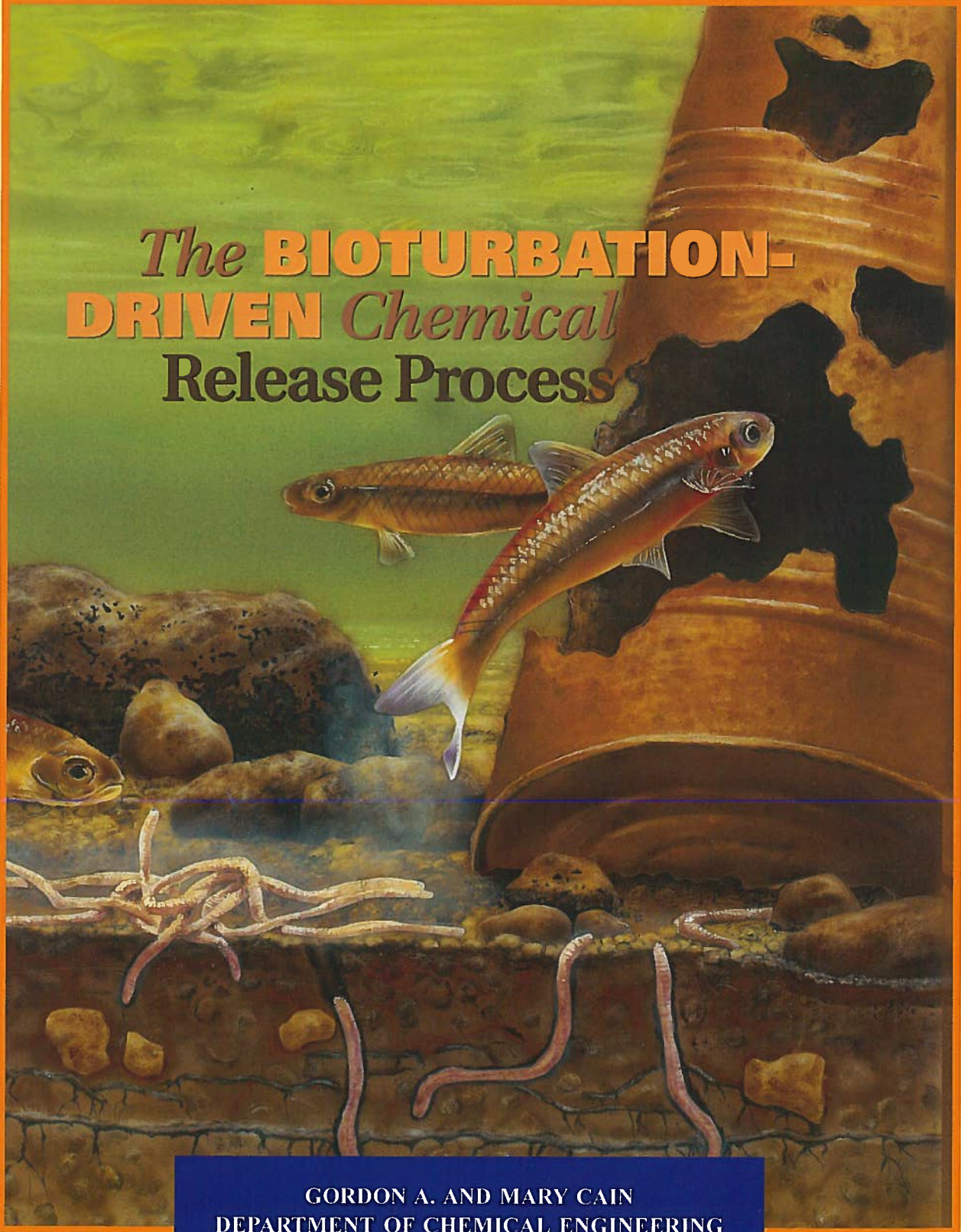


Chemical Engineering

Alumni Newsletter
Volume 20
Fall 2003/Spring 2004



The **BIOTURBATION-**
DRIVEN *Chemical*
Release Process

GORDON A. AND MARY CAIN
DEPARTMENT OF CHEMICAL ENGINEERING
LOUISIANA STATE UNIVERSITY

Letter from the Chairman



Dear Alumni and Friends,

We have been very busy this academic year. The department has undergone two separate program reviews since August, which is the main reason why the fall and spring newsletters have been combined this year. As you can imagine, it takes months to prepare for these extensive reviews, plus additional time afterward to complete follow-up reports and responses.

The first review was conducted as part of our ABET Accreditation with the site visit occurring in early September 2003. The site visit went well, and we anticipate that our accreditation will be renewed. We also prepared for an Academic Program Review, which was coordinated by the Office of Academic Affairs. The academic review took place in the second week of March 2004. The department wants to acknowledge the efforts of our ABET reviewer, Tom Edgar, (University of Texas, Austin), and the academic program reviewers Ken Hall (Texas A&M), Rick Mallinson (University of Oklahoma), and

Dick Seagrave (Iowa State University), as well as the academic program review internal reviewers Pratul Ajmera (Department of Electrical & Computer Engineering), Liu-Heung Chan (Department of Geology & Geophysics), Barb Dutrow (Department of Geology & Geophysics), Robert O'Connell (Department of Physics & Astronomy), and Paul Wilson (Department of Horticulture). The ABET review focused on the undergraduate program, while the Academic Program Review focused on both the undergraduate and graduate programs. From both, we received some very positive feedback concerning our programs, as well as specific recommendations on how to improve the department. We are currently evaluating how to utilize these suggestions to effectively improve our programs.

The chemical engineering building remains on the capital outlay plan and fundraising efforts are well underway. Unfortunately, uncertainties in the state budget will probably delay the start of construction until the next fiscal year.

In addition to the reviews and building efforts, we have been involved in an extensive search for a new assistant professor to fill the vacancy left by Thomas Cleij's departure in May 2003. We received many applications for this position and have already interviewed several applicants. We hope to have the position filled by the start of the spring 2005 semester. In addition, we have been in search of a candidate to fill the second Cain Chair.

In other news, we hosted the Second Annual Chemical Engineering Reunion in September 2003 and it was an even greater success than the first reunion. You can read more about it in this newsletter. Because of the success of the first two reunions, as well as the positive responses we received from this past year's attendees, we are planning to host another alumni reunion this year. It is tentatively scheduled for September or October of 2004. More information concerning the upcoming reunion will be mailed in the coming weeks and can also be found on our Web site. We hope to see you there!

Sincerely,

A handwritten signature in black ink that reads "F. Carl Knopf". The signature is written in a cursive style with a large, stylized "K".

F. Carl Knopf
Anding Professor and Chair

If you would like to know more about contributing, please contact Carl Knopf at 225/578-1426 or send an e-mail to knopf@che.lsu.edu

A Word of Thanks to Our 2003-04 Contributors

Volume 20
Fall 2003/Spring 2004

Although financial support has been impressive, departmental expenses continue to rise and further renovations are essential if we are to remain competitive with our counterparts at other universities. We would like to thank the following corporations and individuals for their role in maintaining the outstanding reputation that LSU has achieved throughout the years.

On the Cover

The graphic used on the cover first appeared on the cover of the July 1, 2003, edition of *Environmental Science & Technology*, which is the number one environmental science/engineering journal in terms of readership. The graphic was created by Brenda Doyle, a freelance artist from Golden, Colorado. It was designed for a manuscript authored by Louis Thibodeaux and Victor J. Bierman of Limno-Tech, Inc. titled, "The Bioturbation-Driven Chemical Release Process."

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Eugene Hadlock: 1923-2003



Gene Hadlock's many colleagues, both at LSU and at Exxon, will be sad to learn of his death on September 27, 2003.

He spent much of his youth in Arizona where he worked on his uncle's ranch. He attended Georgia Tech and was a member of the Reserve Officers Training Corp. When America became involved in WWII, he joined the air force and became a navigator

in a B-17 "Flying Fortress" squadron. His unit was sent to England where he became a member of the famous 8th Army Air Force, flying 33 missions over Europe. He received the Air Medal and the Distinguished Flying Cross for his actions during the war. He returned to the states for further training and it was while he was on a practice flight that the news was received that the war had ended. Standing orders required that when this happened, all planes in the air should land at the nearest airfield. This would have required them to land hundreds of miles from their home, so their radio suddenly developed a fault and they flew back to their proper base.

After the war, he went back to Georgia Tech and graduated in chemical engineering. Following graduation, went to work for Exxon where he stayed for most of his working life, retiring in 1983. He became a very successful engineer and was sent to many overseas plants as an expert troubleshooter in process design and manufacturing. In the course of this work, he spent time in Belgium, Spain, Italy, and the Netherlands. Such was his expertise that after he retired from Exxon, he was often recalled to solve problems that were causing difficulties in their existing plants.

In 1984, the department wished to increase the emphasis given to laboratory work in its curriculum. They were fortunate to persuade Gene to join the department on a part-time contract basis to help develop this emphasis. They could not have anyone better to do this, as his wealth of practical field experience, his natural ability, and above all, his talent as a teacher made him such a valuable addition to the faculty.

