

# Biological and Agricultural Engineering Newsletter

## Summer/Fall 2012

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June 11, 2008 tornado resulted in a loss of over 200 trees on campus. Trees were originally planted between 1890 and 1900.



The BAE Newsletter is distributed annually during the summer months. We continue to encourage alumni to provide updated information via the form located on our website, [www.bae.ksu.edu/alumni](http://www.bae.ksu.edu/alumni).

## WELCOME DRS. WILKEN, SHESHUKOV, and LIU!

During the past few months, the Department of Biological and Agricultural Engineering has welcomed three new faculty members: Dr. Lisa Wilken, Dr. Aleksey Sheshukov, and Dr. Zifei Liu.

Dr. Wilken's research is currently focused on two areas: 1) processing for value-added co-products from biofuel production and 2) separation of high-value protein products (industrial enzymes, biopharmaceuticals, and nutraceuticals) from transgenic plants and other biological sources. The goal of the first area is to develop new processing strategies that will reduce biofuel cost by creating higher value co-products utilizing non-fermentable biomass fractions. The objective of the second research area is to design efficient and economical extraction and separation methods for the purification of recombinant proteins, which can be used for human and animal health. In order to address these focus areas, Dr. Wilken is currently setting up a bioseparations laboratory with equipment and materials needed for extraction, plant fractionation, and protein purification along with complementary tools for quantification and analysis of biological materials. She is excited to be back at Kansas State and looks forward to teaching classes in biological engineering and training undergraduate and graduate students interested in biotechnology and bioprocess engineering.



In 2002, Dr. Zifei Liu came to the United States for further academic training and career development after ten years of professional experience in China and Japan as an environmental engineer. In the past decade, he has been working at the University of Cincinnati, North Carolina State University and Michigan State University on various areas of environmental engineering and agricultural systems that include but not limited to quantifying, modeling and

mitigating air emissions from livestock production systems. As a new faculty member at Kansas State University, Dr. Liu's goal is to develop an integrated research and extension program to assist Kansas in addressing critical environmental issues that impact the sustainability of local communities, and to provide leadership to professional societies and policy makers. The goal is two-fold: first, to advance the research-based understanding of air quality and waste management problems in agricultural systems, and second, to transfer the needed

knowledge to industries, regulators, students, and the public. Kansas is experiencing air quality problems such as smoke from pasture burning and air pollutants from feedlots. With support from his applied research on these issues, he hopes to effectively inform and influence producers and consumers to move agricultural production toward practices that are environmentally sound and economically viable, balancing the needs of public health and the environment with the needs of industry. Dr. Liu also plans to work with policy makers/regulators to transfer science for relevant, practicable regulations. In addition, he will work to help producers adapt to and mitigate the effects of climate change, as producers face new weather patterns or regulations put in place to limit GHG. His research interests also include best management practices for livestock production systems, including manure and nutrient management. Currently, Dr. Liu is working on a project studying air emissions from swine productions, which is funded by the National Pork Board. As swine production in Kansas is growing, he believes the result of this research will improve the understanding of the associated environmental problems.



## New BAE Faculty (continued)

Dr. Aleksey Sheshukov is an Assistant Professor in Environmental Engineering. Aleksey started his career by studying fundamental problems of near-surface and groundwater flows coupled with heat and solute transport in frozen soils at Kazan State University, Russia. His Ph.D. work on regime identification of concentrated flows, waste allocation and storage in frozen soils as a bi-product of open pit diamond mining was recognized by the *Leonard Euler Stipendium* from the German Mathematical Society. Aleksey joined the U.S. Army High Performance Computing Research Center at the University of Minnesota in 1999 as a Visiting Assistant Professor with the work focused on the development of a subsurface-soil surface-atmosphere module for one-dimensional simulation of moisture redistribution and heat transfer in soils. While with the University of Minnesota he worked on studying a creation of frozen barriers generated by employing a chain of frozen pipes installed in the saturated ground, analytical and numerical modeling of unstable gravity-driven flows in the vadose zone, evaluation of stream impairments in the Upper Mississippi basin using multi-metric indices, such as the Index of Biological Integrity (IBI), and was a main co-developer (with Dr. Bruce Wilson) of a stochastic weather generator WINDS (*Weather Input for Non-point Data Simulations*) and an erosion risk assessment tool WATER (*Watershed Assessment Tool for Environmental Risk*). Aleksey joined BAE in 2008 as a Watershed Modeling Specialist to lead the K-State Watershed Restoration and Protection Strategies (WRAPS) team in water-quality assessment of Kansas watersheds.



