

LSU

College of
Engineering

Cain Department of
Chemical Engineering

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Chemical Engineering Alumni Newsletter
is published for the benefit of the Cain Department of Chemical
Engineering's alumni and students.

Comments and suggestions should be directed to:
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Dear Alumni/ae and Friends:

Greetings from the LSU Cain Department of Chemical Engineering!

The cool, bright fall days are here, and the closing weeks of the Fall 2012 semester are already upon us.

If you were here to walk the halls of Jesse Coates Hall today, you might find a few changes from when you last visited. Most noticeable, perhaps, is that LSU's undergraduate enrollment in Chemical Engineering is at its highest level in over a decade, and our classrooms and unit-operations laboratories are literally overflowing with young minds eagerly learning the fundamentals of chemical engineering. Second, thanks to the hard work and ingenuity of our faculty, graduate students, and post-docs, Department research funding and productivity are continuing their rising trajectories, and our research laboratories are brimming with discovery. Third, last year, after six years of tremendous service as Chemical Engineering Department Chair, Prof. K. T. Valsaraj accepted new responsibilities as LSU's Associate Vice Chancellor of Research and Economic Development, and I willingly accepted Dean Koubek's appointment to be the new Chair of this vibrant Department.

Fourth—and most exciting—thanks to the hard work and dedication of many, a new building for LSU Chemical Engineering is now closer than ever! Last month, Louisiana Governor Bobby Jindall announced the state's support of a new public-private partnership that will provide for the renovation and expansion of the Patrick F. Taylor Engineering Building, along with the construction of a new Chemical Engineering Building to be a part of the greater LSU Engineering Complex. Please see Pages 12-13 of this Newsletter to learn more. On Page 12 you will find a letter from Department alumnus and College of Engineering Hall of Distinction member Ronald Cambre, who for many years, as many of you know, has been a major leader in the campaign for the Department's new building.

So, among the several changes around here, there are many reasons for us to be excited. But even in the excitement, rest assured that one thing that has not changed is the Department's full commitment to deliver to our students a chemical engineering education of the highest possible quality.

I know that each of you share that commitment, so if your travel plans during the holidays (or any other time) bring you to Baton Rouge, please stop by the Department. If, however, you cannot be here to walk the halls of Jesse Coates Hall today, then please have a "virtual walk" as you look through the pages of this newsletter, and rejuvenate your connection with the Department!

Best Wishes,

Mary Julia (Judy) Wornat, Sc.D.
Robert Hughes Harvey Professor,
William G. Reymond Professor, and
Department Chair



On the Cover

The cover image is of the sugar kettle, a historical marker, located outside the Chemical Engineering Department. This sugar kettle was used by Jean Etienne de Boré in 1795 to granulate sugar for the first time in Louisiana. It was then purchased by John Hill and donated to Louisiana State University in 1970.

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A Word of Thanks

We would like to thank the following individuals and corporations for their generous support of the LSU Department of Chemical Engineering.

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We are proud to announce the College of Engineering's appointment of Prof. Mary Julia (Judy) Wornat, as the new Chair of the Cain Department of Chemical Engineering, effective September 26, 2011.

Prof. Wornat has been with the LSU Chemical Engineering Department for 9 years, and a full professor since 2007. She holds both the Robert Hughes Harvey Professorship and the William E. Raymond Professorship and has served as the Department's Director of Graduate Studies since 2005. She received her B.S. in Chemical Engineering *summa cum laude* from Rensselaer Polytechnic Institute, Troy, New York, in 1981. She continued with her studies at the Massachusetts Institute of Technology, Cambridge, Massachusetts, where she earned her S.M. in 1983 and her Sc.D. in 1988, both in Chemical Engineering.

Prof. Wornat has received several teaching and research awards, including the National Science Foundation CAREER Award, 1996; a Distinguished Paper Award from the Combustion Institute, for the best paper in the Soot Colloquium of the *Proceedings of the Combustion Institute*, Volume 32, 2009; and the Rainmaker Award from Louisiana State University (University's top 100 research and creative faculty), 2009.

Prof. Wornat's research focuses on the pyrolysis and combustion of solid, liquid, and gaseous fuels—with particular emphasis on the chemical and physical mechanisms governing the formation of environmental pollutants, especially polycyclic aromatic hydrocarbons. Additional areas of interest are gas-phase and heterogeneous reactions; analytical techniques for the compositional determination of complex organic mixtures; supercritical fuel reactions; and the health effects of combustion by-products. Prof. Wornat's research has led to the publication of over 70 refereed journal articles, and since coming to LSU in 2002, Dr. Wornat has supervised to completion, the thesis research of six PhD students and two MS students. Currently, in her research group, she supervises four graduate students, one undergraduate student, and one post-doctoral research associate.

In addition to her LSU responsibilities, Prof. Wornat is very active professionally. She serves or has served on the editorial boards of three journals: *Fuel*, *Energy & Fuels*, and *Polycyclic Aromatic Compounds*. She also recently served as the President of the International Society for Polycyclic Aromatic Compounds. Her memberships in professional societies include, but are not limited to, the American Chemical Society, the Combustion Institute, the International Society for Polycyclic Aromatic Compounds, and the American Institute of Chemical Engineers.



Prof. Karsten Thompson Named LSU Craft & Hawkins Department of Petroleum Engineering Department Chair

LSU College of Engineering News. 16 August 2011.

LSU's College of Engineering (CoE) announced the appointment of **Karsten E. Thompson, Ph.D.**, as the new chairman for the Craft & Hawkins Department of Petroleum Engineering (PETE). He will also be appointed to the Longwell-Leonard Family Distinguished Professorship.

"Karsten was identified as the key person to lead the Department and build on its already outstanding accomplishments," said Rick Koubek, dean, LSU College of Engineering.

Thompson was previously appointed in LSU's Cain Department of Chemical Engineering, where he held the Pressburg Memorial and Lowe Distinguished professorships. His bachelor's degree is in chemical engineering from the University of Colorado, Boulder in 1989, and his Ph.D. is in chemical engineering from the University of Michigan in 1996.

Thompson identified some of his top initiatives upon taking his new role as chair:

- Maintain PETE's excellent undergraduate degree program
- Grow PETE's research program
- Increase visibility for PETE, its faculty and students
- Build upon strong industry partnerships

"The LSU PETE Department has a long history of educating students and providing technical expertise to the oil and gas industry," said Thompson. "We will continue to focus on providing outstanding educations to our undergraduate students, and on developing research and technologies for today's energy needs."

Thompson, a Fort Collins, Colorado native, has received numerous teaching and research awards, including the Haliburton Faculty Development Award, the LSU Cross-Holloway Award for Excellence in Research and Teaching, the LSU Engineering Council Professor of the Year Award, the Dow Outstanding Faculty Award, and the Tiger Athletic Foundation Teaching Award.

Thompson's research focuses on understanding the microscopic fluid mechanics that occur inside subsurface formations, which in turn affect how readily oil and gas can be produced from reservoirs. Much of the research involves



new “digital rock” technology in which high-resolution 3D imaging is performed to generate detailed pictures of the internal structure of reservoir samples. Computational modeling of fluid flow is then performed directly on these 3D images. His work has been documented in journals, industry publications and invited lectures.

Thompson is active in professional and university service organizations. He is a member of the American Association of Engineering Education, the American Geophysical Union and the Society of Petroleum Engineers.

For more about the Craft & Hawkins Department of Petroleum Engineering, visit www.pete.lsu.edu.



Professor Valsaraj Named Associate Vice Chancellor at LSU Office of Research & Economic Development

The LSU Office of Research & Economic Development, or ORED, has named **Kalliat “KT” Valsaraj** as associate vice chancellor. Valsaraj has been chair of the Cain Department of Chemical

Engineering since 2005, is the Charles and Hilda Roddey Distinguished Professor of Chemical Engineering and holds the Ike East Professorship in Chemical Engineering.

“I am looking forward to joining the ORED staff to advance the LSU Flagship Agenda in the areas of research and economic development,” said Valsaraj. “I consider this as an opportunity to help faculty at LSU in furthering their research agenda and also to set priorities in areas that will benefit the state of Louisiana.”



Prof. Kalliat T. Valsaraj as the recipient of the 2011 Distinguished Research Master Award!



Since 1972, the Council on Research has presented the University-wide award of Distinguished Research Master in recognition of outstanding

career accomplishments in research and scholarship. The recipient is chosen by the Council on Research from nominees proposed from the University community.