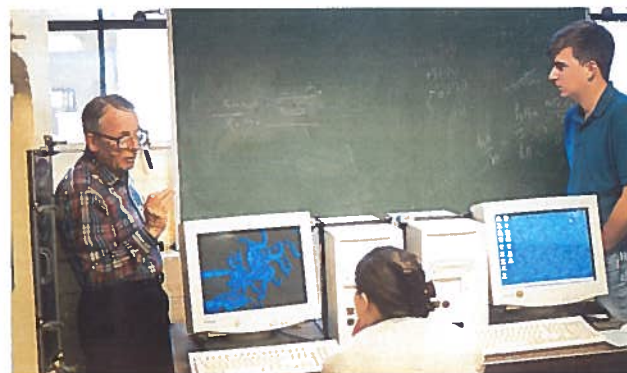
Laboratory periods were something most students viewed as a required but fairly useless chore, but through Gene's enthusiasm and guidance they came to look forward to them. It was at this stage that I got to know him, as it was determined by the powers that be we should work together on the fourth-year laboratories.

It is no exaggeration to say that between us we transformed these laboratories from a dreary requirement into sessions to which most students looked forward.

Gene was a great teacher, patient and understanding, particularly with those who found a particular idea or principle hard to grasp. At the same time, he was not someone with whom students could take liberties and, although not a harsh disciplinarian, he could be severe when required. Although he was only supposed to work two or at the most three days a week, in practice he came in almost every day. The one thing he couldn't stand was the occasional student who was a slacker—he expected real effort from everyone and those who didn't put out their best got short shrift.

During all the time I knew him, he retained his contact with Exxon and was called in on several occasions when they were experiencing problems with some plant or process with which he had special and unique knowledge. One of the side effects of his relationship with the company was the way in which he was able to procure assistance from them in the supply of materials and equipment for the laboratory.

He should not be thought of merely as a narrow technologist. He was a keen follower of University sports, especially baseball; an enthusiasm that he passed on to his grandsons. His family was



very important to him. He also loved classical music, and built a great collection of CDs.

It was a great experience working with him as a colleague. We collaborated extraordinarily well, and, I'm bold to say, with good effect. Although I only knew him for the last 17 years of his life, I came to respect him as a colleague, admire him as a man, and feel proud to call him a friend. He will be sorely missed by his wife and family as well as by all who knew him.

Don C. Freshwater

10/14/03

Don Freshwater served as a professor in our department from 1986-95. He joined LSU after retiring from the University of Technology in Loughborough, England, where he served as a professor and head of the Department of Chemical Engineering. He worked closely with Gene Hadlock in the undergraduate laboratory at LSU.

Harry Toups—New Instructor



At the beginning of the fall 2003 semester, the department welcomed **Harry Toups** as an instructor.

Toups is an alum of the department, having received his B.S. (1970), M.S. (1971), and Ph.D. (1973) in chemical engineering from LSU. Upon receiving his Ph.D., he began working at ExxonMobil Process

Research Laboratories in Baton Rouge, where he remained for 30 years.

Over the course of his career with ExxonMobil, he acquired experience in all of the following areas: Process R&D, Design,

Instrumentation, Safety/Health/Environmental, Training, Reengineering, and Continuous Improvement. With this breadth of knowledge, we knew he would be a perfect addition to our faculty and this has proven to be true.

Toups instructs students in the Undergraduate Operations Laboratory and has also assisted in teaching the Safety/Health/Environmental portion of the Plant Design course. He is well liked by the students and has enjoyed his teaching experiences thus far.

In his spare time, he plays both keyboard and horn in a local variety band called *Artemis*. This fall, they will be playing for fans outside of Tiger Stadium prior to the LSU football games. In addition, his teaching skills are utilized off campus as he enjoys teaching youngsters in the community to play chess. His wife, Margaret, is employed at BRCC. They have two children, Lauri and Matt, and three grandchildren.

Faculty News

Kerry Dooley is the chair for the AIChE Area 1f (High Pressure) for 2004-05.

Douglas Harrison has been on sabbatical leave during the spring 2004 semester working with the International Energy Agency Greenhouse Gas R&D Programme in Cheltenham, England. He will return to LSU in the fall.

Ralph Pike co-directed the AIChE Center for Chemical Process Safety (CCPS) and Chemical Engineering Education (SACHE) Workshop "Designing for Safe and Reliable Process Operations" at the ExxonMobil Chemical Plant in Baton Rouge in September 2003. He also served on the Environmental Protection Agency's Peer Review Panel for Environmental Engineering Research Proposals in February 2004. Furthermore, Pike was recently elected a director of the Fuels and Petrochemicals Division (F&PD) of AIChE. F&PD is AIChE's largest division, and Pike will help lead this division for the next three years.

Elizabeth Podlaha participated on a panel review for NSF/CISE/CCR Division in spring of 2003; participated on a panel

review for the State of Texas, ARP program during the fall of 2003; and was a co-organizer of the NSF Nanoscale Science and Engineering Conference in Arlington, Virginia, December 16-18, 2003. She will assume the duties of the primary organizer of this conference next year.

Jerry Spivey will be working through the Oak Ridge Institute for Scientific Education for the U.S. Department of Energy in Morgantown, West Virginia, for part of the summer. He will be working with their scientists on reforming of liquid fuels for hydrogen production as part of their clean energy program.

Kalliat Valsaraj is currently serving on the editorial review boards of two journals in environmental chemistry. These are *Environmental Monitoring and Assessment* and the *Journal of Air and Waste Management Association*.

Judy Wornat has been elected president of the International Society for Polycyclic Aromatic Compounds; she currently serves as the president-elect but will take over as president next year. She was placed on the editorial board of the journal *Polycyclic Aromatic Compounds* in January 2004.

Professor Elizabeth Podlaha Weds

Congratulations to Associate Professor **Elizabeth Podlaha** who was married August 17, 2003, to Michael C. Murphy, an associate professor in LSU's Department of Mechanical Engineering. The two were married in a small ceremony held in upstate New York attended by family and friends. We wish them both the best of luck and happiness.



Faculty Awards and Grants

NSF awarded the department a \$92,400 grant, titled "Reforming the Chemical Engineering Curriculum: Manufacturing/Process Dynamics/Process Control Emphasis," to revamp the undergraduate curriculum. **F. Carl Knopf** will serve as the principal investigator (PI) for the grant, with **Armando Corripio** and **Kerry Dooley** serving as co-PI's.

A new patent has been issued to **Kalliat Valsaraj**, **Karsten Thompson**, **Danny Reible**, and **Le Yan**, a graduate student working with Thompson. The patent is titled, "Environmental Remediation of Dense Non-aqueous Contaminants by Polyaphron Treatment."

Ralph Pike has received the following two grants: (1) a grant (STTR) from the U.S. Army Space and Missile Defense Command, Redstone Arsenal, Huntsville, Alabama, for support of the project "Thermal Decomposer for Peroxide" with Richard D. Farmer, Ph.D., Sierra Engineering Company; and (2) a grant from the Gulf Coast Hazardous Substance Research Center for support of the project "Integrated Chemical Complex and Cogeneration Analysis System: Greenhouse Gas Management and Pollution Prevention Solutions."

Elizabeth Podlaha served as the PI for a NSF grant for "International Collaboration Supplemental Request," with **W. Wang** as co-PI. The grant was used to support the travel and visit of Professor **Henrikas Cesiulis** from Lithuania. He visited LSU and the department for five weeks during January and February of 2003. The following paper resulted from the research he carried out while at LSU: **Henrikas Cesiulis** and **E.J. Podlaha**, "Electrolyte Considerations of Electrodeposited Ni-W Alloys for Microdevice Fabrication," *Materials Science Medziagotyra*, 9: (4) 329 (2003).

Kalliat Valsaraj received an NSF grant renewal for \$551,400 for three years on the atmospheric chemistry of fog droplets and ice in the atmosphere. This is a collaborative grant, with **Valsaraj**

serving as the PI and **Judy Wornat** as a co-PI; Professor **Jeff Collett** from Colorado State University is another co-PI. Together with the existing NSF grant, the total for this study amounts to \$861,441 for six years, beginning in 2000. This research will enable researchers to understand the behavior of extremely hydrophobic organic vapors on the air-water interfaces in the atmosphere, such as those in fog droplets, ice, and snow. In addition, **Valsaraj** received another grant from the U.S. Army Engineers Experiment Station to study the fate and transport of contaminants during dredging of contaminated sediments. This is also a continuation of an existing study.

Judy Wornat is part of a team of LSU professors who have been awarded a \$1.3 million grant from the National Science Foundation. **Wornat**, along with chemistry professors **Barry Dellinger**, **Randall Hall**, **Robin McCarley**, and **Erwin Poliakoff**, have been awarded a prestigious NSF grant from the competitive Nanoscale Interdisciplinary Research Team (NIRT) program for their proposal titled, "Combustion-Generated Nanoparticles: The Role of Transition Metals in Nanoparticle and Pollutant Formation." They will focus on how nanoparticles are produced in combustion processes and the chemical reactions that they promote in the environment. **Wornat's** primary research role will be to study the formation of polycyclic aromatic hydrocarbons. **Wornat** has also received a three-year grant from the Air Force Office of Scientific Research to study "Supercritical Fuel Pyrolysis." She will serve as the PI.

We want to congratulate the following faculty for their years of service to the University. Along with other University employees, they were honored at the 13th annual Employee Recognition Program held on May 4, 2004.

Douglas Harrison	35 years of service
Ralph Pike	40 years of service
David Wetzel	25 years of service

Faculty Publications and Presentations

Kerry Dooley made a presentation titled, "Waste-Reducing Catalytic Processes for Amidation and Alkylaromatic Oxidation," at the North American Catalysis Society meeting in Cancun. At the Emerson Process Management Gulf Coast Process Technology Conference in 2003, he made a presentation titled, "LSU/Emerson Process Management/John H. Carter Partnership in Process Control," and chaired a session, "Polymerization and Polymer Processing with Supercritical Fluids."