Dr. Sheshukov's current research interests are interdisciplinary and focus on studying fundamentals of hydrological processes at the watershed scale, evaluating best management practices for sustainable watershed management and restoration, assessing environmental impacts of climate and land-use changes, and physically based modeling of flow and coupled heat and mass transport in terrestrial ecosystems. In particular, he is interested in evaluating sources and rates of sediment and nutrients, specifically contribution of ephemeral gullies from agricultural fields, through laboratory measurements, field monitoring, and computer modeling. Dr. Sheshukov is a member of the K-State team on targeted BMP implementation and getting smarter about ephemeral gully erosion sponsored by the USDA-NIFA Integrated Water-Quality Program. Another area of Dr. Sheshukov's interests relates to studying environmental impacts and human response and decisions to climate change. To quantify the magnitudes, timing, and frequencies of hydrologic shifts and assess eco-hydrologic impacts of climate change on aquatic and terrestrial ecosystems at the watershed scale, Dr. Sheshukov developed a spatial and temporal downscaling procedure consisted of statistical analysis of intra-annual characteristics of the future scenarios produced by General Circulation Models, computing statistics of historical records for the specified location, and generating a set of future climate scenarios by adjusting stochastically generated daily values of climate variables. The applied study discovered an increased significance of accounting of monthly and seasonal changes

in predicting alterations of hydrologic regimes, stream flows, and freshwater ecosystems with potential climate change. Specifically for the Heartland region, the increased number of precipitation events in spring and dryer summer months could lead to additional stress on urban, terrestrial, and fresh water ecosystems. His future work will lead to quantification of such stress in rural and urban areas.

As a lead watershed assessment specialist and a core member of the inter-disciplinary and USDA-award winning watershed management team at Kansas State University, Dr. Sheshukov is actively involved in WRAPS, a watershed-scale planning and management initiative that fosters greater watershed stakeholder involvement and attempts to enhance effectiveness of implementation of conservation practices. Aleksey is currently working on integrating mobile phone-based tools into an extension toolbox that can be seen as a new way of communication and engaging stakeholders through the mobile technology.

## Departmental Highlights From 2011-12

- Degrees Awarded:
  - Biological Systems Engineering—19
  - Agricultural Technology Management—17
  - Biological and Agricultural Engineering MS—7
  - Biological and Agricultural Engineering PhD—6
- Hiring of 3 New Faculty Members:
  - Dr. Lisa Wilken—PhD: Texas A&M University  
Emphasis: Bioprocessing
  - Dr. Aleksey Sheshukov—PhD: Kazan State University  
Emphasis: Environmental
  - Dr. Zifei Liu—PhD: North Carolina State University  
Emphasis: Air Quality
- Received full accreditation from ABET
- Received approval to offer a Master of Science degree program at Kansas State University-Olathe
- Student Design Teams and Design Projects continued to excel
- Jacob Nagely and Lisa Hillstock placed 3rd in AGCO Design Competition
- Met with over 150 prospective students (high school and college transfer students and parents)
- Taught over 2,000 student credit hours of courses
- Faculty developed the framework for the new Biological Systems Engineering curriculum
- Faculty developed Bioprocessing Option for the Agricultural Technology Management program
- Nearly 40 BSE and ATM students received summer internships

## Department Head Message: "Help! We Need a Convoy of Alumni"

Recently during travels from Kansas to Virginia to see family I saw many convoys of electric utility trucks headed to the east coast to assist with restoring electricity to 1.5 million customers without power. Each group of trucks (ranging from 2 to 15 per convoy) represented people willing to help their colleagues (during 100 degree weather plus July 4<sup>th</sup> holiday week) and assist those without power. My family took special notice of the number of utility trucks from Kansas and I started thinking about the new academic year. The thought crossed my mind that for the upcoming academic year to be the most successful ever, we need convoys of alumni to return to Kansas State University and assist the Department of Biological and Agricultural Engineering. Let me explain how you may help the Department.



The enrollment for the BAE and ATM introductory courses, which include new freshmen and transfer students, is 73 new students. Last year the introductory class was 56 students, so BAE is growing. This year we will divide the introductory courses into two sections in an effort to help each student have a positive introduction to campus life.

These young people need to obtain a vision of future opportunities in order for them to remain enrolled in the BAE degree programs. Our faculty will help them explore the opportunities, but these young people are requesting to hear from the "real" world. They want to connect with alumni and hear your story. We need alumni willing to travel to Manhattan and volunteer time to share your story including challenges during your college years, beneficial courses and courses you wish you would have taken and how you are making a difference in the world.

BAE was one of five programs approved to offer a master's degree program at the KSU- Olathe campus in the Kansas City metro area. The BAE master's program will focus on biotechnology with the first classes being enrolled for fall of 2013. We need BAE alumni with experiences in the biotechnology field to serve on the BAE/KSU-Olathe advisory council. The council will provide assistance via helping

finalizing the curriculum and providing direction in the hiring of new faculty for the Olathe campus.