Dr. Valsaraj, a graduate of Vanderbilt University, holds the Charles and Hilda Roddey Distinguished Professor of Chemical Engineering and the Ike East Professorship in Chemical Engineering in the Department of Chemical Engineering. He served as Department Chair of Chemical Engineering from 2005-2011 and is currently serving as Associate Vice Chancellor for the Office of Research and Economic Development (ORED).

His present research is concerned with the transformations of pollutants on atmospheric aerosols (fog, rain, ice and snow), mercury sequestration in sediments and, high pressure / low temperature phase equilibrium studies of relevance to the sub-sea oil/gas spills. He has provided consulting and expert opinions to various industries, State and Federal agencies. He is the author of 1 textbook (with three editions), 164 peer-reviewed journal articles, 27 book chapters and 2 U.S. patents. His research has been supported by the NSF, EPA, DOE, DOD, USGS and private industries. He is a Fellow of both the American Association for the Advancement of Science (AAAS) and the American Institute of Chemical Engineers (AIChE).

Prof. Kalliat T. Valsaraj has been awarded the Charles E. Coates Award

Congratulations to **Prof. Kalliat T. Valsaraj** who has been awarded the Charles E. Coates Award which is jointly awarded by the American Institute of Chemical Engineers and the American Chemical Society. Named after the illustrious Charles Coates who established both the Departments of Chemistry and Chemical Engineering here at LSU. Charles E. Coates Memorial Award is awarded for outstanding contributions to the professions of chemistry and chemical engineering, the corresponding professional society, and the community.



New Consortium brings approximately \$1.25 million to LSU. Professor Valsaraj will co-direct effort. LSU will be involved in studying the effects of a DeepWater Horizon-like Oil Spill in the Gulf of Mexico. The \$10.4 million Research Consortium on “The Science and Technology of Dispersants Relevant to Deep Sea Oil Releases,” led by Tulane University’s Dr. Vijay T. John as Director, is part of a larger

\$112.5 million, eight team Research Consortia, which will be funded for the next three years by the Gulf of Mexico Research Initiative (GRI) Board. Professor Kalliat Valsaraj of the LSU Cain Department of Chemical Engineering will be co-directing the Consortium. The GRI aims to investigate the oil spill’s impact on the Gulf with regard to the ecosystems and the coastal States and the resulting consequences to both the environment and community. Thirty-eight investigators from 22 Universities in the nation are involved in the Consortium. The project has a starting date of October 1 and will continue for three years.

“These Consortia establish a research community of great strength with promise of substantial achievement. The results will illuminate the consequences of the DeepWater Horizon explosion and spill, and enable appropriate responses should there be future releases not only in the Gulf of Mexico, but anywhere that oil and gas is produced in ocean environments. They will also assist local, state and federal agencies in their work to remediate the consequences of the oil spill in coastal and marine environments. The long term contribution of this research will be of major benefit to industry, governments, and the people who live along the Gulf of Mexico coast,” said Dr. Rita Colwell, the Chair of the GRI Research Board.

LSU Professors who are taking part in this team include:

- Kalliat Valsaraj, Associate Vice Chancellor for Research and Economic Development, and Professor, Cain Department of Chemical Engineering.
- Krishnaswamy Nandakumar, Gordon A. and Mary Cain Chair and Professor, Cain Department of Chemical Engineering.
- Francisco Hung, Assistant Professor, Cain Department of Chemical Engineering.
- Paul Russo, Professor, Department of Chemistry
- Amitava Roy, Associate Professor, Center for Advanced Microstructures & Devices

Royal Society of Chemistry’s Catalysis book series Volume 24. Prof. Jerry Spivey and Post-doc Mayank Gupta have edited the most recent addition to the



Royal Society of Chemistry’s Catalysis book series (<http://www.rsc.org/shop/books/2012/9781849733755.asp>). The book consists of chapters on catalytic reforming, Raman spectroscopy, mesoporous silicas and other topics authored by recognized experts.



Prof. Krishnaswamy Nandakumar, is part of a large group of researchers led by Prof. Kochergin, Director of Louisiana Institute for Biofuels and Bioprocessing, engaged in the development of biofuels and biochemical supported by a large grant of \$17.2 million from the USDA awarded to the LSU AgCenter (see the announcement on the USDA website).

Dr. Kochergin (who also has an adjunct appointment in the Cain Department of Chemical Engineering) will direct 16 other partners in eight states in the southeastern region of the US to assess the potential of sweet sorghum and energy cane as agricultural feed stocks for bio fuels and biochemicals. AgCenter and USDA researchers will investigate the crop varieties suitable for bioconversion. Dr. Kochergin and his team will design and develop the pilot plant facilities to enable the evaluation of feed processing and conversion technologies. Other groups that are part of this effort will investigate the economics of this technology and engage in extension activities. Dr. Nandakumar will lead the educational component of this effort at LSU to design programs at the undergraduate level in the area of renewable bioenergy. For example, existing chemical and biological engineering BS programs will be enriched by creating a concentration in the area of renewable bioenergy sources. Use of technology in delivering distance learning material in this area will also be explored. In addition summer short courses in the area of renewable bioenergy will be developed and offered.



Prof. Jerry Spivey received The Council for Chemical Research’s Collaboration Success Award for the research titled, Development of Novel Pyrochlore Catalysts for Reforming of Hydrocarbon Fuels. The Recipients include:

- * The National Energy Technology Laboratory
- * Louisiana State University
- * Precision Combustion Inc.
- * Delphi
- * West Virginia State University
- * EG&G



Professor Jerry Spivey has received a \$263,000/3 yrs grant from the US Dept Agriculture to develop catalysts for the conversion of biomass-derived syngas to liquid fuels. Post-doc and Co-PI Mayank Gupta and graduate student Pratibha Sharma will work to prepare and test catalysts for this process. Participants include:

- * Dr. Tom Elder
- * Dr. Mayank Gupta
- * Pratibha Sharma
- * Dr. Tom Elder
- * Dr. Mayank Gupta
- * Pratibha Sharma

This project represents a joint effort between LSU and the USDA. Wood waste will be gasified at the USDA labs (Pineville, LA) in an effort led by Dr. Tom Elder. The resulting gas will be compressed and sent to LSU for conversion to liquid fuels using Fischer-Tropsch catalysts prepared at LSU. The goal is to demonstrate the full process of converting biomass to liquid fuels in this thermochemical process.

Prof. Jerry Spivey is a co-inventor on US Patent 8,133,463, assigned to the US Dept. of Energy, issued Mar 13, 2012.

This patent is based on joint research on pyrochlore catalysts, which are used in reforming conventional fuels to produce hydrogen-rich gases for fuel cells. Fuel cells produce clean energy by converting these gases into electricity directly, without moving parts or the emissions associated with processes based on combustion. The Department of Energy is working to make this technology available to industry.



Professor Jose Romagnoli has been awarded a new 3-year grant of \$287,455 from the National Science Foundation (Division CBET) to continue his research on Stochastic Formulation for Predicting and Shaping the Particle Size Distribution in Crystallization Processes.

The research involves the formulation and implementations of novel approaches to characterize crystal growth. Crystallization is a widely used technology for solid-liquid separation in the process industry. It is extensively used in the production of pharmaceuticals to separate the drug from the solvent mixture as well as to ensure that the drug crystal product conforms to size and morphology specifications. The crystal size in crystallization processes is one of the most important variables since it influences factors such as filtration rate, dewatering rate, dissolution rate and bioavailability, amongst others.

The development of effective mathematical models describing the crystal growth dynamics is a crucial issue towards finding the optimal process performance and to control the crystal size and distribution. The main approach so far exploited is by developing population balance models taking into account the evolution of crystal particles across temporal and spatial domains. The project aims at the formulation and implementation of a novel stochastic approach to describe the crystal growth for the prediction of mean crystal size (MCS) and crystal size distribution (CSD) in antisolvent mediated crystallization processes.

In the proposed approach the crystal growth will be modeled as a stochastic process ruled by a classic logistic equation of common use in theoretical ecology coupled with a stochastic component. The resulting model is a continuity equation (Fokker-Planck Equation, FPE) for the probability density function of the crystal size distribution. Model-based dynamic optimization studies will then be performed using the proposed stochastic formulation to develop optimal operational policies and will be validated using experimental investigations. This project is an international collaborative effort with Prof. Roberto Baratti of the University of Cagliari, Italy. This project started on August 15th.

Congratulations to **Instructor Margaret Cygan** and **Research Specialist Robert Perkins** on their retirement. They have each contributed 28 years of service as well as made a remarkable contribution in immeasurable ways. They have made our Department the success it is today, and we wish them all the best.