Martin Hjortso gave a seminar at the University of Florida in Gainesville titled, "Making Sense of Cell Cycle Dependent Microbial Oscillations."

Rujun Li, a postdoctoral research associate, presented a paper at the AIChE Annual Meeting in San Francisco titled "Dynamic Modeling of Crosslinking and Gelation in Continuous Ethylene: Propylene-Diene Polymerization Reactors Using the Pseudo-Kinetic Constant Approach," co-authored by **Armando Corripio** and **Kerry Dooley**.

Ben McCoy presented a paper, "Population Balance Modeling: Phase Transitions, Turbulent Mixing, and Beyond," at a Symposium at Texas A&M University on November 7, 2003. The symposium was held to honor Professor Aydin Akgerman in the Department of Chemical Engineering. In May 2004, he attended the Population Balance Modeling Conference in Valencia, Spain, to present the following papers: "Blending and Reactive Mixing in Turbulent Fluids: Population Balance Modeling of the Fragmentation Cascade" and "Population Balance Modeling of Distribution Kinetics of Polymer Branching and Hyperbranching."

Ralph Pike co-authored the following publications: "Integrated Approach to Unit Optimization," with Derya B. Ozyurt, **F. Carl Knopf**, Michael K. Rich, Jack R. Hopper, and Carl L. Yaws, *Petroleum Technology Quarterly*, Vol. 8 No.5, p. 47-51 (Autumn, 2003); "Identifying and Developing New Carbon Dioxide Consuming Processes," with **Aimin Xu**, **Sudheer Indala**, Thomas A. Herwig, **F. Carl Knopf**, Carl L. Yaws, and Jack R. Hopper, *Proceedings of the Topical Conference on Sustainability and Life Cycle*, Paper No. 408b, Annual Meeting of the American Institute of Chemical Engineers, San Francisco (Nov. 16-21, 2003); and "Theory and Practice of Simultaneous Data Reconciliation and Gross Error Detection for Chemical Processes," with Derya B. Ozyurt, *Computers & Chemical Engineering*, Vol. 28, No. 1, p. 381-402 (2004).

Elizabeth Podlaha presented a paper titled, "Electrodeposition of alumina-NiCu, FeW and NiW nanocomposites," at the 204th Meeting of the Electrochemical Society (ECS) in Orlando, Florida, October 12-17, 2003. She also attended the Materials Research Society (MRS) held in Boston in December of 2003

and presented the following: **E.J. Podlaha**, Y. Li, E. Lawson, Q. Huang, J.Y. Chan, J. Zhang, M. Moldovan, D. Young, D. Palaparti, and M.C. Murphy, "Electrodeposited GMR Multilayer Thin Films, Nanowired and Microposts." In addition to these presentations, she published the following papers:

Q. Huang and **E.J. Podlaha**, "Simulation of Pulsed Electrodeposition for GMR FeCoNiCu/Cu Multilayers," *Journal of the Electrochemical Society*, **151** (2): C119-C126 (2004).

A. Panda and **E.J. Podlaha**, "Nanoparticles to Improve Mass Transport Inside Deep Recesses," *Electrochemical and Solid-State Letters*, **6**, C149 (2003).

Q. Huang, D.P. Young, and **E.J. Podlaha**, "Magnetoresistance of Electrodeposited FeCoNiCu/Cu Multilayers," *Journal of Applied Physics*, **94** (3): 1864-1867 (2003).

Y. Zhuang and **E.J. Podlaha**, "NiCoFe Ternary Alloy Deposition: II. Influence of Electrolyte Concentration," *Journal of the Electrochemical Society*, **150** (4): C219-C224 (2003).

Y. Zhuang and **E.J. Podlaha**, "NiCoFe Ternary Alloy Deposition III. A Mathematical Model," *Journal of the Electrochemical Society*, **150** (4): C225-C233 (2003).

Kalliat Valsaraj was an invited speaker in the Third Trivandrum International Symposium on recent Trends in Photochemical Sciences held in India, January 4-7, 2004. More than 150 participants from 11 different countries participated in the symposium, which was held in the picturesque resort city of Kovalam, Kerala, India. He presented his group's recent research on photochemical reactor designs for industrial wastewater treatment; this work was carried out by one of his Ph.D. students, **Hong Fei Lin**.

Judy Wornat presented the following paper at the Eighth International Congress on Combustion By-Products in Umeå, Sweden, in June 2003: "Pressure-Dependent Global Kinetics Rate Parameters for the Formation of PAH from Supercritical Toluene Pyrolysis." At the Nineteenth International Symposium on Polycyclic Aromatic Compounds in Amsterdam, the Netherlands, in September 2003, she and her research associate, **Elmer Ledesma**, presented the following three papers:

Ledesma, E.B., Felton, P.G., Sivo, J.A., and **Wornat, M.J.**, "Formation of Polycyclic Aromatic Hydrocarbons from the Supercritical Pyrolysis of Toluene."

Ona, J.O., **Ledesma, E.B.**, and **Wornat, M.J.**, "The Identification of Polycyclic Aromatic Hydrocarbons from the Supercritical Pyrolysis of Methylcyclohexane."

Thomas, S., **Ledesma, E.B.**, Polagye, B.P., Edwards, S.E., and **Wornat, M.J.**, "C₂OH₁₀ Polycyclic Aromatic Hydrocarbons Identified in the Pyrolysis and Combustion Products of Model Compounds and Natural Fuels."

Second Annual Chemical Engineering Reunion

September 6, 2003



We hosted our second annual Chemical Engineering Reunion for alumni on September 6, 2003. The festivities were held outside under the oak trees between the chemical engineering building and Tiger Stadium. Alumni and their families socialized with the faculty while enjoying jambalaya and beverages. While children played football and other games on the open grass next to the stadium, alumni enjoyed visiting

with each other, meeting new people, and, most of all, seeing old friends that they hadn't seen, in some cases, since graduation. Following is a list of alumni who attended this year's event:

Jerry Affolter (B.S., 1942)
Sam Bergeron (B.S., 1956; M.S., 1960)
Donald Bonin (B.S., 1957)
Jason Bourg (B.S., 1997)
Maris Scott Bourg (B.S., 1996)
Hugh Brian (B.S., 1997)
Robert Bujol (B.S., 1943)
Ricardo Callejas (B.S., 1961; M.S., 1963)
Jason Conley (B.S., 1994)
Armando Corripio (B.S., 1963; M.S., 1967; Ph.D., 1970)
George Daniels (M.S., 1963)
Wayne Davis (B.S., 1957; M.S., 1959)
John DeLaney (B.S., 1993)
Tricia Comeaux DeLaney (B.S., 1994)
Mridul Desai (B.S., 1996)
Mrinal Desai (B.S., 1996)
Grover Dobbins (M.S., 1957)
Karl Duckworth (M.S., 2000)
Arlys Etienne (B.S., 2002)
Jorge Ferrer (B.S., 1967)
Gary Focht (B.S., 1983; M.S., 1986; Ph.D., 1988)
Joel Folse (B.S., 1989)
Craig Gardner (B.S., 1984)

Dave Goldsmith (B.S., 1977)
Philip Hadaway (B.S., 1995)
Louis Harb (B.S., 2002)
Beth McKenzie Hebert (B.S., 1977)
Jonathan Hulgan (B.S., 1992)
Sharon Day Hulgan (B.S., 1994)
James "J.R." Madden (B.S., 1972; M.S., 1974)
Todd Marcello (B.S., 1993)
Brad Martin (B.S., 1993)
Ellen Chagnard Martin (B.S., 1997)
Michael McAdams (B.S., 1971)
Bill McElhannon (M.S., 1975; Ph.D., 1978)
Craig Plaisance (B.S., 2003)
Paul Savoy (B.S., 1970)
Tina Scully (B.S., 1996)
Yujun Song (M.S., 2002)
Jerry Spivey (Ph.D., 1980)
Sidney Theriot (B.S., 1988)
Guy Thibodeaux (B.S., 1943)
Louis Thibodeaux (B.S., 1962; M.S., 1966; Ph.D., 1968)
Tegan Blades Treadaway (B.S., 1999)
Robert Wegener (B.S., 1998)
Michael Wink (B.S., 1982)



We were delighted to see so many familiar faces and hope to see them all again, plus many more, in 2004 at the Third Annual Chemical Engineering Reunion. The date has not been firmly set, but we anticipate that it will occur sometime in September or early October of 2004. In addition to the usual food and drinks, we hope to provide the children (and adults) with some activities. We would really like to turn this into an annual event that the whole family will look forward to and do hope that you will try and join us. Additional information on this event will be mailed out in the next few weeks. It can also be accessed on our Web site. Until then, if you have any suggestions as to how we can make the next reunion more exciting, please send them to: gradcoor@lsu.edu. Or, you may include your suggestions on the alumni questionnaire that can be found at the end of this newsletter.



ChE Graduate Program Tops at LSU

The 2005 edition of *U.S. News & World Report* ranks our graduate program 50th among chemical engineering programs in the country. While a handful of other graduate programs at LSU ranked in the top 100 among their specialties, including civil and environmental engineering in 65th place and mechanical engineering in 82nd, ours is the only graduate program at LSU to be ranked in the top 50.

Our efforts are certainly rewarded with this news, but we realize that we must continue the hard work in order to maintain this level of excellence, as well as to further our reputation as a top-tier chemical engineering program.

In addition to this proud achievement, a recent study conducted by Professor James Garand of LSU's Department of Political Science found that incoming chemical engineering graduate

students for fall 2002 ranked above all other incoming graduate students at LSU. Focusing on verbal GRE scores, quantitative GRE scores, and undergraduate GPAs, Professor Garand found that our students ranked above the incoming students in all other graduate disciplines at LSU.