The ATM program continues to grow and we feel it necessary to establish an ATM advisory council. This council will meet concurrently with the BAE advisory council in December and May of each year. The goal is for these councils to work together to provide visionary insight in regards to the academic curriculum needs of the engineering and technology focused degree programs. The BAE council will focus on the Biological Systems Engineering curriculum and ABET accreditation. If you are interested in serving on the BSE or ATM advisory councils, please let us know.

There is an increase demand for summer intern positions and assistance with senior design or capstone projects as our undergraduate programs continues to grow. Alumni are needed to mentor young people through internship and capstone design experiences.

April 19-20, 2013 we need all alumni to return to the 2013 Open House and celebrate the BAE Alumni reunion. The BSE degree program will be celebrating their 100th anniversary and the ATM program their 50th anniversary. Currently we are seeking alumni to volunteer to serve on the reunion planning committee as well as help us contact other alumni and allied industry partners. Companies and alumni are asked to make financial contributions such as sponsorships of tables (for students or particular class), door prizes, or make financial contributions. Please call Joe Harmer ([jharmer@ksu.edu](mailto:jharmer@ksu.edu)) if you are willing to become involved in any of these endeavors.

Simply stated—Alumni, your assistance and support are appreciated and vital as we continue the tradition of excellence established by BAE/ATM graduates.



*ASABE student design team competitions 2012: BAE's Fountain Wars team enjoy a moment during the ASABE meeting in Dallas.*

## Update on BAE Research Suites

The department is continuing to move forward with the development of the BAE Research Suites. We are currently negotiating with an architectural firm to obtain preliminary drawings and construction cost estimates prior to finalizing the design of the BAE Research Suites. The goal is still to begin construction this fall with a completion date of early spring 2013. Currently we have obtained \$450,000 in financial commitments of the \$550,000 estimated cost. The remaining financial support will be required to fully utilize the Research Suites. The current plan is to develop a Hydraulic Teaching Lab, Biopro-

cessing Lab and Bioenvironmental Lab. Each lab will be shared by multiple faculty and graduate students. Overall, the goal is to provide high quality research lab space for procurement of over one million dollars annually of research grant support. This project is part of BAE's commitment to help Kansas State University fulfill the goals of the KSU Vision 2025. Please contact Joe Harmer ([jharmer@ksu.edu](mailto:jharmer@ksu.edu)) for more information on how you may assist in helping the BAE Research Suites reach their full potential. Our goal is to have a dedication ceremony as part of the 2013 Open House activities.

## BAE SEED Program—Student Extracurricular Experiences and Development

The BAE SEED program was initiated during the past academic year to provide alumni and allied industry partners an opportunity to provide financial support for undergraduate extracurricular activities. The long-range goal is to develop permanently endowed support for student activities such as international experiences, design team participation and professional meeting attendance. The goal of extracurricular experiences is to better prepare graduates for the workforce and professional organizations. Specific program goals are:

- Promote and encourage undergraduate scholarly activities to fulfill K-State 2025 goal of a top 50 public research university
- Promote quality of education received at Kansas State University through undergraduate participation in professional and interna-

tional activities

- Promote student participation in extracurricular experiences and development beyond the Kansas State University – Manhattan campus
- Provide financial support for undergraduates to participate in extracurricular experiences including design, professional and international experiences

The following table highlights the SEED areas of emphasis and specific focus areas. Contact Lori Rogge at the KSU Foundation Office ([lorir@found.ksu.edu](mailto:lorir@found.ksu.edu)) for additional information on how to become involved with the BAE SEED program.

Area of Emphasis	Area of Focus	Brief Description
The SEED Experience	Departmental Focus	BAE promoting and encouraging student participation in extracurricular experiences as part of professional and workforce development
Design Team Experiences	1/4-Scale Tractor Team	ASABE sponsored event requiring design, build, and test of a 1/4-scale size tractor
	Robotic Team	ASABE sponsored event utilizing robotics in biological systems
	Fountain Wars Team	ASABE sponsored event utilizing water hydraulics to complete a series of everyday tasks
Professional Society Experiences	Professional Meetings	Attend a professional meeting and connect with industry and professional colleagues
	Undergraduate Competitions	Participate in competitions involving undergraduate research or design projects
	Undergraduate Research	Present undergraduate research project at a professional meeting
International Experiences	Semester Study Abroad	One or two semesters of academic study at an international university
	2-Week Experiences	Faculty/University lead international trips related to a subject matter or country
	Student Organizations	Student organization international trips with emphasis on community service projects



The BAE's Robotics team placed first during the recent competition held in conjunction with the International ASABE meeting in Dallas, TX. This is the 6th year in a row they have won the competition—congratulations!



