

Alumni Newsletter  
Volume 21  
Fall 2004/Spring 2005

# Chemical Engineering



*Building Perspective*

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

# Letter from the Chair



Dear Friends and Alumni:

This newsletter comes to you after a one-year delay and I would like to summarize the various activities since the last newsletter of Spring 2004.

After seven years of distinguished service as chairman, Professor Carl Knopf stepped down in 2005 and returned to full-time teaching and research. I would like to express our appreciation to his dedicated service and leadership during the seven years. We have achieved much during these years that has laid the foundation for future growth. Under his leadership we successfully went through the ABET accreditation visit and the internal Academic Program Review.

I was asked by Dean Bassiouni to serve as Interim Department Chair while a national search for a permanent chair is underway.

Since the last newsletter we had three retirements from the faculty: Professor Danny Reible in Fall 2004, Professors Armando Corripio and Ben McCoy in Spring 2005. Professor Reible was inducted into the National Academy of Engineering just before his retirement after 22 years of service to LSU. Professor Corripio retired after 37 years of dedicated service to the department; although, retired Professor Corripio will continue to provide service to the department in teaching our design course. We are also fortunate that we will have two new faculty as of Fall 2005: Professor Jose Romagnoli from the University of Sydney, New South Wales, Australia will be joining us as the Cain Chair Professor, and James Henry will be joining us in Fall 2005 as an Assistant Professor. Henry received his Ph.D. from Texas A&M University. Professor Romagnoli is a well-known authority in the area of process control and Professor Henry works in the area of biochemical engineering. We are also on-line to recruit two other assistant professors in the next academic year.

The department is continuing to modernize our undergraduate laboratory under the able leadership of Professor Kerry Dooley and Harry Toups, Ph.D. Most of the experiments have been modernized and several new ones added. Any of our alumni or friends willing to help with this effort is welcome to get in touch with Professor Dooley.

The Departmental Industrial Advisory committee will be reconstituted in Fall 2005 and I hope to have them meet shortly thereafter.

Most important of all is the move towards a new building for the department. Our new building is high priority for the University, and it is on the Capital Outlay plan. However, uncertainties in the state budget will delay the start of the construction to the next fiscal year. We have been meeting with the architects who are designing the building and anyone interested in seeing the new plans can drop by the department or view them on our Web site. A sketch of the building is also on the cover of this newsletter. The fund-raising efforts are well underway under the direction of Dean Emeritus Edward McLaughlin. You should have received materials regarding the fund-raising efforts and we hope that we will witness an enthusiastic response from our friends and alumni. Any contributions made out to this effort should specify "LSU Foundation: Chemical Engineering Building Fund" so that it will be appropriately credited with the LSU Foundation.

The alumni reunion of 2005 is scheduled for October and you should have received this mailing recently. I hope to visit with all of you at that time. At the end of this newsletter there is an alumni questionnaire, which I encourage everyone to return. You may also enter the relevant updated information on our recently redesigned web site at <http://www.che.lsu.edu>.

In closing I wish you the very best for the rest of 2005 and beyond. If you happen to visit Baton Rouge, please stop by the department.

Kalliat T. Valsaraj  
Interim Department Chair  
Charles and Hilda Roddey Distinguished Professor

If you would like to know more about contributing, please contact Kalliat Valsaraj at 225/578-1426 or send an e-mail to [valsaraj@lsu.edu](mailto:valsaraj@lsu.edu).

# A Word of Thanks to Our 2004-05 Contributors

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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.

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## On the Cover

This sketch is a architectural rendering of how the new chemical engineering building may look when completed. It will be three-stories in height and nearly double our current usable space. More details concerning the new building as well as our ongoing fund-raising campaign can be found on page 5. This sketch was supplied to us by the architects, Duplantier & Meric, Architects, LLC, who are centered in Chalmette, Louisiana.

*Chemical Engineering* is published for the benefit of the Cain Department of Chemical Engineering's alumni and students. Comments and suggestions should be directed to:

### Editorial Staff

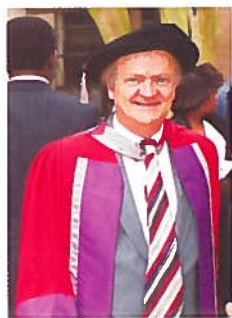
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## In Memoriam: Don Freshwater



**Donald Freshwater**, a former professor in the department, passed away on August 2, 2004, near his home in Leicester, England. Freshwater was born in Brewood, Staffordshire, England on April 24, 1924. He is survived by his wife, Eleanor Tether Freshwater, one son, three daughters, and several grandchildren, all of whom reside in the U.K.