Kalliat Valsaraj has worked exceedingly hard to recruit top students from within the U.S. as well as abroad since undertaking the duties of graduate coordinator in 2002. His efforts have been rewarded with the results of Professor Garand's study, as well as by the ranking reported in *U.S. News & World Report*. We congratulate him on the exceptional job he has done. We are very appreciative of all the hard work and effort undertaken by our exceptional students and faculty that has gone in to making our graduate program one of the best (if not the best) on campus.

ChE in the News

In the August 2003 edition of *InTech* magazine, the Cain Department of Chemical Engineering was mentioned twice in a piece titled, "Leaders of the Pack: From the Plant to Academia, *InTech's* 50 most influential industry innovators."

In the article, the editors outline 50 individuals from technologists to entrepreneurs to teachers who have had a lasting impact in the areas of automation, instrumentation, and control technologies.

InTech began 50 years ago as *ISA Journal* (Instrument Society of America). Since its inception, the publication has focused on providing in-depth information about every significant technical development that has influenced the world of measurement and control. For *InTech's* 50th anniversary issue, the editors asked scores of instrumentation and control experts in numerous fields to name specific individuals who have influenced them the most.

Among those named were two former faculty members of our department, **Cecil Smith** and **Paul Murrill**.

Cecil Smith is credited with "providing control engineers with a better understanding of how process dynamics impact control mode selection," as well as with "creating the preeminent program in process control" in our department.

Paul Murrill worked with Smith on early research in digital system tuning methods. The article states that Murrill "could make difficult concepts easy to understand." In 1967, he wrote one of the first textbooks on Automatic Process Control. He later cowrote nine other books on various subjects, including process mathematical modeling and computer programming. He is not only a former professor but was also head of the department from 1967 to 1969, and served as Chancellor of LSU from 1974 to 1980.

ChE Crab Boil



The annual crab boil hosted by the department was held in October of 2003. Attendees included our current graduate students, along with their family and friends, as well as faculty, staff, and their families. All who attended enjoyed

crabs, sausage, corn, and potatoes while visiting with one another.



Danny Fontenot and Danny Reible prepare the crabs.



Fall 2003 Departmental Distinguished Seminar Series

Paul Davidovits, Ph.D.

Professor, Chemistry Department, Merkert Chemistry Center,
Boston College

Mass Accommodation of Gas Phase Species on Octanol as a Function of Relative Humidity; the Strange Behavior of the Hydrogen Halides Gases

October 24, 2003

Davidovits began the seminar by pointing out that very little is known about the physical and chemical properties of organic aerosols that have been shown to be abundant in many regions of the troposphere. In the work he discussed, 1-octanol was selected as a surrogate for the hydrophobic oxygenated organic compounds found in such aerosols. Using a droplet train apparatus, the uptake of several organic gas phase species and gas phase HCl, HBr, and HI was measured to probe the nature of hydrophobic organic surfaces as a function of relative humidity. These measurements yielded the mass accommodation coefficient "a," which is the probability that a gas phase molecule striking the liquid surface enters the bulk liquid. The measure uptake of the organic gas phase species is in accord with expectations. The uptake increases with decreasing temperature and is independent of relative humidity. On the other hand, the observed uptake of the gas phase acids is highly surprising. In the absence of water vapor, "a" for both HBr and HI is unity; however, "a" for HCl is much smaller on the order 0.015. The values change dramatically as a function of relative humidity (i.e. the density of water vapor). As the relative humidity increases, the "a" values for HBr and HI decrease and "a" for HCl increases. At a relative humidity of about 50 percent, "a" for all three species reaches values measured earlier on pure water ("a" between 0.15 and 0.3, depending on temperature). These results are discussed in terms of the nucleation model for mass accommodation and a mechanism is proposed to explain the surprising results related to the uptake of the hydrogen halides. Davidovits' visit was hosted by Kalliat Valsaraj.

Jacob A. Moulijn, Ph.D.

Professor, Reactor and Catalysis Engineering Group,
Department of Chemical Technology, Delft Technical University,
Delft, Netherlands

Structured Catalysts and Reactors, a Contribution to Process Intensification

October 31, 2003

Moulijn began by stating that the creation of a sustainable society is a goal that gives inspiration to chemists and chemical engineers. He went on to add that catalysis is the enabling technology for good chemicals manufacturing methods. It is useful to realize that catalysis, as such, is a crucial enabling technology, but a catalyst requires a reactor configuration to perform its desired functions. So, catalytic reactors form the

heart of most chemicals production plants. Given the large variety of processes, it is no surprise that a large variety of chemical reactors are used. In the course of the seminar, he stated that the major, basic concerns (apart from high activity, selectivity, etc.) for catalytic reactors are: catalyst quality on a microscopic length scale (quality, number of active sites); catalyst quality on a mesoscopic length scale (diffusion length, loading, profiles); ease of catalyst separation and handling; heat supply and removal; hydrodynamics (regimes, controllability, predictability); transport resistances (rate and selectivity); safety and environmental aspects (run-aways, hazardous materials, selectivity); and, costs. Why would one use structured reactors? Moulijn's answer: Precision in catalytic processes is the basis for clean processes. During the remainder of the seminar, he proceeded to give his arguments as to why the catalyst and the reactor should be close to perfect. He discussed the pros and cons of random packed beds, as well as structured reactors. Moulijn's visit was hosted by Douglas Harrison.

Jose A. Romagnoli, Ph.D.

Professor and Chair of Process Systems Engineering,
Department of Chemical Engineering, The University of Sydney
Process Systems Engineering at The University of Sydney
November 24, 2003

Romagnoli's presentation covered the different activities under investigation at the Laboratory for Process Systems Engineering at the University of Sydney. Focus was on recent developments in areas such as: intelligent/smart process monitoring, modeling/optimization/control of complex systems (polymerization reactors, crystallization processes), and integrated systems design/operation. Also in his presentation, current developments in the laboratory's experimental facilities were discussed, as well as their integration into his main areas of research. Finally, some of the laboratory's industrial activities were described. Romagnoli's visit was hosted by Danny Reible.

Richard Alkire, Ph.D.

Professor, Department of Chemical and Biomolecular
Engineering, National Computational Science Alliance,
University of Illinois at Urbana-Champaign
*Use of High Performance Computing Tools to Integrate
Experimental Data with Multi-scale Simulations of Copper
Electrodeposition with Additives*
February 20, 2004

Alkire's seminar focused on the idea that the sustained growth of information technologies will enable a period of unprecedented advances in "molecular engineering," as well as creation of next-generation research tools. He went on to state that electrodeposition represents an ideal testbed for developing such tools because, in part, it includes many systems that are complex and have multiple phenomena that span as many as ten

orders of magnitude in time and length scales. In addition, electrodeposition applications support a large, economically significant industry that is characterized by rapidly changing technological opportunities. The field is but one of many where it is critically important to speed innovation from discovery to application. He focused here on the role that trace quantities of solution additives play by influencing complex multi-scale, multi-phenomena events during electrodeposition, especially product quality. In this selective overview of science and engineering aspects, he highlighted areas where numerical simulation tools were needed for predicting molecular behavior that leads to self-assembly, as well as for design and control of fabrication processes. The range of topics discussed included *Atomic Scale Simulations* of early stages of nucleation and growth, coarse-grained *Meso-Scale Simulations* that bridge the region between atomistic and macroscopic (continuum) scales, *Multi-scale Simulations* that link methods appropriate for different scales that are applied simultaneously to achieve a comprehensive description of a system, and *Parameter Assessment* for determining which parameters are the most sensitive, estimating their values, and selecting from among multiple reasonable reaction mechanisms when there is uncertainty in experimental data. Alkire's visit was hosted by Elizabeth Podlaha-Murphy.

Jan Andersson, Ph.D.

Professor, Institut für Anorganische und Analytische Chemie, Westfälische Wilhelms-Universität Münster, Münster, Germany
"Why does the sun make petroleum toxic?"

March 17, 2004

Andersson began his seminar by stating that large amounts of crude oil are spilled into the oceans every year and that photochemical oxidation is a major but not very well investigated route of removal of the components of crude oil. It is known that toxic products are produced through the photooxidation of crudes. He and his research team have studied the polycyclic aromatic sulfur heterocycles to learn about the products that are formed through this oxidation. They have found that a range of compounds belonging to different chemical classes are produced from the benzothiophenes and dibenzothiophenes studied. Andersson's visit was hosted by Judy Wornat.

James G. Goodwin, Jr., Ph.D.

Professor and Chair, Department of Chemical Engineering, Clemson University, Clemson, South Carolina
Investigation of Reaction at the Site Level: Selective Oxidation of CO on Pt-Based Catalysts

March 19, 2004

Most reaction techniques used in the study of heterogeneous catalysis do not provide any information about reaction at the catalytic site level. Isotopic transient kinetic analysis (also known as SSITKA) is a powerful technique using isotopic switching during reaction that allows the *in-situ* study of adsorption and catalysis on catalytic surfaces at reaction conditions. Parameters able to be determined include the surface

concentration of reactive intermediates, a measure of the site turnover frequency, and the distribution of site activities. Goodwin focused on the use of SSITKA to investigate the selective oxidation of CO. Poisoning of the electrode in a proton exchange membrane fuel cell by CO impurities in the hydrogen fuel is a severe problem in using hydrogen derived from hydrocarbons by reforming or partial oxidation. In order to reduce the amount of CO in the hydrogen stream to a tolerable level (<10 ppm) without losing too much hydrogen, a suitable catalyst must be used downstream of hydrogen generation to selectively oxidize the CO to CO₂. Pt/Al₂O₃ and, especially, Fe-promoted Pt/Al₂O₃ based catalysts have been found to be suitable for this purpose. The seminar also focused on the use of SSITKA to explain the cause of the rapid initial deactivation of these catalysts to steady-state activity and to explain why Fe-promotion results in a more active catalyst. Goodwin's visit was hosted by Jerry Spivey.