Professor Kalliat T. Valsaraj has been awarded a new 3-year grant of \$393,561 from the National Science Foundation (Division of Geosciences) to continue his research on the fate and transformations of organic compounds in atmospheric dispersions such as fog, mist, ice and rain. The research involves the so-called green leaf volatiles in aqueous aerosols in the atmosphere. Green leaf volatiles (GLVs) are potentially significant but of unknown importance as a source of aqueous-phase secondary organic aerosol (SOA). GLVs are reactive, oxygenated, organic compounds that are emitted from plants in significant quantities and that can react both at the surface of fog drops and within the bulk of the drops. These aqueous reactions can occur via photochemically generated oxidants such as hydroxyl radical, singlet molecular oxygen, and excited triplet states of organic compounds. GLVs are also oxidized in the gas phase to make more water soluble products that could also participate in fog-drop reactions to form SOA. This project is a collaborative one with Prof. Cort Anastasio of the University of California, Davis who has received an additional \$230,214 from NSF. This project started on September 15, 2012.



Prof. David Wetzel was one of five professors, and the only in the College of Engineering, to receive the 2011 Tiger Athletic Foundation Michael R. Mangham College of Engineering Memorial Teaching Award, demonstrating excellence in instruction. The others included, Glenn Sinclair, professor, mechanical engineering, Ramachandran

Vaidyanathan, associate professor electrical and computer engineering and Isabelina Nahmens, assistant professor and Charles Pecquet, instructor, construction management and industrial engineering. They were recognized at the annual LSU Distinguished Faculty Awards Reception.



Prof. Martin Hjortsø and **Prof. Mike Benton** received the Donald W. Clayton Mentor Excellence in Engineering Award, College of Engineering.



Prof. F. Carl Knopf, was awarded the 2012 Dow Chemical Excellence in Teaching Award. This award is funded by the Dow Chemical Company and is voted on by all of the juniors and seniors in our undergraduate courses.



Chemical Engineering ranks No. 2 in best-paying college degrees in 2011 Jumping up from number 3 last year, Chemical Engineering now ranks the number 2 best-paying college degree, says CBS MoneyWatch. See “20 Best-Paying College Degrees in 2011.”

LSU Engineering post-graduate programs have improved considerably in the 2013 edition of U.S. News & World Report’s “America’s Best Graduate Schools,” released March 13.

In the new report, the LSU College of Engineering’s graduate program moved up two spots in the overall rankings, with each of the college’s departments also showing improvement in ranking as well. The college moved from an overall ranking of 95 out of 184 programs in the 2012 report to a ranking of 93 out of 193 programs in the 2013 report.

Departmentally, the college saw the following improvements in graduate programs:

Chemical engineering improved from 53 out of 125 programs in the 2012 report to 51 out of 125 programs in the 2013 report;

Civil engineering improved from 65 out of 111 programs in the 2012 report to 54 out of 106 programs in the 2013 report;

Mechanical engineering improved from 73 out of 123 programs in the 2012 report to 72 out of 109 programs in the 2013 report;

Environmental health engineering improved from 70 out of 79 programs in the 2012 report to 65 out of 68 programs in the 2013 report;

Electrical/Electronic/Communications engineering improved from 121 out of 135 programs in the 2012 report to 89 out of 112 programs in the 2013 report.

“This year’s movement up in the U.S. News and World report rankings emphasizes the desire of our students, faculty, staff and alumni to build a better, stronger LSU,” said Richard Koubek, dean of the LSU College of Engineering. “Now more than ever, I am encouraged by the leadership and dedication of all those committed to improving lives, transforming Louisiana and changing the world. This year’s advancement in the rankings again proves the strength of those committed to elevating our state’s flagship institution.”

Each year, U.S. News & World Report ranks professional-school programs in business, education, engineering, law and medicine. These rankings are based on two types of data: expert opinions about program quality and statistical indicators that measure the quality of a school’s faculty, research and students. This information comes from surveys of more than 1,200 programs that were conducted in fall 2011.

For more information visit U.S. News Releases 2013 Best Graduate Schools Rankings.



New State-of-the-Art Infrastructure

Our Department has implemented a re-designed curriculum, which is more flexible and addresses the changing needs of the Gulf-Coast and Mississippi-River petrochemical industries. The vision of the revised curriculum is one grounded in the fundamentals but with greater emphasis on dynamics, simulation, control and optimization as enabling technologies. This vision was in large part inspired by discussions with our industrial advisory committee. One of the salient features of the ChE curricula at LSU is the combination of theoretical knowledge with practical experience. This experiential learning is currently supported by a well-equipped laboratory facility consisting of several pilot-scale experiments running under computer-controlled systems.

A few years ago we began the redevelopment of the Laboratory facilities and mainly the Unit Operation Laboratory (Senior & Junior Labs). The redevelopment concentrated on two main aspects:

Regarding the migration of the existing control systems into the new generation of open architectures, we recently completed the migration from the TDC 300 and LabView configurations to the latest Honeywell Experion technology. These technologies provide not only state-of-the-art data acquisition and control but also seamless communication (open architectures) with third party software for real-time simulation and, more importantly, web-based connectivity and operation. The Department and Honeywell Process Solutions have signed a partnership agreement to provide LSU with continuous upgrades to keep up with the technology changes over the years.

- * Expanding Functionalities of Current Facilities; migration of the data acquisition and control tools to modern open technologies
- * Infrastructure Development; involves building a state-of-the-art control room and training/lecture room

In terms of infrastructure development, we have also recently completed the re-definition of the layout of the Senior and Junior Labs as well as Building a state-of-the-art control room to monitor and control the experimental facilities and an additional training/lecture room annex for students/industrial training.

The Unit Operations Laboratory Control Room in Chemical Engineering provides seniors with a realistic view of the process world in miniature. Equipped with interfaces to both Honeywell and Emerson distributed control systems, students run experiments on bench and pilot-scale process units, controlling conditions and collecting data through these industry-leading hardware and software interfaces. Students learn that viewing a process through these virtual windows on the operations world requires critical thinking and new skills. The control room serves multiple purposes, however. It doubles as a classroom, a venue for students' oral presentations, and a meeting room.

The lecture /training room provides the flexibility that allows the running of industrial courses without affecting the undergraduate education. The additional classroom annex behind the control room is being outfitted with control-system-capable virtual computer connections, making it possible to provide comprehensive instruction on multiple control platforms, in addition to providing a second presentation facility. Replacing physical machines with virtual machines consolidated to a single or distributed server reduces energy, purchasing, and maintenance costs; administration becomes simplified and centralized and increases security. Furthermore, single images are created with all software specific to a class, course, or scenario. The image is the virtual desktop in a virtual machine; any type of hardware client and operating system can access a virtual desktop, and virtual machines with virtual desktops are 'switched on' as needed.

A range of generic practical industrial courses can be offered both for operators as well as plant engineers. Distance education courses are also possible via a hybrid system involving in-house training with access via Internet and the use of a virtual environment.



2011-12 Departmental Distinguished Seminar Series



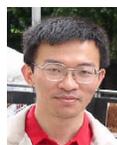
October 28
Eric Boder, University of Tennessee-Knoxville
“Understanding and Controlling Proteins by Directed Evolution”



January 20
Edward Maginn, University of Notre Dame
“Developing New Materials for Energy and Environmental Applications via Molecular Simulation”



November 4
Hariharan Shankar, India Institute of Technology, Bombay
“Water and Waste Water Purification-Studies in Development of Soil Bio-Technology (SBT)”



February 3
Bin Chen, Louisiana State University
“Thermodynamics of Nano-clusters controlling gas-to-particle nucleation”



November 11
Ramanan Krishnamoorti, University of Houston
“Multifunctional Polymer Nanocomposites”



February 10
Ranjar Srivastava, University of Connecticut
“Evolutionary Algorithms As A Tool For Metabolic Engineering & Discovery”



November 18
Elizabeth Podlaha-Murphy, Northeastern University
“Electrochemical Fabrication of Multilayered, Nanostructured Alloys for Energy Applications”



February 17
Robert J. Davis, University of Virginia
“Some Current Challenges in the Conversion of Biomass-Derived Molecules over Supported Metal Catalysts”



December 2
Friedrich Srienc, University of Minnesota
“Predicting the Evolution of Metabolic Networks”



March 9
Rodney Fox, Iowa State University
“Kinetic Theory Models for Dispersed Multiphase Flows”

Albemarle Lecture Series

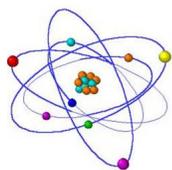


On May 11, 2012, the Department hosted its third **Albemarle Lecture on Sustainability** with guest lecturer Dr. John C. Warner whose seminar was titled, “**Green Chemistry: Theory and Practice.**” He described the history and background of Green Chemistry and discussed the opportunities for the next generation of materials designers to create a safer future.

