honor of L.T. Fan’s professional contributions.

John Schlup has been trained as an ABET (Accreditation Board for Engineering and Technology) peer evaluator, and has visited chemical engineering programs in the U.S. to aid in the accreditation process.

Keith Hohn, was awarded the James L. Hollis Memorial Award for Excellence in Undergraduate Teaching, which is a student-nominated award given in the College of Engineering at K-State to recognized outstanding undergraduate teaching. He was also awarded the Ervin W. Segebrecht Honorarium, which recognizes professors at K-State who provide inspiration and excellence in teaching chemistry and chemical engineering.

Ben and Tracie (Ott) Gurtler (B.S., 2008) welcomed identical twin girls to their family Sept. 26, 2012—Alexia Pearl Gurtler and Taylor Lee Gurtler. Both weighed 5 lbs. and 9 oz., while Alexia was 18 inches long and Taylor was 18.5 inches long.

Cannon Clifton (B.S., 1996) and his wife, Amy, welcomed a daughter, Easton Kay Clifton, into their family Sept. 16, 2012. Amy weighed 8 lbs. 7 oz. and was 20 inches long. Both mom and baby are doing great!


In Remembrance

Kristin Kay (Ecord) Cole (M.S., 2000) passed away Jan. 28, 2013, in Little Elm, Texas. She worked for Dow Chemical and loved to mentor and recruit from K-State. She is survived by her husband, Ryan (B.S. 2000), and their three sons: Luke, five; James, three; and Ethan, seven months.
Several research laboratories in Durland Hall were expanded in size and extensively renovated in 2012 to meet current needs of the faculty, and to improve the labs’ safety, functionality and energy efficiency.

“These newly renovated laboratories improve the analytical and synthesis capabilities of the chemical engineering department and enable new types of research to be investigated,” said Jim Edgar, chemical engineering department head. “Students will receive better training and education in these state-of-the-art facilities, and the laboratories will be a valuable resource for K-State students and faculty for many years.”

To celebrate completion of the renovation, an open house was held Sept. 15, 2012, with approximately 100 students, faculty and alumni attending and touring the laboratories. Guest speakers were K-State President Kurt Schulz; John English, dean of the college of engineering; and Edgar. The photos below and right are from the event.
This past year, the CHE external advisory board determined three areas of focus for future growth. One of these areas was faculty support, particularly in the recruitment and retention of our faculty members. In collaboration with department head Dr. James Edgar, the board further defined this need and has been working to create an endowed faculty award.

Outstanding faculty members are critical to a quality learning experience for our students, as well as enhancing the reputation of excellence K-State has for top educators. This award would honor an exceptional faculty member within CHE each year with a monetary endowment of approximately $5,000. In the long term, this would also assist in CHE’s ability to recruit and retain excellent faculty.

To date, several current and past advisory board members have raised $25,000. However, to reach the goal of $100,000 to endow the award into perpetuity, we would like to invite you to join this effort, too, by making a one-time contribution or a gift commitment with a pledge of up to five years. You can also enhance your gift to the faculty award by utilizing matching gifts if your company participates in a company matching program.

If you are interested in supporting the Chemical Engineering Alumni Award for Faculty Excellence, please contact Lori Rogge, senior director of development, at the KSU Foundation via email at LORIR@found.ksu.edu or by phone at 785-532-7539. Lori will then follow up with you to provide the pledge form and additional instructions.

Thank you for your consideration and support.

Kathy Alexander Rasmussen - KSU CHE ’94
CHE external advisory board member 2011–2013

Feel free to contact any of the following advisory board members with questions or comments:

Kathy Alexander Rasmussen - krasmussen3@gmail.com
Laura Buller Winks - laura.n.winks@exxonmobil.com
Jon Wright - jonwright@burnsmcd.com

---

**CHE Alumni Award for Faculty Excellence**

Stella Sun placed first in the oral presentation session, and Sean Tomlinson placed first in the poster presentation session in engineering, mathematics and physical sciences at the spring 2013 K-State Research Forum.

Kyle Snow received honorable mention for the Barry S. Goldwater Scholarship.

Vasanta Lakshmi Pallem, a post-doctoral fellow in Professor Vikas Berry’s research group, lost her life in a fire in her apartment in Manhattan last February 2013. She had received her Ph.D. from Tennessee Technological University and her B.S. from Jawaharlal Nehru Technological University, India. She had received several awards for her remarkable contributions to science, including an award for outstanding Ph.D. candidate at Tennessee Technological University, as well as several fellowships and travel awards. A warm, friendly and intelligent person, Pallem will be missed by members of the Berry Research Group and the department of chemical engineering.
Let us know what you’ve been up to!

We would like to feature alumni news in future issues of ChemE News. Please fill out the section below and mail it to Keith Hohn, Department of Chemical Engineering, Kansas State University, Manhattan, KS 66506-5102; e-mail to hohn@ksu.edu; or fax to 785-532-7372. Thank you.

Name_________________________________ Degree/year_________________________________

Title_________________________________ Company name_________________________________

Business address_________________________ Phone_______________________________________

Home address_____________________________ Phone_______________________________________

News/accomplishments____________________________________________________________________

_____________________________________________________________________________________

_____________________________________________________________________________________