R. Bertrum Diemer, Jr., Ph.D.

Principal Consultant, DuPont Engineering Technology
Advances in Population Balance Modeling
 April 30, 2004

Many of the current advances in simulation tools are occurring as new and efficient ways are found for combining capabilities from previously stand-alone applications. For example, process simulators are being interfaced with improved or specialized databases to expand simulation capabilities beyond their classic applications in petrochemicals to include rigorous simulation of aqueous and pyrometallurgical systems. Likewise, there is a drive to expand the capability of CFD to simulate reacting flows and multiphase flows, including situations in which particle formation and growth processes are important.

The first part of Diemer's seminar was devoted to approaches aimed at solving two significant problems encountered in moment methods: model closure and distribution reconstruction. Several closure approaches were discussed (MOMIC (method of moments with interpolative closure) and QMOM/DQMOM (quadrature method of moments/direct quadrature method of moments) and their performance compared to a classic discretized population balance (DPB) model on a test problem. A method for developing efficient basis sets for distribution reconstruction was presented and applied to the problem of simultaneous aggregation and breakage. As part of this development, a generalization of daughter distribution was discussed.

The second part of the seminar was turned toward bivariate problems. This was introduced by a discussion of similarity solutions to the univariate coagulation problem following which a general method of attack was presented for bivariate problems aimed at both finding similarity solutions and developing moment models. This was applied to the problems of multicomponent coagulation, collision and coalescence of particles, and polymerization with crosslinking. Diemer's visit was hosted by Ben McCoy.

Summer 2003 REU Program

Our department hosted another successful NSF Research Experience for Undergraduates (REU) site during the summer of 2003. This REU site is hosted in conjunction with the Department of Chemistry. **Kerry Dooley** again headed the program for chemical engineering, while Steve Watkins was in charge of chemistry.

Of the 14 students selected to participate in the program, five were chemical engineering majors. Each student was assigned to work with a faculty member on an established research project. Following are the names of the students who participated in last summer's program, their university affiliation, their research adviser, and the titles of their projects.

Ashley DeForest (Kansas State University), **Gregory Griffin** and **Lidong Wang**

Chemical Vapor Deposition of a Palladium Seed Layer for Electroless Copper Deposition

Richard Green (LSU), **Kalliat Valsaraj** and **Raghunathan Ravikrishna**

Sol-gel Synthesis of Porous Silica Using Polyaphron Templates

Jessica Hronich (Lafayette College), **Karsten Thompson** and **Matthew Balhoff**

The Flow of Cross-Linked Polymers in Complex Geometries: Resolving Prediction versus Observation



REU participants from left to right: Wyatt Rush, Ashley DeForest, Richard Green, Jessica Hronich, and David Schmerfeld

Wyatt Rush (Illinois Institute of Technology), **Kerry Dooley**
Development and Testing of New Catalysts to Oxidize Alkenes to Aldehydes

David Schmerfeld (University of Pittsburg), **F. Carl Knopf**
Injection Molding of Carbonated Cements

NSF IGERT Program

Chemical engineering is part of an interdisciplinary NSF IGERT (Integrative Graduate Education, Research, and Training) program in polymer science, called "Teaching Craft for Macromolecular Creativity." Currently **Ben McCoy**, **Karsten Thompson**, and **Kerry Dooley** are participating faculty. This is a five-year, \$3.2 million program to provide a unique university/ industrial educational experience for qualified (U.S. citizens or permanent residents) Ph.D. students in all areas of polymer science. When a student participates in IGERT, he or she benefits as follows:

- Since project funding is guaranteed by the NSF, there is greater opportunity to exercise creativity.
- In return for IGERT funding, the adviser agrees to work in a hands-on fashion with the student for the first year of the project.

- IGERT projects are interdisciplinary and typically include an industrial component.
- Special travel opportunities to national or international sites to perform special experiments are available.

The department currently has three students participating in this program—**Alan Bussard**, **Lisa Brenskelle**, and **Matthew Balhoff**. **Balhoff** also serves as the student "leader" of the program. Furthermore, Balhoff has been nominated by the LSU IGERT program to participate in the "Excellence in Graduate Research Symposium" at the ACS convention in Philadelphia this coming August, at which time he will present his work in a special session. The title of Balhoff's project is "Synthesis and Flow Modeling of Reactive Polymers."

Student News

Matthew Balhoff, a graduate student under **Karsten Thompson**, will have a paper titled, "Modeling the Flow of Yield Stress Fluids in Packed Beds," in an upcoming edition of *AIChE Journal*. He has also submitted an abstract titled, "Modeling Polymer Displacement in Hydraulic Fractures at the Pore Scale," that has been accepted for presentation at the 2004 SPE Annual Technical Conference and Exhibition; a proceedings paper will be submitted in June 2004 and an oral presentation will be given at the meeting in October.

Jill Fitzgerald, a recent B.S. recipient, participated in a prestigious summer REU program in 2003 at Cornell University where she developed a BioMEMS device. She had been working in **Elizabeth Podlaha's** Electrochemical Engineering Lab since she was a freshman, and was a Chancellor's Student Aide recipient.

Qiang Huang made the following presentation: **Qiang Huang**, R.W. Cohn, **E.J. Podlaha**, "Electrodeposited FeCoNiCu Nanostructures," 204th Meeting of The Electrochemical Society (ECS), Orlando, Florida, October 13, 2003, Electrodeposition Division.

Yutong Li made the following presentation: **Yutong Li** and **E.J. Podlaha**, "Electrodeposition of CoCu Micro-posts and GMR Multilayers," 204th Meeting of The Electrochemical Society (ECS), Orlando, Florida, October 13, 2003, Electrodeposition Division.

Alonso Lozano Morales made the following presentation: **A. Lozano-Morales** and **E.J. Podlaha**, "The Effect of Al₂O₃ Nanoparticles on Cu Electrodeposition," 204th Meeting of The Electrochemical Society (ECS), Orlando, Florida, October 13, 2003, Electrodeposition Division.

AIChE News

2003-04 Officers:

President	Josh Fontenot
Vice President	Mitch Toon
Secretary	Christina Walker
Treasurer	Marshall O'Neal
EC Representative	Ryan Fontenot



AIChE chapter member enjoying SSS.

The LSU AIChE student chapter had an academic year full of activities and events. The chapter participated in Beach Sweep during the fall of 2003, which is a volunteer event aimed at cleaning up the beaches of Baton Rouge. They were assigned to the levee

near the U.S.S. Kidd. Marshall O'Neal says, "Considering the growing concern of environmental health among chemical engineers, we felt it was a great opportunity to show this concern by action." The student chapter was also involved in other community activities including Super Science Saturday (SSS). This annual event is held on the LSU campus and is geared toward elementary school children. Chemical engineering faculty, industry representatives, and the AIChE student chapter participants conducted experiments designed to spark interest in the field of chemical engineering and the event was a success. Everyone involved enjoyed the day, especially the children who received prizes.

In other chapter news, members had various meetings with representatives from major companies like Shell, BP, and Exxon. Topics of interest included information about the companies, job opportunities, and advice on what students should do to maximize their employment opportunities.



AIChE members cleaning up after SSS.

AIChE Student Chapter to Host Regional Conference

In March 2005, our student chapter, along with Tulane's chapter, will be co-hosting the AIChE 2005 Southern Regional Conference in New Orleans. This is a major event that attracts undergraduate chemical engineers from across the entire southeastern region of the country. The student chapter is currently seeking assistance and there are a number of ways in which companies can participate, including a career fair and sponsorship of events. For more information, please contact Ben Caire (bcuire1@lsu.edu), Yasaman Ghorashi (yghora1@lsu.edu) or **Karsten Thompson** (karsten@lsu.edu)—AIChE faculty advisor. The LSU AIChE student chapter is supported through fundraising and donations.

Summer 2003 Commencement

Bachelor of Science in Chemical Engineering

Benjamin Charles Bryson
Margaret Frances Williams

Master of Science in Chemical Engineering

Ya Liang
Lidong Wang



Ya Liang

Doctor of Philosophy in Chemical Engineering

Rujun Li



Li (third from left, holding his son) with his advisers, Dooley and Corripio, as well as family and friends.

Fall 2003 Commencement

Bachelor of Science in Chemical Engineering

Kok Sim Steven Chan (*Summa Cum Laude*)
Scott Michael Harang
David Michael Monett
Leonard Martin Sorapur III
Mel-Huey Tan
Ian Desmond C. Uter
Kyle Justin Zalman



Excited graduates pose with their proud parents/families.

Master of Science in Chemical Engineering

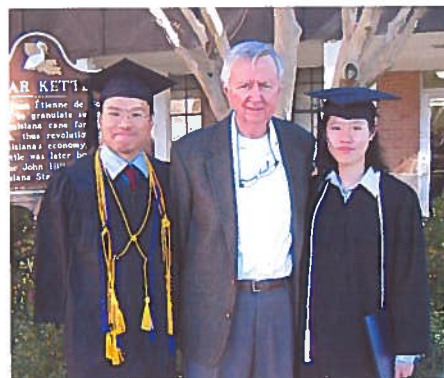
Ravikanth Malthi Iyer
Jia Ma
Zhiyong Peng
Suresh Raja

Doctor of Philosophy in Chemical Engineering

Xiaoxia Lu



Lu pictured here with her adviser, Danny Reible.