## Darrell Oard to Retire in December

Mr. Darrell Oard has announced his retirement effective December 2012. For most on campus it is hard to imagine going to the BAE shops and not being able to seek Darrell's professional advice and guidance. Darrell has been a foundational corner stone in the department since his arrival in August 1972. He has helped innumerable undergraduate, graduate students and faculty with classroom, design and research projects. Since his arrival, over 150 student teams or individuals have top 3 finishes in national competitions and more than 1,200 students have received a BS, MS or Ph.D. diploma.



All alumni and friends are invited to a retirement reception for Darrell to be held on Saturday, December 1, 2012, at the Train

Depot in Manhattan, Kansas. December 1 is the last football game of the season (K-State vs. Texas) with the start time yet to be determined. If the game starts prior to 3:00 p.m., the reception will be from 6:00 to 8:00 p.m. Should the game be played in the evening, the reception will be from 3:30 to 5:00 p.m.

We invite you to stop by and express your appreciation and gratitude to Darrell for his unending support. If you would like to write a letter or note to Darrell, please mail it to Ms. Lou Ann Claassen by November 10 ([lkc@ksu.edu](mailto:lkc@ksu.edu) or mail to Lou Ann Claassen, Kansas State University, Biological and Agricultural Engineering, 129 Seaton Hall, Manhattan, Kansas 66506). If you plan on attending this retirement reception, please RSVP to Lou Ann at 785-532-2901 by November 1 so adequate arrangements may be made.

## Why a Master's Program in Biotechnology at KSU-Olathe?

During the past several years there has been an increased interest in the biological option by incoming freshmen in the Biological Systems Engineering degree. Four years ago less than 10% of the incoming freshmen were enrolled in the biological option. This year more than 40% of the incoming freshmen are interested in this option resulting in the growth of our undergraduate program. The number of students enrolled in the environmental and machinery options has remained stable. Historically many students interested in the BSE biological option were interested in pursuing an advanced medical degree. Faculty advising BSE biological students discover their current interests are much broader than just medical and includes genetic engineering, gene mapping, biotechnology, etc. A core group of faculty at Kansas State University proposed several years ago a university wide biotechnology program which included an engineering track in this area. There was much interest in the proposal, however, with the economy there appeared to be little opportunity to add additional faculty and support for the program. BAE reviewed the original proposal, and visited with the administration of the K-State Olathe campus in Fall 2011 about developing a master program in biotechnology for students graduating with a BS degree in Biological Systems Engineering.

In case you are wondering, the Kansas City area has more than 150 companies involved in biotechnology related to human and animal health and is the 7<sup>th</sup> largest metropolitan bio-based corridor in the U.S. Currently in Kansas City, the biotechnology industry has annual sales in excess of five billion dollars. The Kansas City metro area has two community colleges with strong engineering and biotechnology programs offered at the associate degree level and many high school

students in the Kansas City metro area are currently involved in math and science projects with biotechnology scientists and firms. Many of these students are interested in pursuing a career in the STEM area with an emphasis on biotechnology. BAE faculty and administrators at the Olathe campus viewed this as an unique opportunity for workforce development.

A master degree program was developed and, following much discussion, was approved in Spring 2012 as one of the five initial degree programs to be offered at the Olathe campus. Dr. Lisa Wilken, who arrived in March, 2012, is providing current leadership in the development of this program. This past summer she, with our Olathe campus colleagues, visited major biotechnology companies in the Kansas City area. Their responses have been very positive including willingness to serve on the advisory council, assist with teaching courses and exploring opportunities for their employees to obtain certificates or participate in the courses. The BAE Master Degree program at Kansas State University-Olathe will require completion of an additional 30 credit hours beyond their BS degree. The MS program includes a research thesis option or a professional option requiring a co-op experience. BAE faculty at the KSU-Olathe campus will develop course curriculum, and advise MS students, teach graduate level biotechnology courses, and serve as a liaison with the biotechnology industry to identify skills and workforce development requirements. The next step will be to seek approval to hire our first faculty member in Spring 2013 and offer courses in Fall 2013. Please contact Dr. Lisa Wilken ([lwilken@ksu.edu](mailto:lwilken@ksu.edu)) for additional information.