In 2007, Dr. Warner founded the **Warner Babcock Institute for Green Chemistry, LLC** (A research organization developing **green chemistry** technologies) where he serves as president and chief technology officer, and Beyond Benign (a non-profit dedicated to sustainability and **green chemistry** education). He is one of the founders of the field of **Green Chemistry**, co-authoring the defining text **Green Chemistry: Theory and Practice** with Paul

Anastas. He has published more than 200 patents, papers and books. His recent work in the fields of semiconductor design, biodegradable plastics, personal care products, solar energy and polymeric photoresists are examples of how green chemistry principles can be immediately incorporated into commercially relevant applications.

Warner received the 2004 Presidential Award for Excellence in Science Mentoring, the American Institute of Chemistry's Northeast Division's Distinguished Chemist of the Year for 2002 and the Council of Science Society President's 2008 Leadership award. Warner was named by ICIS as one of the most influential people impacting the global chemical industries. In 2011, he was elected a Fellow of the American Chemical Society and named one of “25 Visionaries Changing the World” by Utne Reader. His recent work in the fields of semiconductor design, biodegradable plastics, personal care products, solar energy and polymeric photoresists are examples of how **green chemistry** principles can be immediately incorporated into commercially relevant applications.



AIChE

American Institute of Chemical Engineers

Louisiana State University, Cain Department of Chemical Engineering's ChemE Car Team (**Khiet Mai, Adesua Eibe, Robert Schoen, Roshan Pandey and Dr. Hung** (faculty advisor), with help from **Paul Rodriguez and Joe Bell** (ChE Shop)) placed 2nd for the Southern region and 8th in the national competition with the AIChE 2011 Chem-E-Car "Heartburn."



Press Release from AIChE

ALTERNATIVE FUEL-POWERED CARS RACE AT 13TH ANNUAL AIChE CHEM-E-CAR COMPETITION Colleges Apply Engineering

Principles and Ingenuity to Construct Chemically Powered Vehicles; University of Puerto Rico-Mayaguez Takes Top Honors

MINNEAPOLIS – The American Institute of Chemical Engineers (AIChE) yesterday announced that the University of Puerto Rico – Mayaguez took top honors at the international Chem-E-Car competition here on Sunday at AIChE's Annual Meeting. The team's car, "CoKi Stroj" was powered by uses pneumatic pressure to run and a color changing reaction to stop. Coki Stroj defeated 31 other shoe-box sized cars bedecked with cougars, tiger tails and school logos.

The Chem-E-Car competition, which began in 1999, is a fun and practical way for students to apply their knowledge of chemical engineering principles while helping build interest and expertise in alternative fuels. With a growing interest in real-world applications of alternative fuels worldwide, it's more important than ever for college students to learn about chemical reactions that can move vehicles.

"The competition showcases both the importance of innovation and the relevance of science, technology and math education in the United States," said June Wispelwey, AIChE Executive Director. "Chemical engineers are working to address today's energy and transportation issues. Some of our Chem-E-Car participants could engineer a solution to help

solve the world's energy problems."

The student engineers do not know the size of the load their car has to carry or the distance it must travel until the competition begins. The students then scramble to figure out how to get their car as close to the distance goal as possible. In this year's event, students were challenged to transport 350 milliliters of water 68 feet. Each team received two chances to run their cars, with their final score being their best attempt at meeting the established distance. University of Puerto Rico-Mayaguez came the closest and took the top prize of \$2,000.

Finishing in second place and taking home \$1,000 was the University of California-Davis. Their car, "Stroeve," was powered by an aluminum air battery with an iodine clock stopping mechanism. Missouri University of Science & Technology placed third with their car "Chem-E-Boat" and took home \$500. The Inherent Safety in Design Award (SACHE) went to Texas Tech for "The Dude," powered by a 6-galvanic cell battery. Bucknell University's car "Bessie," powered in part by bovine liver, received an award for the best use of a biological reaction to power a car.

About AIChE

AIChE is a professional society of more than 40,000 chemical engineers in 92 countries. Its members work in corporations, universities and government using their knowledge of chemical processes to develop safe and useful products for the benefit of society.

Through its varied programs, AIChE continues to be a focal point for information exchange on the frontiers of chemical engineering research in such areas as nanotechnology, sustainability, new energy sources, biological and environmental engineering, and chemical plant safety and security. More information about AIChE is available at www.aiche.org.





October 9, 2012



Dear LSU Chemical Engineering Department, Alumni, and Friends,

October 2, 2012 was a significant day for Chemical Engineering and Engineering at LSU. After years of effort by many, Governor Jindal announced the state's support of a matching contribution to upgrade the Patrick F. Taylor Engineering building and to construct a new building for Chemical Engineering.

This proposal, submitted by the LSU Administration in concert with the College of Engineering, provides for a \$100 million program of which the state will match private funding on a 50-50 basis. As we have raised \$8 million of private funds for the Chemical Engineering Building, our task is to raise another \$42 million across the entire College of Engineering. This will require a major effort by all but does have the support of LSU leadership and the LSU Foundation. Additionally, Governor Jindal announced a schedule of breaking ground by 2014 and completion by 2016, a very short time frame. The funds would be dedicated to a total renovation of the Patrick F. Taylor Building and construction of an adjacent Chemical Engineering building currently estimated to cost \$34 million. Architectural renderings and layout of the renovated and new facilities are being prepared and, in due course, will be available for all to review. The new face of LSU Engineering from Nicholson Extension will certainly enhance the campus and complement the adjacent Business School.

To all that have supported the Chemical Engineering effort in the past, I say thank you. With success for our new building clearly in sight, we will once again be calling on all LSU engineers to take advantage of this generous state matching offer to upgrade our facilities.

Respectfully,

R. C. Cambre



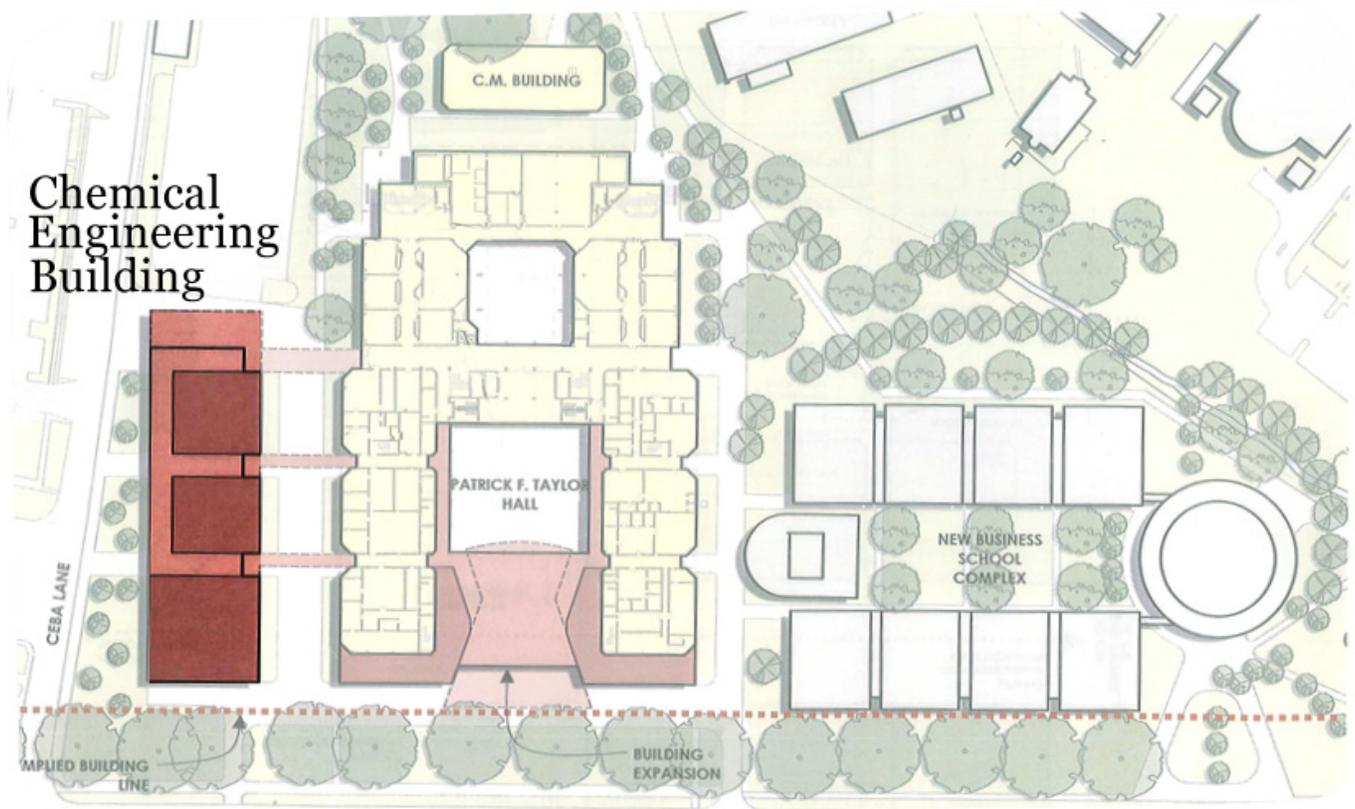
Patrick F. Taylor Engineering Complex



Photo: Eddie Perez, LSU University Relations

On Oct. 2, Gov. Bobby Jindal announced \$100 Million public-private partnership project to renovate and expand Patrick F. Taylor Hall, including a new Chemical Engineering building, to create a state-of-the-art LSU engineering education complex.