Pictured here with Douglas Harrison are graduates, Chan (left) and Tan (right).

Spring 2004 Commencement

Bachelor of Science in Chemical Engineering

Nestor Sampson Abuso, Jr.
 David Brian Ammons
 Drew Paul Angelette
 Shysha Monique Angelle
 Nicholas Alexander Ashley (*Summa Cum Laude*)
 Rhesa Rhea Austin
 Bonnie Lynn Barrilleaux (*Summa Cum Laude*)
 Rhonda Joy Bengtson
 Jason Eugene Blackwell
 Erika Elizabeth Bollich (*Cum Laude*)
 Daniel Aaron Brewster
 Robert Anderson Buckley, Jr. (*Magna Cum Laude*)
 Tonilyn Christina Campbell
 Brett Michael Carlisle
 Anna Marie Casey
 Stephanie Claire Castro
 Paul Bruce Coco
 Kimberly Rose Creppel
 Jill Marie Fitzgerald
 Nathan Paul Folse, Jr.
 Josh K. Fontenot
 Robert Wesley Fontenot (*Cum Laude*)
 Steven Thomas Foreman
 Karen Melissa Garcia
 Jennifer Lynn Garofalo
 Robert Joseph Geier, Jr.



John Linton Gohres III
 Matthew John Graham
 Peter Jamison Gregory
 Sam Joseph Guercio V
 Damon Otis Hall
 Sean Daniel Hallquist
 Gerard Gustave Handy
 Adrienne Brett Harris
 Shawn Patrick Holzhauser
 Paul Wayne Martin
 Roshin C. Mathew
 Kelly Marie Nicolini (*Magna Cum Laude*)
 Casey Eugene O'Quin
 Richard Howard Peak
 Chris Brantley Pearson
 Nicholas Ryan Richard
 Gloria Alejandra Sanchez
 Byron Gregory Sevin (*Summa Cum Laude*)
 Chee Haur Siew
 Otis Kendall Spell
 Jennifer May Stacey
 Brandon David Stitt (*Magna Cum Laude*)
 Laura Elizabeth Stromer (*Summa Cum Laude*)
 Jacob Lloyd Talbot
 Rebecca Marie Valladares
 Jeremy Michael Waguespack (*Cum Laude*)
 Rachel Mae Wintz



Greg Griffin poses with Chee Haur Siew



Rebecca Valladares and family



Gloria Sanchez and family

Master of Science in Chemical Engineering

Wayne Newell Barker
 Zhanhu Guo
 Sudheer Indala



Wayne Barker

Doctor of Philosophy in Chemical Engineering

Qiang Huang
 Kwang Bok Yi



Qiang Huang with his adviser, Elizabeth Podlaha

ChE Graduate Speaks at Fall Commencement

David Monett, who received his B.S. in chemical engineering in December 2003, had the honor of speaking on behalf of the graduating class at the College of Engineering's commencement ceremonies. Those in attendance praised Monett for his eloquence and his message. Following is the text of his speech:

"Thank you Dean Egbelu. Good morning. It's quite a pleasure to be here today and I am very honored to have been given the opportunity to speak as the graduating class representative at today's commencement for the College of Engineering. This degree has been 10 years in the making for me and I can't tell you how happy I am that it's finally over. The only person in this room that could possibly be any happier is my wife.

Since most of you graduating here today didn't need a decade to complete your studies, I thought I'd share with you a little of how it was at LSU when I started 10 years ago. Some things were actually better then than they are now. For instance...

Ten years ago, you could still park within a mile of campus.

Ten years ago, if you had an "A" average going into finals, some instructors would let you skip the final exam.

And 10 years ago, all you needed to get into football games was a valid student ID – and it didn't even have to be your own.

But mostly things weren't as good back then as they are now, especially to a part-time student like me trying to juggle family, work, and school. For instance...

Ten years ago, you had to call a guy named Reggie to sign up for your classes. Reggie spent a lot of time on the phone and it was hard to get through when you needed him.

Ten years ago, the Internet was still relatively new. No one had heard of eBay, Napster, or Google. I remember at my first ever class; I asked a professor if I could contact him by e-mail to save me from having to come by campus to ask him questions. "Are you kidding?" he said. "The Internet is a research tool." He didn't read e-mails from mere students.

Ten years ago we didn't have PAWS, Semester Book, or Tiger Bytes. Now instructors can easily post assignments, grades, homework and exam solutions on Semester Book and students can access them anywhere, anytime. Back when I started, paper was still in vogue.

I have to admit that since I started here, things have really improved at LSU and we should be grateful to the administrators, faculty, and staff for making those improvements possible.

The Dean's Office said I should share some advice with you today. I'm not too big on dispensing advice since I believe the best lessons are those you learn yourself, but I do have three things to offer to today's graduates:

First, when you're on the job and you're trying to solve a hard problem, don't assume the so-called assumptions are correct.

Quite often I've found the solution to a problem staring me right back in the face, but I didn't see it initially because of the assumptions used to define the problem. Don't fall into the assumption trap. Second, as an engineer, you can never stop learning if you want to remain effective in your career. You don't have to torture yourself and go back to college for 10 years like I did. There are so many ways now to continue learning: seminars, continuing education classes, engineering societies, professional organizations, journals, and the Internet. Take advantage of these resources to enhance yourself and stay current in your field. Third, work hard, but keep your career and job in perspective. The hardest part for me has been knowing when to let go of work and school. Remember to keep your family and friends foremost in your life.



Monett poses with his wife and children at the department's commencement reception.

With that thought in mind, I'd like to thank those who made it possible for me to earn my degree. Thanks to my advisers, Dr. Harrison and Dr. Wetzel, for their sage advice and for helping me get all my transfer credits straightened out and saving me from taking a lot of extra courses. Thanks to my employer, Rubicon, for allowing me to be away from my job in order to attend class and for footing the bill. Thanks to my parents and my in-laws for watching the kids all those times when I needed peace and quiet to study. Thanks to my beautiful children, Emory and Carolyn, for understanding when Daddy couldn't be there when they wanted him.

And, most of all, a special thanks to my loving and patient wife, Amy. She's had to put up with a lot from me over the past 10 years and I wouldn't be here today if it weren't for her support.

Graduates, your degree represents an incredible accomplishment and you should be very proud. Before I go, I'd like to leave you with some words that have inspired me throughout my career

and have kept me going during the pursuit of my engineering degree here at LSU. They're from Robert Kennedy. He said:

"Some men see things as they are and say, 'Why?' I dream of things that never were and say, 'Why not?'"

Thank you again Dean Egbelu for giving me this opportunity. Congratulations and good luck to the 2003 class of the LSU College of Engineering. And Go Tigers – Let's whip the Sooners!"

David received a B.S. from Tulane University and a M.S. from the University of Chicago, both in chemistry, prior to coming to LSU. He has worked for Rubicon for the past 13 years—the first seven as a chemist and the past six as a senior process engineer. Prior to Rubicon, he worked for three years as a chemist for Union Carbide at the Texas City, Texas, plant. He was born in New Orleans but grew up in Gonzales, where he graduated from East Ascension High School. He has lived in Baton Rouge for the past 13 years.

Student Awards

Kristen Rabalais, a May 2003 graduate, received the Southwest Chemical Association \$5,000 scholarship for 2003.

Zhanhu Guo, a Ph.D. student under Elizabeth Podlaha, received a Graduate School Dissertation Award for 2004-05 in the amount of \$18,000 plus a tuition waiver. This award is given to a full-time student with a gpa of 3.5 or better who will be spending a majority of the year in dissertation preparation.

Yun Zhuang received the AIChE Best Dissertation Award in 2003. He graduated from LSU with a Ph.D. in chemical engineering in December of 2002 and the title of his dissertation was "Mechanism of the NiCoFe Ternary Alloy Deposition." His major professor was **Elizabeth Podlaha**. He is currently a research associate at the University of Arizona.

Commencement Awards and Honors



Bonnie Barrilleaux received the department's Jesse Coates Award this spring. This award is given to a graduating senior exhibiting the most outstanding professional, campus, and community activities. She received a LSU watch engraved with her name. This award is funded

by an endowment provided by the friends of Professor Coates upon his retirement.

Laura Elizabeth Stromer was among 52 graduates at LSU's spring 2004 commencement to receive the University Medal, one of the most prestigious honors bestowed at graduation. This award is given to students achieving the highest gpa in the University. Stromer graduated with a perfect 4.0.

Best Design Competition

This year the design class designed a process to produce aniline by hydrogenation of nitrobenzene. They had to design both the benzene nitration process and the hydrogenation process. Rubicon Chemicals was most helpful with the course. Russell Whitehead, a process engineer with Rubicon, gave a lecture on their process, and the class was able to visit the Rubicon plant in Geismar. Russell and Mickey Campagna (B.S., 1978), Aniline Plant superintendent at the Geismar plant, judged the oral presentations by four of the teams on their design for the Celanese Best Design competition.