Freshwater graduated with a chemistry degree from Birmingham University in 1944. While working for the Ministry of Fuel & Power during World War II, he discovered the importance of chemical engineering. He took a one-year postgraduate conversion course at Loughborough University, graduating with a First in 1947. Afterwards, he worked first at APV Ltd and, then as a senior chemical engineer at Midland Tar Distilleries at Oldbury until 1952, when he accepted an invitation to become a lecturer in Chemical Engineering at his alma mater, Birmingham University. During the next five years, he not only prepared his lectures but wrote his Ph.D. thesis (1955) and compiled *The Chemical Engineering Data Book* (1958) with T.K. Ross.

He was in the right place at the right time when, in 1957, Loughborough University was looking for someone to head their new Chemical Engineering Department. He started the department with 30 undergraduates and 3 staff. Upon his retirement in 1986 there were 250 undergraduates, 50 postgraduates, and 20 staff.

During his time at Loughborough he became Professor of Engineering and served as Dean of Science (twice), Senior Pro Vice Chancellor, and was a repeat member of council. He was active in the Institution of Chemical Engineers, writing their history, *People, Pipes and Processes*, for their 75<sup>th</sup> Anniversary in 1997. And, he was founding editor of *The Chemical Engineering Journal*, in 1971.

Freshwater spent three sabbaticals in the United States, at Delaware, Georgia Tech and Louisiana State University. It was no surprise to our then Chairman Ed McLaughlin when Freshwater contacted him in 1986 to discuss the possibility of working part-time at LSU upon his retirement from Loughborough.

McLaughlin recounts the following regarding Freshwater:

Naturally, I was very interested in having him as a distinguished visitor and readily agreed. He was scheduled to come in the fall semester but a few weeks before that date he called to let me know, in typical English understatement, that he was going in to hospital for cardiac bypass surgery but did not expect that to delay his arrival. It did not. He duly arrived with his wife, Eleanor, showed me his surgery scars on exiting his car and proceeded to make himself at home.

Like many of the senior personnel we had in the department he was devoted to the success of the students and readily shouldered major duties in the unit operations lab and in process design. Naturally we expected him to stay for a year but, to make a long story short, he stayed for 10 years. He was a very positive influence in the Department, participated in all its activities, and was of course universally liked.

He was a man of many talents apart from his scholarly activities in Chemical Engineering. He compiled a short history of the British Institution of Chemical Engineers, a very interesting and readable document. He was an excellent sketch artist and left a number of his works in this area to those of us fortunate to receive them. He fully participated in the cultural life and activities of the Baton Rouge area. His circle of friends was large and a strong mix of "town and gown."

Kerry Dooley, who worked closely with Freshwater in the senior lab for many years, says:

Don was an engineering innovator even towards the end of his career. He and Gene Hadlock managed significant renovations to the undergraduate labs in the 1980s and 1990s on a shoestring budget. Don was the perfect lab instructor; he kept a smile on his face during any Oral, good or bad, but his questions were always thought-provoking. He was a keen believer in demonstrations and had several clever but simple ones in his bag of tricks, especially in the area of particle rheology, in which he was expert. He was always comfortable with change; for example, he was one of the first people I ever knew who had a laptop – although one that was large and clunky by today's standards. On it he stored all of the Basic programs he wrote in his "spare" time, covering just about every facet of Chemical Engineering Unit Operations. Considering his extensive knowledge of art, music, history, and sailing vessels, in addition to Engineering, we were indeed fortunate to be his colleagues.

In 1996, Freshwater returned to England and settled in Mountsorrel, a village south of Loughborough where he became a parish councilor. He continued to charm those around him with his quick wit, pleasant nature, and wealth of jokes.

He is deeply missed and will always be remembered for his delightful, albeit sometimes eccentric, personality. He added so much, at all levels, to the Baton Rouge community. He was an enthusiastic supporter of music, the arts, and theater as well as a loyal member of the St. James church choir.

It is no stretch to say that Freshwater is well remembered and well loved by his colleagues and former students in chemical engineering as well as his many friends.

## New Chemical Engineering Building

It finally seems that a **New Chemical Engineering Building** is on the way. At least, it is a high priority for the University and is on the Capital Outlay plan. The only real uncertainty that still remains is whether the State will be able to come through with the proposed funding. The total cost for this new facility is estimated around \$26 million. We must raise \$3 million in private donations in order to "trigger" the State support.

The new building will sit along South Stadium Drive, near the CEBA building, and it will nearly double our existing space. Chemical engineering has not seen any new construction since the newest portion of our current facilities was constructed in 1971. We continually renovate to improve on these facilities but are at a point where we desperately need additional space if the department is to continue to grow.

We need to hire additional faculty (and have plans to do so in the next year in addition to the two new faculty that will be joining us this fall) but cannot do so without adding space for more offices and labs. With the new faculty comes the prospect of increased student enrollment, particularly in our graduate program. This again requires additional space to fully accommodate and meet the needs of our students as well as our researchers. The new building will also allow us to expand our program and provide even more state-of-the-art resources and equipment to our faculty, researchers, and students.