*Photos of the K-State Olathe Campus*



## BAE Fall 2011, Spring/Summer 2012 Graduates

### Doctorate

#### Spring 2012

**Prasad Daggupati**

*Tirupati, India  
(Dr. Douglas-Mankin)*

**Jing Gan**

*Beijing, China  
(Dr. Yuan)*

**Karnnalin Theerarttananoon**

*Muang, Trang, Thailand  
(Dr. Wang)*

**Feng Xu**

*Wuxi, Jiangsu, China  
(Dr. Wang)*

#### Summer 2012

**Marcelo Coronado**

*Panama City, Panama  
(Dr. Yuan)*

**Joseph Dvorak**

*Perry, OK  
(Dr. Zhang)*

### Master of Science

#### Spring 2012

**Allie Archer**

*McPherson, KS (Dr. Hutchinson)*

**Kelly Borgen**

*Ensign, KS (Dr. Wang)*

#### Summer 2012

**Daniel Bigham**

*Meriden, KS (Dr. Zhang)*

**Arthur James**

*Panama City, Panama (Dr. Yuan)*

**Seth Perkins**

*Wichita, KS (Dr. Douglas-Mankin)*

**Brenton Ware**

*Shawnee Mission, KS (Dr. Zhang)*

**Ling Zhang**

*Chengdu, China (Dr. Yuan)*



### BAE/BSE BS

#### Fall 2011

Michael Berggren, *Tribune*

Daniel Bigham, *Meriden*

Kari Friedrichs, *Marysville*

Douglas Grollmes, *Circleville*

Cynthia Hampton, *Manhattan*

Emma Hawkins, *Halstead*

#### Spring 2012

Allie Archer, *McPherson*

Kelly Borgen, *Ensign*

Robert Clark, *Manhattan*

Nicholas Depenbusch,  
*Nashville*

Christopher Dolezal, *Valley  
Center*

Nathan Goetzinger, *Andover*

Lloyd Daniel Martin, *Pittsburg*

Jacob Nagely, *Sabetha*

Joshua Ogle, *Hopkins, MO*

Wesley Orr, *Larned*

Seth Perkins, *Wichita*

Breanna Stout, *Garden City*

Kevin Urban, *Salina*

### ATM BS

#### Fall 2011

Michael Adams, *Elk Falls*

Ryan Evans, *Andover*

Lance Hoffman, *Clafin*

Kirk Lenz, *Wray, CO*

Travis McCoy, *Sabetha*

Daniel Riffel, *Stockton*

#### Spring 2012

Josh Hildebrand, *St. John*

Travis Hillman, *Cheney*

Timothy Johnson, *Overland Park*

Evan Karl, *Abilene*

Nathan Larkins, *Republic*

Justin Shields, *Colby*

Matthew Sommers, *Robinson*

Michael Speer, *Viola*

Bryant Umscheid, *St. George*

Levi Van Pelt, *Manhattan*

Bradley Zerr, *Park*



BAE's 1/4-Scale Tractor Team placed second in the 2012 competition held in Peoria, IL; along with the "X" Team placing first.



Jacob Nagely and Lisa Hillstock, placed third in the AGCO National Student Design Competition held during the ASABE 2012 Annual International Meeting. Their project was titled Measure Ear Drooping to Detect Cattle Illness.

**DID YOU KNOW:** The Kansas economy is critically linked to the engineering professional workforce. Eighty percent of all science and technology-based occupations in the state stem from engineering and information technology fields. In 2008, the top 25 U.S. exports via Kansas fell largely into two commodity categories – agriculture and engineering-intensive machines and equipment. Of the \$8.1 billion export value of these top 25 commodities, engineering-intensive commodities accounted for more than \$5.5 billion or two-thirds of the total.

In a study conducted by Wichita State University Center for Economic Development and Business Research on the economic impact of engineers in Kansas, they show that for every engineering professional, an additional 1.78 persons are

employed in Kansas. Furthermore, state fiscal outlays associated with an increase in engineering graduates have a benefit-cost ratio of 2.07.

On May 25, 2011, Governor Sam Brownback signed into law the University Engineering Initiative Act. The celebrated event creates an unprecedented opportunity for the three regent's universities having engineering colleges/schools (specifically, KSU, KU, and WSU) to dramatically increase the number of engineering graduates. In essence, each university is presenting a plan to: 1) recruit new students, 2) increase the percentage of students succeeding through graduation, and 3) expand its infrastructure to accommodate a larger student body. For more information on how to become involved, contact Lori Rogge (lori@found.ksu.edu).

## Dr. Do Sup Chung—March 20, 1935—February 19, 2012

Dr. Do Sup Chung passed away unexpectedly on February 19, 2012 in Birmingham, AL, with his loving wife, Okkyung (Okky) Kim Chung, and daughters, Clara Chung Fleisig and Josephine Chung, at his bedside. Do Sup's amazing life began March 20, 1935 in Incheon, South Korea. He was the third of four sons of Tai-Hyun Chung and Ipoon Kim, growing up in Korea under Japanese occupation, World War II, and the Korean War. Do Sup attended Kyunggi Middle and High Schools in Seoul, South Korea, where he made lifelong friends. He came to America in 1954, earning his B.S. degree in 1958 from Purdue University in Chemical Engineering. Dr. Chung moved to Manhattan to attend Kansas State University. He earned a master's degree in Chemical Engineering, followed by a doctorate in Grain Science in 1966.