The winners were:

Best Design:
Josh Fontenot and Jason Blackwell

Second Best Design:
Matthew Graham, Paul Martin, Chris Pearson, and Otis Spell

Third Best Design:
Stephanie Castro, Kim Creppel, Karen Garcia, and Damon Hall

2003-04 Scholarship Recipients

Celanese Chemical Engineering Scholarship

John L. Bartus
Richard H. Peak

Chemical Engineering Scholarship

David B. Ammons II
James M. Callahan II
Steven T. Foreman
Gerard G. Handy
Patrick J. Hobbins
Jacob L. Talbot
Nadine Yougoubare

Chevron/Texaco Chemical Engineering Scholarship

Robert W. Fontenot
Adrienne B. Harris
Kelly M. Nicolini
Jeremy M. Waguespack

Conoco/Phillips Chemical Engineering Scholarship

Robert A. Buckley, Jr.
Mitchell W. Toon

Marathon Ashland Petroleum/Chemical Engineering Scholarship

Bonnie L. Barrilleaux
Jill M. Fitzgerald
Joshua K. Fontenot
Shaun P. Holzhauser
Paul W. Martin
Nicholas R. Richard

Texaco Scholarship

Rachel M. Wintz

Gerard Family Undergraduate Scholarship

James M. Callahan III
Nathan P. Folse, Jr.
Peter J. Gregory
Paul W. Martin
Jennifer M. Stacey
Mitchell W. Toon

I.H. Gottlieb Memorial Scholarship

Mitchell W. Toon

Clara and Frank R. Groves, Sr. Undergraduate Scholarship

Robert J. Geier, Jr.

R.L. Hartman Scholarship

Katie O. Gonsoulin
John D. Rhodes

Paul M. Horton Memorial Scholarship

Nathan P. Folse, Jr.
John L. Gohres III
Callie L. McNair
Charles A. Staton

O. Dewitt Duncan Scholarship

Richard H. Peak

William McFatter Scholarship

Jeremy M. Waguespack

New Endowed Scholarship for ChE Students

The family of **Alan M. Raymond** has established a scholarship in his honor as a Christmas gift to him. The scholarship will be given to a chemical engineering student. Raymond earned his B.S. in chemical engineering in 1968, and has said he owes his

success to his education and to LSU. He is retired from Shell Chemical. We wholeheartedly thank Mr. Raymond and his family for their generosity in establishing this scholarship, as well as their support for our students and our program.

Alumni News

In 1937, **William Everitt Rowbotham** graduated with a degree in chemical engineering from LSU. In 2003, his oldest surviving niece, Betty Bouris, found his name on our lost alumni list and wrote to inform us of his untimely death during World War II. Following is a recap of the details that she provided:

Upon graduating, Rowbotham went to Pensacola, Florida, and trained to be a Navy pilot. When his tour was nearly over, he was kept in to serve in World War II. From 1938 to 1940, he was based on Long Beach, California, while serving on the West Virginia as a fighter pilot. Then he was sent as an instructor to Pensacola and later to Corpus Christi, Texas, before going overseas in November 1942. Prior to leaving, he was presented the Distinguished Flying Cross in Long Beach on November 29.

Seeing action in the Guadalcanal and New Guinea areas, he was sent home for a rest period in August 1943. He developed malaria en route home and was hospitalized until December 1943, returning to duty on Christmas Day.

Commander Rowbotham served on the *Saratoga* and led the first squadron in the attack on

Hollandia. He also led the first wave of bombers over Bougainville.

In May 1944, he was shot down along with two crewmen during an attack near Soerbaja, Java. The three men were last seen in their life boat off the shore, waving to their squadron. Unfortunately, there was no seaplane to rescue them. They were able to make it to shore where friendly natives hid them for several days. Ultimately, however, the Japanese captured them and prepared to fly the men back to Japan for questioning. The three men continued to harass the enemy while en route to Japan and attempted to overtake their guard with wrenches.

According to later official reports from the Japanese government, Commander Rowbotham and the crewmen were killed and flown back to Soerbaja. The two crewmen were buried on the hospital grounds but there is no record of the final resting place of Commander Rowbotham.

Since the *Saratoga* was destroyed, Commander Rowbotham's memorial can be found on the *Yorktown*.

Alumnus Honored as Professional Engineer of the Year

Jack R. Hopper was honored as the Professional Engineer of the Year by the Texas Society of Professional Engineering. Hopper received his B.S. degree in chemical engineering from

LSU in 1969. He is currently the dean of the College of Engineering at Lamar University. We send him wholehearted congratulations on receiving this prestigious award.

ChE Alumnus—Accomplished Businessman

Charlie Ton, who earned his B.S. in chemical engineering in 1995, has been very busy since graduating from LSU. At 33 years old, he is the owner of 620 Regal Nails salons, four Charlie's Coffee shops, and a manufacturing plant (as reported in the March 8, 2004, edition of *The Reveille*).

He first started his manufacturing plant, Alfalfa Nail Supply, right out of college. His plant makes furniture, chemical products, and nail products for nail salons throughout the country. Next, he approached the Wal-Mart Corporation to pitch his idea for including nail salons in the Wal-Mart stores. Ton was at first rejected, but eventually succeeded in convincing the

corporation to open five test stores in 1997. There are now 620 Regal Nail salons in Wal-Mart stores nationwide and the number is continually growing.

His latest venture is Charlie's Coffee. The first one opened in 2003; he now runs four in the Baton Rouge area. As with his nail salons, Ton soon hopes to go nationwide with his coffee stores. A trial store, located in a Wal-Mart in New Hartford, Connecticut, is open. If it does well, Charlie's Coffee could be a fixture in Wal-Mart stores across the country.

Congratulations to Ton on his early success!

Alumnus Inducted into the 2003 Alumni Hall of Distinction

On October 10, 2003, the LSU Alumni Association inducted **Charles Preston Siess, Jr.**, into the 2003 Alumni Hall of Distinction in honor of his life-long contributions to LSU. Siess is a long-term member of the LSU Alumni Association, Tiger Athletic Foundation, and the LSU Foundation where he served as a director and president. He and his wife, Jean, are Star-level lifetime contributors to LSU and have an established professorship in the College of Engineering.

Siess was born in Lake Charles, Louisiana, in 1927. After living a few years in Texas, his family returned to Louisiana, settling in Baton Rouge. He graduated from University High in 1943, prior to enrolling at LSU. He enlisted in the U.S. Navy in 1944 and returned to LSU in 1946, receiving his B.S. in chemical engineering in 1948.

His career has spanned more than 50 years in the energy industry. His first 20 years were spent with Petrolite Corp, where he initially worked as a product development engineer. Over time, he worked in many capacities all over the country and South America. Ultimately, he was responsible for both the Tretolite and Petreco Divisions reporting to the CEO. Upon

leaving Petrolite, he became Executive Vice President and Director of Apco Oil Corp in Oklahoma City. He later became President of Apco and, subsequently, moved the headquarters to Houston. In 1975, Siess became president and director of Marathon Manufacturing Co. and remained president and CEO of Marathon and a director of Penn Central Corporation after Marathon merged with Penn Central until his retirement in 1987. During his retirement, he became director of Cabot Corp. in Boston, Massachusetts. While there, he was asked to take Cabot Oil and Gas out of Cabot Corp. as a public company. He served as Chairman and CEO of the company for three years after it became independent, retiring briefly, and then returning to chair the company until he retired in 1998 in Sante Fe, New Mexico.

During his long career, Siess has also served as a member of the National Petroleum Council of the Department of the Interior, director of the American Petroleum Institute, and director of the National Petroleum Refiners Association, among many other organizations. We would like to congratulate Siess on his induction into the Hall of Distinction and congratulate him on his outstanding service to and continued support of LSU.

Alumni Updates

If you would like for us to print news of your latest achievements, please complete the short form at the back of this issue and return it to us. Or send us an e-mail at gradcoor@lsu.edu. We would love to hear from you!

1930s

Ellsworth Nelson Smith (B.S., 1934) served 20 years in the U.S. Navy upon graduation, retiring in the early 1960s at the rank of captain. Sadly, he passed away in December of 1995 after suffering a debilitating stroke that left him paralyzed and requiring around-the-clock care for several years prior to his death. The preceding information was graciously supplied by his grandson.

1940s

Virgil Orr (B.S., 1948; M.S., 1950) is more or less retired and deals only with his family and his hobbies at this juncture in life. In January 2000, his term on the Louisiana Ethics Board expired and he implored them not to reappoint him. He had been in public service activity, continuously, since 1944 with the exception of graduate school and two

years spent in industrial work; therefore, he thinks he has paid his dues. He says he has been blessed with good health with a couple of sidetracks (prostate malignancy surgery in 1992 and quadruple bypass surgery in February 2003). Currently, all is well.

Richard Weldon Waldsmith (B.S., 1948) is enjoying retirement in Bay St. Louis, Mississippi.

1950s

Grover L. Dobbins (M.S., 1957) is now retired and living in Baton Rouge.

Mario Posada (M.S., 1954) worked in International Petroleum Co., Empresa Colombiana de Petroleos, upon graduating in 1954, and was pensioned in 1976. He worked as manager of UCTC (W.R. Grace and Co.) for 19 years. He remembers, very fondly, his years in LSU.

Raymond Raffrey (B.S., 1952) passed away in his native Mauritius in July 2000. He is survived by his spouse, Noelle, and four children, Caroline, Annick, Olivier (B.S., 1985), and Denis.

1960s

Thomas Jerry Boliew (B.S., 1961) passed away in September 2002. His daughter, Tory, states that he worked until the day he died, and loved LSU and being a chemical engineer. At the time of his death, he was working in Ohio on a project and coming home on the weekends to spend time with his wife in Georgia.

Ernest Woodard (Woody) Harrison (B.S., 1961) retired from Exxon Research & Engineering in 1999. He is now busy with grandchildren, his son's new business, church, and his yard and shop.