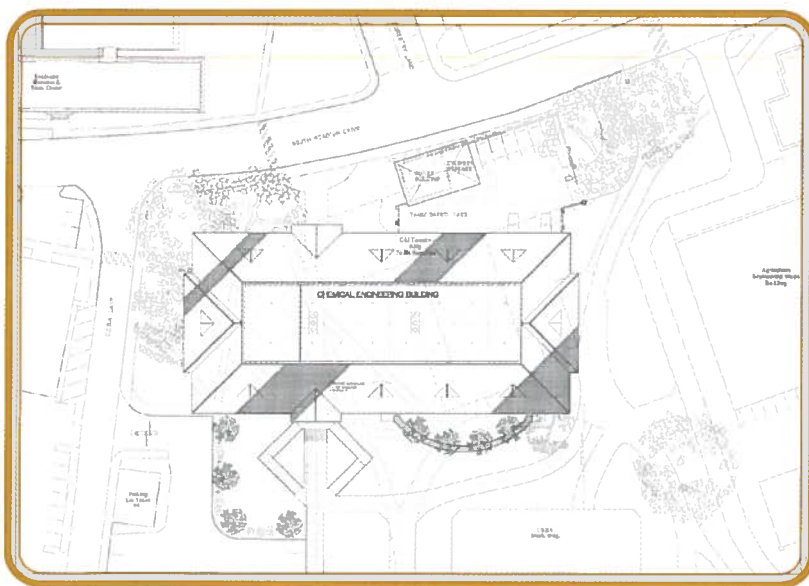
If and when the new Chemical Engineering Building comes to fruition, it will provide us with the space and resources we need to continue our march towards greater national prominence.

As you are probably already aware, the department (in conjunction with the College of Engineering and the LSU Foundation) has launched a massive fund-raising campaign to raise the required \$3 million in private funds. This campaign began with a very generous

donation by **Ronald Cambre (B.S., 1960)**, who is the former CEO of Newmont Mining Corp - the largest gold-producing company in the world. Mr. Cambre and his wife, Gail Burguières Cambre, donated \$1 million for the new chemical engineering building followed by a \$250,000 donation from Newmont Mining Corp. This was followed by a gift of \$100,000 from **George Daniels (B.S., 1963)**.

Since the start of the campaign, many more alumni have made generous contributions and we cannot express enough our sincerest gratitude for these gifts. At this time, we would like to extend our heartfelt thanks to both Cambre and Daniels as well as the following alumni and friends:

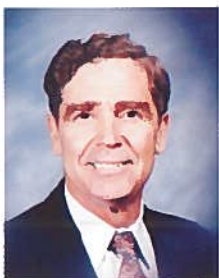
Armand S. Abay (B.S., 1976)  
 Jerry W. Affolter (B.S., 1942)  
 Lawrence F. Becnel, Jr. (B.S., 1963; M.S., 1964)  
 Harold S. Birkett (B.S., 1964; M.S., 1971; Ph.D., 1977)  
 Brent Calongne (B.S., 1961)  
 Bob Chow (B.S., 1980)  
 James Combes (B.S., 1982)  
 Armando Corripio (B.S., 1963; M.S., 1967; Ph.D., 1970)  
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 Patrick Dietrich (B.S., 1976)  
 Leonard G. Fontenot (B.S., 1959)  
 Carlos Gutierrez (B.S., 1961)  
 Warren J. Hachet (B.S., 2003)  
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 Richard W. Hise (B.S., 1978)  
 Alvin H. Landry (B.S., 1949)  
 Clyde C. Lester, Jr. (B.S., 1952)  
 Mamerto Luzarraga (B.S., 1971)  
 James R. Madden (B.S., 1972; M.S., 1974)  
 Todd Nilsen (B.S., 1981)  
 Robert Osborne (B.S., 1962)  
 A. J. Perk, Jr. (B.S., 1962)  
 Dalton J. Pollet (B.S., 1936; M.S., 1938)  
 Raghunathan Ravikrishna (Ph.D., 2000)  
 Steven P. Reynolds (B.S., 1999)  
 Willie E. Robert III (B.S., 1961)  
 Rene L. Sagebien (B.S., 1963)  
 Roy E. Sanders (B.S., 1965)  
 Kristina Scholten (B.S., 1985)  
 James Sparkman (B.S., 1955)  
 Brent Tregre (B.S., 1963)  
 Susanne Tully (B.S., 1985)  
 Wayne A. Turner (B.S., 1975)  
 Maurice W. Wei (B.S., 1953)  
 Donald Winkler (B.S., 1957; M.S., 1958; Ph.D., 1961)



If anyone would like to learn more concerning the plans for the new building or the fund-raising campaign, you may contact us anytime or you may visit our Web site, [www.che.lsu.edu](http://www.che.lsu.edu), where the complete architectural plans are available for viewing as well as information on ways to donate. In addition, a donation form is available at the end of this newsletter.