Do Sup married Okkyung Kim on November 22, 1961 in Manhattan, KS. They lived in Manhattan for the first 48 years of their marriage, before moving to Birmingham, AL in 2009. Dr. Do Sup Chung and Dr. Okkyung Kim Chung raised their two daughters, Clara and Josephine, to follow in their parents' footsteps, achieving doctoral degrees (in medicine and psychology, respectively). His greatest joy was to see his daughters get married (Clara to Glenn Fleisig of Birmingham, AL; Josephine to Mark Putaski of St. Paul, MN) and to watch his four wonderful grandchildren (Emily and Julia Fleisig; Benjamin and Eleanor Putaski) be born and share in their activities as they grew older. Do Sup and Okkyung celebrated their 50th wedding anniversary in 2011. Together, they loved to cheer on their Kansas State Wildcats, play poker and the slots, travel the world, discuss politics but mostly relish every moment they spent with their grandchildren.

Dr. Chung served on faculty at KSU in the Department of Biological & Agricultural Engineering (BAE) for 38 years (1965-2003), Visiting Professor at Korea University, Seoul, South Korea (February-July, 1990), and served as Professor Emeritus at KSU since 2003. During his tenure at K-State, Dr. Chung taught 14 different courses and developed the food engineering option program in the BAE Department. He also developed the Thermal Process Laboratory, Wet Grain Process Laboratory, and Physical Properties Laboratory for teaching and research. He guided: 33 M.S. degree candidates, 13 Ph.D. candidates as a Major or Co-Major Professor; 60 M.S. degree and 44 Ph.D. degree candidates as a Graduate Advisory Committee member; and 13 Post-Doctoral Fellows. He served as faculty advisor: for the KSU Korean Student Association for 30 years. He also served as advisor for: KSU Native American Student Association, KSU Engineering Open House for the BAE Department, American Society of Agricultural and Biological Engineering (ASABE) Student Branch, and Agricultural Mechanization Student Branch. In addition, he served on numerous K-State committees and boards as a chair, member or an elected member.

The Chung-Pfost Equation developed in Dr. Chung's Ph.D. dissertation, which was published in *Transaction of the American Society of Agricultural and Biological Engineering (ASABE)* in 1967, is still used in academics and private industry throughout the world. The Chung-Pfost Equation was adapted as the ASABE's Standard Equation for predicting equilibrium moisture content (EMC) and describing EMCERH (equilibrium relative humidity) data for grain and oilseeds. The

Equation has been used for crop drying calculations and in design and analysis of storage systems for agricultural products. An Analysis of Transactions of the ASABE papers in 2007 found that Dr. Chung had two of the five most cited papers during the 50-year history of *Transaction of the ASABE*.

Dr. Chung's fields of research included: Mass and heat transfer in grains and their by-products; Grain storage, handling and drying (postharvest technology); Physical properties of biomaterials; and Food and grain processing. Dr. Chung was the author or co-author of more than 160 scientific papers including book chapters and monographs in grain storage and processing and food processing engineering. He organized and chaired many international conferences and symposia. Through his work with the U.S. Agency for International Development (USAID), Professor Chung provided technical assistance on grain postharvest and processing technology in 25 countries within Africa, Asia, Central and South America. He was a member of the ASABE, American Association of Cereal Chemists International (AACCI), and Institute of Food Technology (IFT) and many other honorary societies. He won numerous awards and honors, including: the Outstanding Paper Award, ASABE (1978); Young Engineer of the Year Award, Mid-Central ASABE (1975); Outstanding Educator Awards from the President of the Republic of Korea (1986); Kishida International Award, ASABE (1992); KSU College of Engineering Faculty Advisor of the Year Award (1994) and Snell Distinguished Career Award for Excellence in Undergraduate Teaching (1998); Fellow of ASABE (1995); Excellence in Teaching Award, AACCI (2000); and numerous other awards and honors from international universities, government ministers, and KSU's BAE Department.

Throughout Dr. Chung's life, it was his greatest pleasure and privilege to give back. Dr. Chung learned at a very young age from his parents the art of giving. His life was committed to giving to others in whatever way he could, whether in small or large ways. He spent his life teaching those around him, including his daughters, grandchildren, as well as his students, to give in whatever ways possible. Dr. Chung said, "...I ask my students to remember that in this world, people need all kinds of help. We must think about the next generation and should not forget our roots." In 1993, Drs. Do Sup and Okkyung Chung established the Chung-Kim Family Scholarship to honor their late parents and assist students majoring in Food, Biological and Agricultural Engineering at Kansas State University. In 1996, the Korea Room at KSU's International Student Center was built with fundraising efforts by Dr. Chung and his family. The Do Sup Chung International Scholarship was created for international students at K-State in 2003. When Dr. Chung retired in May 2003, funds from Dr. Chung's family and from his former students living in Korea were donated to the West Seaton Renovation Campaign to create the Drs. Do Sup and Okkyung Chung Graduate Student Office.