The Patrick F. Taylor engineering expansion will include a new chemical engineering building, modern laboratory space for teaching and translational research, enhanced and expanded space for student services, updated graduate student space, an academic support center, and dedicated capstone project space and other multi-disciplinary space for student projects.



The need for this expanded capacity extends from student demand—as the College’s enrollment has climbed over 40 percent in the last four years, the industry’s workforce need to increase the number of engineering, computer science and construction management graduates statewide by at least 30 percent per year, and to help drive economic development in Louisiana.



Photo: Eddie Perez, LSU University Relations

“This investment will allow the College of Engineering to bring leading-edge educational experiences to our students, perform high-impact translational research and prepare next generation’s engineering workforce with the skills needed to lead the industries driving our state’s economy,” said Rick Koubek, dean, LSU College of Engineering.

The Governor said his administration will support \$50 million in capital outlay funding for the project and the remaining funds will be covered by private donations. That money has to be approved by the state Legislature and the state Bond Commission. To date, the College of Engineering has already raised \$8 million in private and corporate donations for the project,

and will need to raise \$42 million. Patrick F Taylor Hall and Chemical Engineering building campaign is the largest academic capital outlay project for LSU, and demonstrates the project’s importance for the state.

The architectural design phase will start in December 2012; construction is slated to begin in the fall of 2014 and is estimated to be completed by the fall of 2016.



From Sweden to Tigerland: Visiting Engineering Student Contributes to Future Energy Research at LSU

LSU College of Engineering News. 20 September 2011.

Sandra Johansson, currently pursuing a master's degree in engineering at the Royal Institute of Technology in Stockholm, Sweden, spent 10 weeks performing cutting edge research on atomically precise metal catalysts as an intern for LSU's Gordon A. and Mary Cain Department of Chemical Engineering.

Johansson received a scholarship to pursue her summer internship from the Swedish Committee for Chemical U.S. Travel program, which aims to give students the opportunity to work with interesting tasks that promote an understanding of chemistry and biotechnology in practice.

"It was a great experience," Johansson said. "I liked the interdisciplinary and collaborative nature of my work at LSU. It is good to try to connect the theoretical computational work with the more practical lab work."

For the full story, read "From Sweden to Tigerland: Visiting Engineering Student Contributes to Future Energy Research at LSU" on the LSU College of Engineering website.



Chemical Engineering students received recognition at the LSU Honors College Awards and Recognition ceremony held on November 6, 2011.

Virginia M Bolivar-Baez, Garrett Wilson Dupre, Kalpanee Dhanushika Gunasingha, and Donovan Bruns Myers were given Sophomore Honors Distinction, along with 68 other LSU students. They were awarded this honor by completing significant Honors credit hours with grade point averages of 3.5 in Honors courses and in all coursework.

David James Galin was given the Shell Honors Student Leaders award along with three other LSU freshmen from the disciplines of Business, Coast & Environment, and Sci-

ence. The Shell Corporation's generous gift provides students with an annual four year stipend.

Minhtrang Hoang Do was one of seven to receive the William L. Jenkins Scholarship. This scholarship provides need-based support to minority students in Business or Engineering disciplines.

Congratulations all these students for their outstanding academic achievements to date. We wish them continued success in their scholarly pursuits.

Congratulations to **Aubrey Heath**, who received the William A. Brookshire Distinguished Fellowship in Chemical Engineering!



This Brookshire Fellowship is provided by a generous donation from alumnus Dr. William Brookshire. The recipient must be a U.S. citizen with a cumulative

grade point average of at least 3.50. Preference will be given to students who have demonstrated scholarship accomplishment and strong leadership skills, shown integrity and exemplary character, indicated a career preference for the private sector in the Process Industries, and who will be a good ambassador for the College and for the State of Louisiana.

Pictured with the Aubrey are Dr. William Brookshire, his daughter Lori Garrison, the Vice-President and Director of the William A. Brookshire Foundation, and Dr. Mary Julia Wornat, Department Chair, Chemical Engineering, at the Brookshire Scholars Dinner on March 8, 2012.



The Cain Department of Chemical Engineering would like to congratulate **Blake Pontiff** on receiving the Southwest Chemical Association Scholarship award for the 2011-2012 academic year. Currently a senior, Blake began his career at LSU in 2007 in the ChE program.

After being one of three students nominated to the SCA by the Department's Scholarship Committee in May, Blake submitted an essay on the future of the chemi-



cal industry, relating to the oil and gas industry and his participation in both over the next five years. He went on to become one of ten students chosen from schools around the southwest and received this award during the Annual SWCA Scholarship Luncheon at the La Colombe d'Or Hotel-Restaurant in downtown Houston on August 11, 2011.



Thomas Foster Scherr, graduate student in the Chemical Engineering Department, received the 2011-2012 Clayton Engineering Excellence Award for Outstanding Graduate Student. The awards were presented at the LSU College of Engineering Hall of Distinction ceremony on April 26 at the Lod Cook

Alumni Center on the LSU campus.

Please read "LSU College of Engineering Announces Recipients of Clayton Excellence Awards" in the College of Engineering News.



The Department would like to congratulate **Isiah Woodson** for receiving the 2012 Undergraduate Student Award from the Division of Environmental Chemistry of the American Chemical Society. Isiah is a Senior

working in Dr. Valsaraj's group under the supervision of Dr. Ehrenhauser on the environmental implications of the Deep Water Horizon Oil Spill, specifically the determination of oil spill matter in the environment and the aerosolization of oil spill matter via bursting bubbles.

Garrett Wilson Dupre received the Jesse Coates Award from the ChE Department. The Jesse Coates Award, and an engraved watch, is given to the a graduating senior voted on by the Department faculty.



Franz Ehrenhauser received the 2011-2012 Outstanding Dissertation Award from the Baton Rouge Section of the AIChE, for his PhD thesis entitled, Photochemical Reaction Products of Polycyclic Aromatic Hydrocarbons Adsorbed at an Air/Water Interface. The award was presented at the Coates Award Banquet in May. Franz also received the Charles E. Coates Outstanding Dissertation Award

made to students for outstanding dissertations accepted by LSU in the departments of Chemistry, Chemical Engineering,

or Physics & Astronomy. Criteria used for evaluation include gpa, strength of letters from the student's committee members, anticipated impact of work, and originality of research.



In March 2012, we held the Department's Annual Graduate Recruiting Weekend. Many thanks to all the Graduate Students who took time out of their schedules to greet and inform potential

graduate students on what it is like to be a Chemical Engineer at LSU. The event was immensely successful, and five of the eight students that visited campus decided on LSU as their choice for graduate school. They are now here as part of the new class of incoming graduate students.



BASF awards \$2,500 scholarship to LSU chemical engineering student

GEISMAR, LA, October 30, 2012 – BASF has

awarded \$10,000 in scholarships to four students of Louisiana State University (LSU), Baton Rouge, Louisiana, as part of the BASF Team Chemistry Scholarship Fund. **Jade Bates, a chemical engineering sophomore**, received a \$2,500 scholarship for having displayed academic success in her field of study and being an active member on the LSU campus and in the community.

"We see education and academic success as essential to the future of science and engineering," said Tom Yura, Senior Vice President and Manager of the BASF site in Geismar, Louisiana. "BASF's Team Chemistry Scholarship Fund is part of our investment in the next generation of leaders by supporting math and science education."