1970s

Claire Cagnolatti (B.S., 1978) earned her M.B.A. from LSU in 1982. She has been a senior consultant for Solomon Associates in Dallas, Texas, since 1994. Her consulting area is in international petrochemicals (manufacturing and economics). She is a member of the Board of Directors of the Dallas/Fort Worth LSU Alumni Association, and was president in 1998 and in 2001-02. She was a recipient of the LSU Alumni Association Chapter Service Award in 1997.

Lynn F. Guidry (B.S., 1971) is retired from ExxonMobil. He retired as an engineering associate from the Baton Rouge Refinery. He enjoys fishing, playing tennis, softball, and golf as well as traveling with his wife, Bonnie. He has three sons, all of whom are engineering graduates of LSU—a Ph.D. in chemical engineering, an M.S. in mechanical engineering, and a B.S. in electrical engineering.

Jose Rojas (B.S., 1976) currently is the manager of a water and garbage recollection company. He is married and living with his wife, Dorelly, and their three children—Andres Felipe (17), Adriana Maria (16), and Hamer Alejandro (15)—in Bogota, Colombia.

David R. Smith (B.S., 1975) lives with his wife and two sons in the Clear Lake area of Houston, Texas. He is now working as an operations manager at Lubrizol's Deer Park plant. Formerly, he worked at Ethyl. He says he is grateful to Dr. McLaughlin for seeking the best from his students.

James Wands Turner (B.S., 1976) is Director of Manufacturing at UOP, LLC, which is located in Mobile, Alabama.

1980s

Doug Barbe (B.S., 1987; M.S., 1989) worked for Hohm and Haas Co., Rubicon Inc., and GE Plastics after receiving his M.S. in 1989. He is currently the site director of the Bishop, Texas, site for Celanese AG. He lives in Corpus Christi, Texas, with his wife, Jennifer, and their

three children—Madeleine (10), Jack (9), and Teddy (5).

William Lee Brown (B.S., 1983) is currently the branch president of Optimum Mortgage Group.

Doug Griffin (B.S., 1982) is currently the site manager for Cargill's Chondroitin Sulfate facility in Denver, Colorado. After graduation, he worked for Georgia Gulf in Plaquemine, Louisiana, for seven years as a process engineer in the Vinyl Chloride plant, then two years for OxyChem on the startup of their Vinyl Chloride Plant in Corpus Christi, Texas. The next 11 years were with Rhodia in Baton Rouge as a senior process engineer on the startup of a vanillin unit, then production superintendent of the hydroquinone unit, and the last five as an operations manager for the vanillin/hydroquinone production units.

Olivier Raffrey (B.S., 1985) is currently the operations manager for International Flavors and Fragrances in Augusta, Georgia. He is married and has two sons, Alexandre and Philip. He is taking up golf in his spare time.

Sidney John Theriot, Jr. (B.S., 1988) is currently a U.S. filter sales engineer at Water Treatment Systems Sports and lives in Baton Rouge.

Chris Williams (Ph.D., 1987) is working for Shell Global Solutions International in Kuala Lumpur, Malaysia, as FCC principal engineer. He is still dreaming of playing rugby in England (although he is now too old, he says) and is trying to play the piano.

1990s

Dennis Lee Banks (B.S., 1993) is currently employed as a process engineer with the Frontier Oil refinery in El Dorado, Kansas.

Michael A. Cromwell (B.S., 1994) lives in Belgium with his wife, Mary Ann, and has two daughters, Clare and Laura. He is currently assigned to ExxonMobil Chemical in Brussels, handling a variety of legal and patent work.

Linette D. Dutari (B.S., 1995) has been with ExxonMobil, Downstream Fuels Marketing, in Panama City, Panama, since 1996. She took a two-year break to obtain a M.S. in 2000 and is now back at ExxonMobil implementing operational best practices through Central America and the Caribbean.

M. Fahrurrozi (Ph.D., 1997) is currently a faculty member and vice chairman of the Department of Chemical Engineering at Gadjah Mada University in Indonesia.

Steven Gardner (B.S., 1997) has been working for SGL Carbon for approximately four and a half years now. He has recently been relocated to the company's Arkansas plant and has been promoted from a process engineer to Bake and P.I. Department manager. He is looking forward to this "interesting change."

Ned H. Issa (B.S., 1999) worked in sales for NalcoExxon for one year following graduation. He has since gone back to manufacturing, and is currently working for DupontDow Elastomers as a Six Sigma Black Belt. Also he is attending the M.B.A. program at LSU and will graduate in May 2004. Issa is married, but no children.

Bhala Kanade (M.S., 1992) recently finished his M.B.A. from Tulane University. He currently is working for Vulcan Chemicals in Birmingham, Alabama, as a senior business analyst. He is also a Six Sigma Black Belt.

William Mixon (B.S., 1995) has been working for Tru-Tec Services in Baton Rouge since graduation. He is currently the southeast regional manager.

Paul Raybon (B.S., 1999) is working for ChevronTexaco at the Pascagoula, Mississippi, refinery. He had worked for four years in process engineering, and is now doing process control work. He says it is a very interesting change and encourages others to give it a try.

Melissa Daughdrill Robert (B.S., 1998) was employed as a process control engineer with Tembec in St. Francisville

from 1998 until December of 2003. She and her husband, Jean-Paul Robert, will have their eight-year anniversary in June. They have two children—a two-and-a-half-year old boy, Jean-Paul, Jr., and a one-year-old girl, Samantha Grace. Jean-Paul, Sr., graduated from LSU Law School in 2001, and he has his own law practice in downtown Baton Rouge. Last year they bought his grandparents' farmhouse in Gonzales. Melissa recently resigned from Tembec to work part-time as a technical writer with A+ Corporation in order to spend more time with her family; work is only six miles from home. A+ Corporation designs and manufactures sample conditioning components, so she is frequently digging up thermodynamic principles to use in her work. "Life is very good," says Melissa.

Chris Rowzee (B.S., 1997) has been working for Shell since 1998 as an IT consultant. In 2002, he formed his own company called Rowzee Ventures.

Tegan Blades Treadway (B.S., 1999) is an environmental chemical specialist at the Louisiana Department of Environmental Quality. She married Scott

Treadway, a LSU landscape architect graduate, in 1999. They have a three-year-old daughter, Sophie, and a one-year-old son, Grant.

2000s

Gaetano (Chip) Aloisio (B.S., 2002) currently works for the Dow Chemical Company in Hahnville, Louisiana, as a production engineer for Ethylene Oxide/Glycol.

Christian Aucoin (B.S., 2001) has recently been offered a full fellowship at Columbia University to obtain a Ph.D. in chemical engineering. He will be moving to New York to begin his research in the fall. His wife, Allison Caire Aucoin, will be working as an attorney for Jones Day law firm. Christian had been working as a process engineer for Shell E&P Company in New Orleans for the past three years while his wife attended Tulane Law School.

Keith A. Mayeux (B.S., 2003) landed a job with Turner Industrial Services; got married to Christine and went to St. Lucia; and bought his first rental property

and house. He did all this only three months after graduating. His wife is currently working on her second degree in environmental engineering. Mayeux will be closing on his second rental, a four-plex, soon. He says "Life is good." He misses school...but not tests.

Dorothy Clement Meyers (B.S., 2002) married Michael J. Meyers (B.S. in mechanical engineering from LSU in 2001) on June 1, 2002. They had a daughter, Kathryn Lyn, on April 25, 2003. Currently, Meyers is working for ConocoPhillips as a process engineer in the Technical Services Department at the Lake Charles Refinery.

Scott M. Pollins (B.S., 2002) is working for BASF in Geismar, Louisiana. He currently is a PDP Operations engineer for the Carboxy department. Geaux Tigers!

Katherine C. Toney (B.S., 2000) is currently a graduate student in the physical therapy program at Washington University. In her spare time, she enjoys rock climbing, camping, and traveling.

In Memoriam

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



Thomas Jerry Boliew (B.S., 1961)
 Harold Septime Bourgeois (B.S., 1950)
 Lester C. Gerard, Jr. (B.S., 1945; M.S., 1949)
 Mansour Ghadar (B.S., 1953)
 Luke J. Governale (B.S., 1940; M.S., 1951)
 A.J. Kennard (B.S., 1961)
 Pennywitt Joseph Naquin (B.S., 1954)
 Leon Milton Pliner (B.S., 1949)
 Raymond Raffray (B.S., 1952)
 Arthur Edwin Reed (B.S., 1938; M.S., 1940)
 William Everitt Rowbotham (B.S., 1937)
 Ellsworth Nelson Smith (B.S., 1934)
 Frank Paul Turk, Sr. (B.S., 1934)

Alumni Questionnaire

WE WOULD LOVE TO HEAR FROM YOU!

Please complete and return the following information form to:

Gordon A. & Mary Cain Department of Chemical Engineering / Louisiana State University / Baton Rouge, Louisiana 70803

You may also submit the information electronically to gradcoor@lsu.edu or through our Web site, www.che.lsu.edu.

FULL NAME

NAME WHILE AT LSU, IF DIFFERENT

YEAR GRADUATED

LSU DEGREE(S)

ADDRESS

CITY, STATE, ZIP

HOME TELEPHONE

WORK TELEPHONE

E-MAIL

OCCUPATION

WORK ADDRESS

CURRENT ACTIVITIES

THANK YOU FOR YOUR TIME AND COOPERATION!



REUNION 2004



The next alumni reunion may be months away, but it is never too early to start planning.

If you are interested in attending the 2004 ChE Reunion, you may R.S.V.P. anytime on our Web site. More information, as well as R.S.V.P. forms, will be mailed to you toward the end of July.

We hope to see you there!



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