Do Sup is survived by his wife, two daughters, two sons-in-law, four grandchildren, two brothers (Nam Sup and Young Sup) and their wives, and 21 nieces and nephews. Dr. Do Sup Chung touched the lives of his family, friends, colleagues and students, and will be deeply missed by everyone who knew him as a person. His work legacy touched the lives of countless numbers of people whose ability to eat grains, fruits, and other food that has to be dried and stored for future use, very dependent upon the research that Dr. Chung provided with his equation long ago and continues to be used today.

(from *The Manhattan Mercury*, March 20, 2012)



## Special Thanks—

We recognize our faculty and students have the talent and potential to transform possibility into reality.

With this in mind, we are dedicated to offering an educational environment rich with possibilities and opportunities for our students. In the laboratory we're pioneering to achieve our mission to advance the knowledge and application of engineering and technology to living systems, agriculture, and the environment. In the classroom we're consistently providing a world-class education that we believe will serve as a foundation for success throughout the lives of our students.

Indeed, many of our endeavors would not be possible without help from former students and friends of the department. This support, when expressed in the form of undergraduate scholarships or funding competition teams, enables students to pursue their educational goals and ultimately become leaders in academia and industry. When channeled in the direction of faculty development and research, these contributions help us recruit and retain the best possible teachers and scholars, ensuring that many generations of students receive an outstanding education.

We invite you to visit <http://www.found.ksu.edu/engineering/BAE.html> to continue the pursuit of excellence. With your support, the possibilities are truly limitless.

## Honor Roll of Giving: July 1, 2011—June 30, 2012

### INDIVIDUAL GIFTS

Ronald & Phyllis Allen  
John & Linda Anschutz  
David Becker  
Shawna & Daren Beltz  
Jessica & Micah Berberich  
Stan & Pam Black  
John & Rebekah Bloomfield  
Mark & Terrie Boguski  
Edwin & Dea Brokesh  
Margo Caley  
Gerald & Marolyn Chmelka  
Sun Chung  
Daniel & Jane Colburn  
Warren Corbet  
Craig Cowley & Lyn Huffaker  
Bruce & Roberta Curry  
Benedict & Joann Dickman  
Loren Dilsaver  
Chuck & Joan Dorgan  
Edwin & Casee Eisele  
Dean & Maria Eisenhauer  
Norman & Janet Elliott  
Dale & Linda Eustace  
David & Carol Fairbanks  
Helen Fairbanks  
L T & Eva Fan  
Ellen Feldhausen  
Jon & Mary Feldhausen  
Scott & Susan Feldhausen  
James & Carolyn Fitzgerald  
Jane Fulhage  
Bill & Dorothy Funk  
Dale & Marsha Grunewald  
Catherine Gunsbury  
Marvin Hachmeister & Marjory Mortved  
Joe & Lisa Haffener  
Milly & Joe Harner  
Jo Haslett  
Lucile Hawks  
Jan & Dick Hedges

Christopher & Heather Henry  
Thomas & Chris Herald  
Rodney & Kay Horn  
Carl & Joanna Hoseney  
John Hubbard  
Stacy & Shawn Hutchinson  
Bill & Wyoma Johnson  
Dean & Nancy Kays  
Miles & Cortney Keaton  
Myung & Young Kim  
Jim & Susan Koelliker  
Troy & Robyn Kolb  
Jim & Brenda Kopriva  
John & Diane Krupp  
Dennis & Carol Kuhlman  
Jerrel & Marian Larson  
Ron & Linda Madl  
Harry & Elaine Manges  
Jerry & Lori Marr  
Lewis & Marjorie Martin  
Luke Massoth  
Laura & Thomas McLaughlin  
Elizabeth & Mark Meyer  
Terry & Becky Misak  
Naga Raghuvver Modala  
Darrell & Barbara Oard  
Frank Padula  
Andrew & Jennifer Peterson  
Richard & Valeta Phillips  
Leroy & Mary Joyce Pickett  
Phillip & Korin Poppe  
Morgan & Kaye Powell  
Om & Sushma Prakash  
John & Haley Pringle  
Edwin & Jane Radatz  
Don & Lynne Rathbone  
J D Rector  
Jake & Tracy Reisinger  
Kimberly & Jeremy Rentz  
Kyle Riebel  
Dan & Bev Rogers