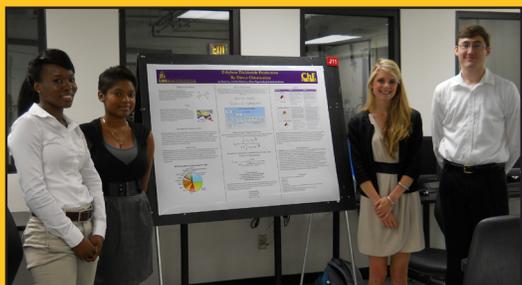
Bates works in the Engineering Communication Studio. From Faunsdale, Alabama, Bates is a member of the National Society of Collegiate Scholars, Alpha Lambda Delta honor society, Eta Sigma Phi honor society, the American Institute of Chemical Engineers (AIChE), Society of Women Engineers (SWE), Engineers without Borders and many other organizations. She is a team captain for LSU's intramural volleyball team; a member of her residential



college community council; and works as a studio monitor at the Engineering Communication Studio.

“Corporate partners such as BASF are an integral component to the growth of the College of Engineering in graduating engineers who are prepared to be immediately successful in their career,” said Ryan W. Cooney, Director, Corporate Relations and Economic Development, LSU College of Engineering. “Through BASF’s support of the Team Chemistry Scholarship Fund, four College of Engineering students will receive assistance to succeed both in the classroom and the workplace.”

Three other students from LSU were also awarded the BASF Team Chemistry Scholarship.



The Department is enormously grateful to the many individuals and companies for taking the time to volunteer with the 2012 Junior/Senior Poster Presentation this past May. Because of the great turnout, the event was a success. The students enjoyed getting to meet with industry professionals regarding employee prospects as well as the faculty and staff being able to meet with chemical-engineer business professionals.

Seventy-four chemical engineering (ChE) juniors and seniors presented their design poster presentations on May 3, in the ChE laboratory.

Nineteen design groups worked during the spring semester on the assignment.

Juniors in the ChE optimizations and economics course used computer software to address the issue of combustible dust. The senior capstone project required students to synthesize the information they learned from all of their ChE courses. Seniors designed and conducted an economic evaluation of the production of cumene, a constituent of crude oil and refined fuels.

About 40 local industry professionals evaluated the design posters. They assessed the students’ projects based on criteria, such as environmental safety and compliance, ethical considerations, and budget. The engineering professionals recognized the group projects as beneficial to the students’ future careers.

“[The project] gives [students] the ability to work with others and solve a problem,” said Chris Keran, health environmental safety and security manager, OxyChem. “This gives them the opportunity to show the engineering skills that they’ve learned so far and optimize the solution to the problem.”

Brian Carey, operations manager, PCS Nitrogen, described the ChE poster presentations as an opportunity for students to network with engineering professionals.

“Getting to interact with people from varying industries allows students to ask questions about how their project relates to real-world technologies and real-world production, engineering questions, safeties and procedures, and compliance.”

The ChE students used information acquired over the course of their ChE matriculation at LSU. These skills included material and energy balances, computer simulation of chemical processes, economic evaluation, design alternatives to reduce costs, and safety and environmental design components.

“By completing this course, the students learn how to apply a wide variety of chemical engineering skills to completely design a chemical process and evaluate their design,” said Armando Corripio, professor, Cain Department of Chemical Engineering.



Commencement

2011-2012 Scholarship Recipients

Clara & Frank R. Groves, Sr. Undergraduate Scholarship in Chemical Engineering
Virginia M. Bolivar-Baez

Chevron/Texaco Chemical Engineering Scholarship Engineering
Renee L. Fogarty

Floyd S. Edmiston, Jr. Memorial Scholarship
Robert T. Schoen
Daniel J. Sobie

Gene Perdue Lowe Chemical Engineering Scholarship
Kyle M. Babin
Steve G. Nguyen
Dylan J. Parker

Gerard Family Undergraduate Scholarship
Blake D. Pontiff
Nicholas J. Virgets

Marathon Petroleum Scholarship in Chemical Engineering
Kurt A. Ours

O. Dewitt Duncan Scholarship in Chemical Engineering
Amit Mishra
Lucy O. Arowolo
Jacob R. Allen
Katherine A. Frederickson
Raymond O. Lam
Tate R. Stumper
Joshua H.V. Nguyen
Matthew S. Fury
Kaelee A. Mader

Paul M. Horton Memorial Undergraduate Scholarship in Chemical Engineering
Corey M. Fine
Jordan M. Boudreau

Paul N. Howell Memorial Scholarship in Chemical Engineering
Christopher D. Brown
Rachelle M. Kusch

Ram Bhatia Scholarship/Supplement in Chemical Engineering
Wasana L. Herath

R.L. Hartman Scholarship
Connor J. Reaux

Walter G. Middleton Jr. Scholarship in Chemical Engineering
Kody M. Frederic
Amiel R. Kirtikar

William E. McFatter Scholarship
Kalpanee D. Gunasingha
Drake D. Tassin



Summer 2011 Commencement

Bachelor of Science in Chemical Engineering
Andrew Richard Bourgeois

Master of Science in Chemical Engineering
Chen Chen
Jacob Hanberry
Lane Todd Knighton
Murali Krushna Koneru
Minh Tuyen Hoang Le
Purnima Narayanan
Nav Nidhi Rajput
Janetta Yakshimuradova



Doctor of Philosophy in Chemical Engineering
Wanli Xu

Fall 2011 Commencement

Bachelor of Science in Chemical Engineering

Lucy Olukemi Arowolo
Heather Renee Ballard
Stefan Andrew Benoit
Michael Dean Brown
Erika Marie Capone
Kody Matthew Frederic
Alana Carmen Hodge
Rachelle Maria Kush
Rachelle Suzanne Lancon
Larry Joseph LeBlanc
Lauren Elizabeth Messa
My Tra Nguyen
Carly Virginia Spaulding
Lindsay Nicole Veillon



Master of Science in Chemical Engineering

Kalindi Pramod Khadapkar
Khue Dang Nguyen
Edward John O'Brien

Doctor of Philosophy in Chemical Engineering

Franz Stefan Ehrenhauser
Nitin Kumar
Nathan Matthew Lane





Spring 2012 Commencement

Bachelor of Science in Chemical Engineering

Mohammad Marwan Abu-Laban
Alex Bryant Adams
Ryan Ahmed Al-Marhoun
Emily Marie Allain
Kyle Matthew Babin
Taylor Nance Bazzell
Allison Marie Belgard
Christopher Douglas Brown
Paul Anthony Burns
Brent Michael Calongne
Shikhar Chaudhary
Lindsey Allen Compton
Harsha Mudiyansele Dissanayake
Katie Marie Duckett
Garrett Wilson Dupre
Adesua Tomisin Eigbe
Ashley Elisabeth Ericksen
Corey Matthew Fine
Harsha Mudiyansele Dissanayake
Katie Marie Duckett
Garrett Wilson Dupre
Adesua Tomisin Eigbe
Ashley Elisabeth Ericksen
Corey Matthew Fine
Scott Thomas Gabel
Brandon Shane Heasley
Wasana Lakmali Herath
Jeffrey Sawyer Heroman
Jacob Lee Keeling
Adam Michael Keller
Raymond Oei Lam
Michael Lawrence Levert
Eric Wesley Lunsford
Khiet Lethanh Mai
Conor Cloran McGinnis
John Ethan McIlwain
Laurie Ann McNeil
Justin Ronald Piche
Glauce Nunes Pickering
Blake Donovan Pontiff
Praditya Satria Putra
Katrina Michelle Rickels
Abby Catherine Samaha
Leslie Melissa Schrof
Joel Nicolas Schwartzburg
Aaron Joseph Senegal
Reagen Paul Simpson
Charanjeet Singh
Joshua Taylor Smith
Daniel James Sobie
Jeffrey Eneal Stansbury
Melisa Andrea Stramwasser
Curtis Alan Taylor
David Hunt Tooke
Nicholas John Virgets
Lauren Nicole Weicks

Master of Science in Chemical Engineering

Saade Alexis Bou-Mikael
John Taylor Fussell
Misagh Naderi
John Joseph Tate

Doctor of Philosophy in Chemical Engineering

Dhruva Dilip Dhavale
Ramesh Singh
David John Widenski



Departmental Awards

Blake Donovan Pontiff graduated with the highest Senior GPA at 3.93, as well as receiving the American Institute of Chemists Award.

Garrett Wilson Dupre is the 2012 recipient of the Department's Jesse Coates Award. The Coates Award is voted on by all ChE faculty and is given to a student who not only exemplifies excellent academic integrity but also leadership in extra-curricular endeavors. Garrett was also recognized for graduating from Chemical Engineering in three years, among other things. He was presented with an engraved LSU watch at the spring commencement reception held by the Department on May 18.

Is there any other place?



A lot of people claim to bleed purple and gold, but how many lull their grandchildren to sleep by singing the “LSU Alma Mater”? Karen Schmitt did so proudly.

She and husband Ed are LSU alumni, as are their two daughters and so many family members that they joke about the inevitability of their five grandchildren attending. The Schmitts even have an LSU-themed barn, complete with a Tiger-emblazoned pool table and a custom-upholstered purple and gold couch.

Growing up in North Baton Rouge, Ed saw men from his neighborhood bike to their jobs at area plants. Assuming he would work as a plant operator, Ed never dreamed he would be president and CEO of Georgia Gulf Corporation.

He worked construction jobs and bagged groceries to put himself through college. After earning a degree from the Cain Department of Chemical Engineering, Ed worked for a handful of companies before settling into Georgia Gulf until he retired, in 2008.

“LSU afforded me this opportunity,” Ed says. “It opened the doors for me.”

Karen grew up in Denham Springs, La., and built a career teaching in Livingston Parish. Now retired, she is a new member of the Livingston Parish School Board. Karen was encouraged to pursue the position given her professional experience, the foundation of which she attributes to the LSU College of Education.

The Karen Wax Schmitt & Family Endowed Professorship in the College of Education celebrates the three generations of Karen’s family who have earned eight degrees there. Both of her daughters are graduates: Laura is now a guidance counselor in Lake Charles, La., and Mary teaches in Denham Springs.

When fully funded through a match from the state of Louisiana, the professorship will be the college’s largest. The Schmitts have also established two professorships in the College of Engineering and are major contributors to the Chemical Engineering Building Fund.

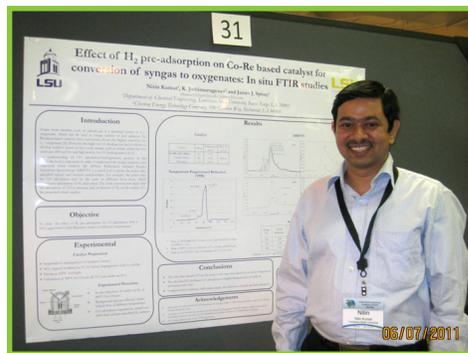
Karen recalls a Bible verse that reflects her and Ed’s view of philanthropy: “For everyone to whom much is given, of him

shall much be required” (Luke 12:48). Karen clarifies that she and Ed see giving as an opportunity rather than obligation.

“By giving, others will have the opportunity to benefit as we have,” Ed explains. “We feel like we’re led to it.”

That sentiment mirrors a deep love for LSU that their family shares. When her older daughter was in high school, Karen asked if she was considering LSU. Laura responded incredulously: “Is there any other place?”

The above article was published in the Fall 2011 edition of the Cornerstone Magazine produced by the LSU Foundation.



Former LSU Chemical Engineering Graduate Student, **Nitin Kumar**, Improves Clean Energy Production Through Ethanol Research. Nitin Kumar is researching etha-

anol as an alternative energy source to help the environment and the United State’s rising need. He conducts research related to the production of ethanol from Syngas, a mixture of carbon monoxide and hydrogen, which can be obtained from various sources such as coal, biomass and natural gas. With oil prices rising, fossil fuels resources gradually being depleted and cleaner fuel demands increasing, ethanol offers a cleaner energy source that takes advantage of fuel and vehicle infrastructures already in place.

LSU Alumna Presents Undergraduate Research at International Conference

LSU College of Engineering News. 15 August 2011.

Kristin Brassett began her academic career at LSU as an art major but soon realized her passion was studying the environment. She found her fit in the College of Engineering’s chemical engineering (ChE) program.

As an undergraduate student, Brassett worked closely with Dr. Louis Thibodeaux, Jesse Coates professor of chemical engineering, for her senior research course, ChE 4222. Knowing Brassett’s passion for the environment, Thibodeaux charged Brassett with researching the theory of SWAT (Soil and Water Assessment Tool).

SWAT is a river basin-scale model to simulate the quality



and quantity of surface and ground water and predict the environmental impact of land management practices on different soil patterns and land use patterns. It is widely used in assessing soil erosion prevention and control, non-point source pollution control and regional management in watersheds.

It was while planning her two-month summer trip to Europe—a graduation present to herself—that Brassett discovered a call for papers for the 2011 International SWAT Conference to be held in Toledo, Spain while she would be in Europe. She decided to submit the abstract from her ChE 4222 class.

To Brassett's surprise, her paper was accepted into the conference, and she was asked to deliver a 20-minute presentation. "Even though I was nervous, I was so excited to represent LSU," said Brassett.

Presenting alongside professionals only attributed to half of Brassett's nervousness. Two days before the conference, her computer crashed. She traveled by ferry, airplane and train to make it to Toledo early enough to complete her presentation. Once she arrived, Brassett used a computer at a local University, but she soon realized that all of the software was in Spanish.

"Kristin doing this presentation means to me that, at the undergraduate level, LSU does have students with the interest and necessary skills to do high quality, independent research," said Thibodeaux.

Brassett took the trip of a lifetime—seeing parts of the world she had always dreamed about and presenting the research she worked diligently on as an LSU undergraduate engineering student. Even more impressive, Brassett has been approached by three highly regarded scientific journals to publish her paper, and her research has also forged a new relationship between the United States Department of Agriculture and Dr. Thibodeaux.

"My interest in preserving the environment led me to my career as a chemical engineer," said Brassett. "I've been very fortunate to work with Dr. Thibodeaux on such an important project. LSU has given me the opportunity to make a real impact, and I'm so grateful for that."

Congratulations to LSU Alumni, Phillip R. Westmoreland, President-Elect of AIChE in 2012

Dr. Westmoreland received his Masters in Chemical Engineering at Louisiana State University in 1974 under Dr. Doug Harrison; he then went on to earn a Doctorate from MIT in 1986. He currently serves as Professor in the Chemical and Biomolecular Engineering Department at North Carolina



State and Executive Director, NCSU Institute for Computational Science and Engineering. While Dr. Westmoreland has received many honors and awards over the years for his work focusing on understanding and using kinetics at a molecular scale, theoretically and experimentally, he also takes the time to serve on our Departmental Industrial Advisory Committee.

AIChE Press Release, October 26, 2011

NEW YORK – The American Institute of Chemical Engineers (AIChE) announced that David A. Rosenthal, reliability delivery and assets management manager for Jacobs Engineering Group, Inc. in its Houston, Texas office will become president of the 40,000 member organization in 2012.

Rosenthal succeeds 2011 President Maria K. Burka, program director in the Chemical, Bioengineering, Environmental and Transport Systems Division of the National Science Foundation in Arlington, Virginia. Joining him on the Board of Directors will be Phillip R. Westmoreland, who will serve as president-elect in 2012 and as president in 2013. Westmoreland is a professor of chemical and biomolecular engineering at North Carolina State University and executive director of the University's Institute for Computational Science and Engineering.

Also newly elected to three year terms as directors were: John Cirucci, senior engineering associate at Air Products and Chemicals, Inc., in Allentown, Pennsylvania; John G. Ekerdt, Dick Rothwell endowed chair in chemical engineering and associate dean for research in the Cockrell School of Engineering at the University of Texas at Austin; Jack Hipple, principal with Innovation-TRIZ in Tampa, Florida; and Rosemarie D. Wesson, program director of the Chemical and Biological Separations Program at the National Science Foundation in Arlington, Virginia.

Rosenthal, an AIChE Fellow, has previously served as AIChE's treasurer and as a member of the board of directors. Before joining Jacobs Engineering earlier this year, Rosenthal's career in manufacturing competitiveness and asset reliability has included a variety of consulting and staff assignments, including 28 years with Rohm and Haas. He has been active in several AIChE local sections, chaired its Management Division, and served as chair of the 1996 Spring Meeting. Recently, he was instrumental in the formation of the Institute's new Upstream Engineering and Flow Assurance Forum. He received his B.S. in chemical engineering from Drexel University and an M.S. from the University of Texas.



Our sincere condolences to the family and friends of George Daniels



The Cain Department of Chemical Engineering has lost a distinguished alumni and a great supporter of the Department. George Daniels.