Monte Rolfs  
Mark & Shari Rooks  
Tawanna Ross Johnson  
Kevin & Karen Salter  
Larry & Janet Schieferecke  
Jim Schmidt & Sarah Ellis-Schmidt  
Mark & Judy Schrock  
Larry & Susan Seitz  
Roger & Rita Shenkel  
Chad & Jennifer Simmelink  
Don & Edie Snethen  
Carolyn Spillman  
John Stamey & Michelle Iseman  
James & Diane Steele  
Marie & James Steichen  
Michael & Diane Strahm  
Theresa & Scott Sutton  
Edward & Judith Swenson  
Michael & Kathy Tilley  
Roxanne Travelute  
Olin & Janice Vanderslice  
Joseph Vondracek  
Chuck Walker  
Gerald & Kay Whitcomb  
Audrey & Paul Williams  
Alan Winter  
Oran & Debra Winter  
James & Martha Winzeler  
Don and Treva Wiruth  
Tai Woo  
Stanley Wood  
George Yang & Zhihua Xiao  
Frederick & Karen Yarrow  
Ryan & Rebecca Zecha

### CORPORATE GIFTS

AGCO Inc.  
Altec Industries Inc.  
Archer Daniels Midland Company  
Carrico Implement  
Caterpillar Foundation

CNH America LLC  
Explorer Pipeline Company  
ExxonMobil Foundation  
Hill's Pet Nutrition Inc.  
Jerry's Service and Repair LLC  
John Deere Foundation  
Kansas Section ASABE  
Mary Helen Hawks Trust  
O'Malley Equipment Co. Inc.  
Triple T Farms  
Vanderslice Enterprises  
Vycke K Garman Agency  
Winterco Inc.

### BAE FACT

*You Make A Difference*

## Alumni Updates

**James 'JR' Peterson**— 1994 BS AE. James is an engineering manager with John Deere, Moline, IL.; e-mail: [PetersonJamesR@JohnDeere.com](mailto:PetersonJamesR@JohnDeere.com)

**Jonathan Aguilar** - 2009 PhD. Jonathan is an agricultural scientist with the USDA-ARS at the Northern Great Plain Research Laboratory, Mandan, ND; e-mail: [jonathan.aguilar@ars.usda.gov](mailto:jonathan.aguilar@ars.usda.gov)

**Aaron McCorgary**—2000 BS ATM. Aaron is a research assistant with Monsanto, Garden City, KS; e-mail: [Aaron\\_mccorgary@yahoo.com](mailto:Aaron_mccorgary@yahoo.com)

**Suzanna McMillan**— 1989 BS BAE. Suzie is with NuStar Energy L.P. as an HSE coordinator in Wichita, KS; e-mail: [suzie.mcmillan@nustarenergy.com](mailto:suzie.mcmillan@nustarenergy.com)

Please update your alumni information at <http://www.bae.ksu.edu/alumni>. Complete the alumni/friend information form and return to Ms. Barb Moore at [bjmoore2@ksu.edu](mailto:bjmoore2@ksu.edu). Your information is important as potential high school students view our webpage. These young people explore websites and alumni and friends information helps them learn about career opportunities of BAE degrees. It may sound simple, but your information and story are vital in recruitment of incoming students. They want to discover the impact our alumni and friends are making globally towards the betterment of mankind. Thank You!

## BAE Fall 2012 Events

### AUGUST

20th—Meet & Greet Incoming BSE/ATM Freshmen  
24th—BAE Welcome Back Picnic

### SEPTEMBER

Sept 9th -- **K-State Day** at the Kansas State Fair—  
1/4 Scale Team @ at the College of Engineering Booth  
Sept 17th—Dow Agro Sciences Career Night  
Sept 18th—John Deere Career Night  
Sept 19th—CNH Career Night  
Sept 20th—Con-Agra Foods Career Night

If you would like to schedule a career night for recruiting interns and/or full-time employees, please contact Joe Harner ([jharner@ksu.edu](mailto:jharner@ksu.edu)).

### NOVEMBER

19th-23rd—Fall/Thanksgiving Break

### DECEMBER

5th—BAE Advisory Council Meeting  
5th—Senior Design Presentations  
7th—Graduate School Commencement  
8th—Undergraduate Commencement (Manhattan)  
8th—College of Engineering Reception and  
Order of the Engineer Initiation  
10th-14th—Finals Week  
24th-January 1 —University Holiday (offices closed)

*BSE and ATM freshmen had an opportunity on the first day of classes to visit with faculty and representatives from the student design teams at a "Welcome Freshmen" ice cream social held in Seaton 142. Yes, Call Hall ice cream was served!*