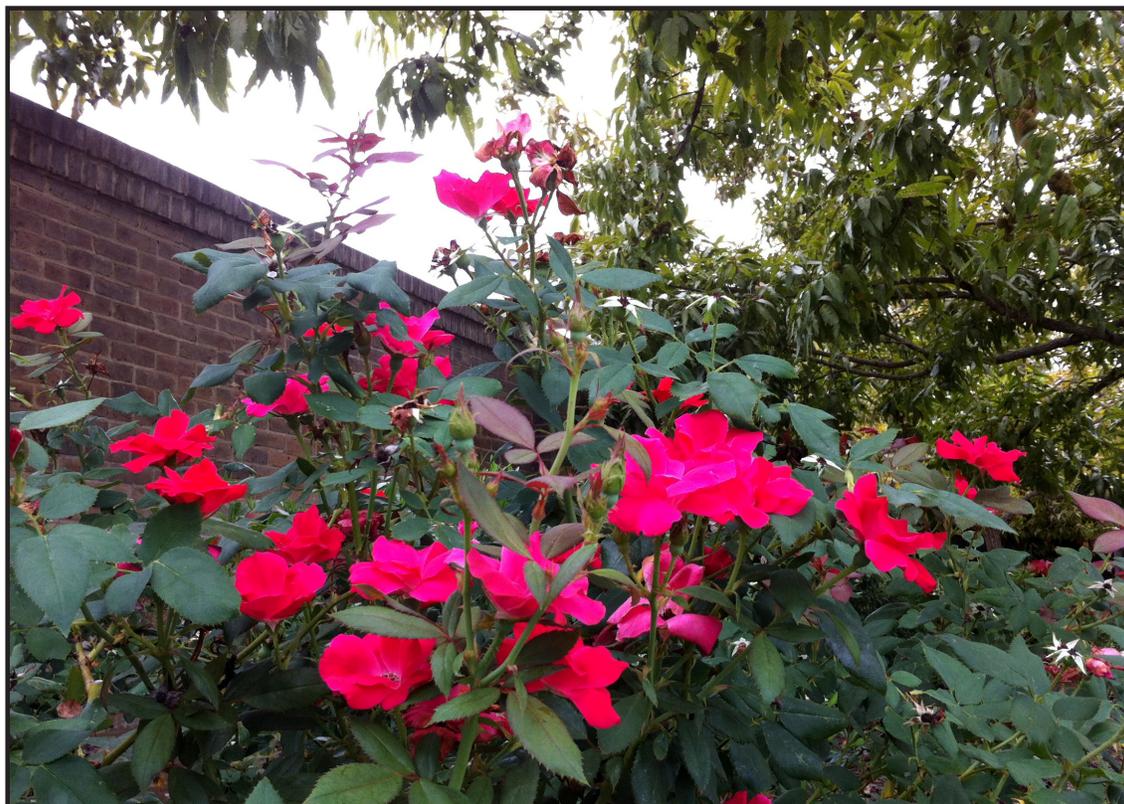
George Daniels was a native of Kansas and received his bachelor's degree in chemical engineering from the University of Kansas in 1955. In 1963, he received his Master's degree from LSU in chemical engineering. He recently worked for the Albemarle Corporation in Baton Rouge and was a member of the Chemical Engineering Campaign Steering Committee, the 1860 Society, and a charter member of the Society for Engineering Excellence.

George Daniels was honored by the Forever LSU Campaign for his continued generosity and support of the Cain Department of Chemical Engineering. Mr. Daniels' most recent commitment was a planned gift with LSU as a named beneficiary. This planned gift totaled approximately \$2.4 million and is earmarked to support the George A. Daniels Graduate Fellowships in Chemical Engineering.

His generosity will impact the Chemical Engineering Department at LSU forever. We extend our sincere condolences to his family and friends.

We were saddened to learn of the passing of the following alumni. We extend our belated condolences to their families and friends.

Thomas H. Arnold, Jr. (BS, 1951)
Elton P. Barnett (BS, 1943)
James A. Breaux (BS, 1956)
Harold R. Buckley (BS, 1960)
Rosario C. Cangelosi (BS, 1938)
Alfred L. Coignet Jr. (BS, 1955)
Vernon L. Deslattes (BS, 1956)
Claude J. Hale, Jr. (BS, 1942)
Jim T. Huff, Jr. (BS, 1977)
Robert L. Jeansonne (BS, 1948)
Richard H. Judice (BS, 1948)
Norwood W. Matherne (BS, 1957)
Boyd H. McMullan (BS, 1943)
Fred W. Rogers (BS, 1954)





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1970s

James Dorven (BS, 1974) is the owner of PEX Universe, a heating and PEX plumbing supply company in USA.

Roger L. Swanson (BS, 1974) served in the U.S. Navy as a civilian engineering manager with over thirty years of service ending in 2010 as a Director of Weapons Assessment for the Naval Ordnance Safety and Security Activity. He then moved to Belgium for a position with NATO and is currently the Project Manager/Technical Director of the NATO Munitions Safety Information Analysis Center. Mr. Swanson also received his Masters of Engineering Administration from George Washington University, and studied Law at LSU and management (Doctorate level) at Smeal College of Business at Pennsylvania State University and the Darden School of business Administration at University of Virginia. HE is a graduate of the U.S. Defense Acquisition University/Defense Systems Management College, the Naval Air Systems Command Senior Executive Managers Development Program, and the U.S. Office of Personnel Management Federal Executive Institute. I am a Member of Alpha Chi Sigma professional fraternity, the Naval Institute, and the American Institute of Chemical Engineers. He has also been honored to be named as a Visiting Professor to Cranfield University at the Defence Academy of the United Kingdom. He and his wife Bonnie live in Brussels, Belgium and they have three sons: Christopher (LSU), Matthew (U of Md), and Andrew (LSU as of 2011).

1980s

Keith Hall (BS, 1985) is an Assistant Professor and Director of the Mineral Law Institute at the LSU Law School.

Paul Yonts (BS, 1984) is a Safety Superintendent at Shintech in Plaquemine, LA.

1990s

Curs Managementul Timpului (BS, 1998) has worked at Exxon since 2000.

2000s

Wanda Alex, (BS, 2007) is a petroleum engineer within the gulf.

Jing Chen (PhD, 2008) is now an Associate Professor at Beijing Normal University, Beijing, China.

Daniel Hamilton (BS, 2008) is working as a senior consultant at a company in Auckland, NZ.

Matthew E. McCaughey (BS, 2006) attended St. Benedict's Seminary, Covington, LA, and is currently Parochial Vicar at Christ the King Parish and Catholic Center at LSU.

Jorge Oña-Ruales (PhD, 2008) is now Assistant Professor Chemical Engineering at Nazarbayev University.

Winifried Thaboga (PhD, 2003) is currently the improvement Engineer at DOW Chemical in Plaquemine, LA.

Arron R Williams (BS, 2009) is a Senior Scientist, Fermentation Sciences, Martek Biosciences Corp. and Adjunct Professor, Dept. of Agricultural & Biological Engineering, Clemson University.

If you would like for us to print news of your latest achievements, please complete the short form included in this newsletter and return it to us. Or, you may send us an email at mfay@lsu.edu. We would love to hear from you.



Opportunity to Give

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Please complete and return the following information to:

Gordon A. & Mary Cain Department of Chemical Engineering / Melissa Fay / 110 Jesse Coates Hall / Louisiana State University / Baton Rouge, LA 70803

You may also submit the information electronically to **mfay@lsu.edu**.

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YEAR GRADUATED		LSU DEGREE(S)	
ADDRESS		CITY, STATE, ZIP	
HOME TELEPHONE	WORK TELEPHONE	EMAIL	
OCCUPATION	WORK ADDRESS		
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LSU Chemical Engineering Campaign

Our alumni, friends, and other supporters are critical to the success of the Department of Chemical Engineering. We are grateful for the generous gifts that we continue to receive in support of the academic programs in the Department of Chemical Engineering.

Chemical Engineering at LSU offers many opportunities for alumni and friends, individuals or private organizations, to support the teaching and research efforts underway and planned in the future. Scholarships, fellowships, chairs, and laboratory equipment funds are just a few examples.

Giving is easy. You can make a gift online through the LSU Foundation's secure online giving site, www.lsufoundation.org/contribute. Designate your gift by selecting "College of Engineering" and then Chemical Engineering.

To mail a contribution, make check payable to LSU Foundation and mail to Gift Processing, LSU Foundation, 3838 West Lakeshore Dr., Baton Rouge, LA 70808.

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** Please contact John McGehee, Interim Director of Development LSU College of Engineering, at (225)-578-8738 or jmcgehee@lsu.edu for complete information concerning opportunities to support the Department's programs and activities through your contributions.

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