## Armando Corripio Retires After 37 Years at LSU

After 37 exemplary years of service to the department one of our most beloved professors has retired – **Armando Corripio**.



Corripio first came to LSU as a student from Cuba, following the “ill-fated Bay of Pigs invasion.” He explained in the Spring 2002 edition of this newsletter that he was “in the second semester of my junior year at the Catholic University of Cuba on April 17, 1961, when [the invasion] took place. On that day, Castro confiscated our university and closed it. I decided to come to the States to continue

my education and join my fiancée’ and future wife Connie in Miami.” While there he met his friend and classmate, **Al Lopez (B.S., 1963; M.S., 1965; Ph.D., 1968)** who was preparing to come to LSU to finish his education. Corripio decided to join him.

Two years later, Corripio graduated from LSU with a B.S. in chemical engineering. He worked as an engineer for Dow Chemical Company upon graduation but soon returned to his studies and took an evening course on process control, from **Paul Murrill (M.S., 1962; Ph.D., 1963)**. Corripio states that “from that moment on, Paul started working on me to return to school and get a Ph.D. Four years later, when I finally decided to come back, he was head of the department. As I was about to finish my Ph.D. and accept a job with Exxon, Paul came in one morning and asked me if I had accepted a job yet. I told him I had not, and he asked me to wait, but he could not tell me why. What happened was that he was becoming Provost, on his way to Chancellor, and he offered me his position on the faculty. Being a case of the right place at the right time, I had to accept, and here I am. I have never regretted it.”

Even during those early times, his abilities and effectiveness as a teacher were evident as was his love for the craft—he was voted “Favorite Professor of the Students of Chemical Engineering” in 1969. He continued to earn accolades for his teaching in the years thereafter, including the Exxon Excellence Award in Instruction (1986) and the Dow Chemical Excellence in Teaching Award (1989).

His talents do not only lie in his outstanding abilities as a professor but as a scholar and researcher as well. He wrote a highly used textbook entitled, *Principles and Practice of Automatic Process Control*, with Carlos A. Smith. The first edition was published in 1985 and a second edition was published in 1997. Also, his work has appeared in various journals and he has made more than 50 presentations at national and international conferences.

Even with all of this, he has found time to serve in local clubs. He is the newsletter editor for the AIChE Baton Rouge section and is very active in the chapter’s activities and events. He frequently participates with LSU’s student chapter of AIChE at Super Science Saturday, which is an annual event held on the LSU campus that is designed to introduce science to elementary school children. He is

also the student chapter advisor for the Instrumentation, Systems, and Automation Society (ISA).

His work in the community is as notable as his accomplishments professionally. He is a volunteer for Habitat for Humanity. He is also very active with the Capital Area United Way and his work there is truly commendable. In fact, this year he was honored for his role as a Leadership Giver during LSU’s 2004 campaign.

The department honored Corripio and his lengthy LSU career at a dinner party on May 5, 2005, which was attended by a large number of current and former faculty as well as a couple of Corripio’s former students. Corripio, ever the over achiever, created and delivered a wonderful slide show presentation detailing his life at LSU. He included photos and anecdotes concerning much of the faculty and staff he has worked with in chemical engineering over the years, which was thoroughly enjoyed by the crowd. Following his



presentation, Corripio was presented with a LSU print that was signed by all the current faculty and staff, matted, and framed as a parting gift to say thanks for all that he has given to the department and the University. Following are additional photos from Corripio’s retirement party:



Corripio enjoying the festivities.



Corripio with Joseph Polack and his wife.



Louis Thibodeaux (right) with Frank Groves (left) and his wife.



Douglas Harrison (right) and Paul Murrill (center) were in attendance.

## Danny Reible Retires



**Danny Reible**, Chevron Professor and director of LSU's Hazardous Substance Research Center/South and Southwest (HSRC/S&SW), retired from LSU in August 2004 following nearly 25 years of outstanding service to the University.

Reible joined the chemical engineering faculty in 1982 upon receiving his Ph.D. from the California Institute of Technology; he was promoted to professor in 1992. He was the Shell Professor of Environmental Engineering at the University of Sydney, Australia from 1993-95.

Upon his return to LSU, he became director of HSRC and was integral in pushing the program to even greater national prominence. In 1998 he was named the Chevron Professor in Chemical Engineering.

During his time at LSU he garnered many achievements. In 1986 the American Society of Engineering Education awarded Reible the New Engineering Educator Excellence Award and, in 1987, an Environmental Science and Engineering Fellowship by the American Association for the Advancement of Science. He is the recipient of the Lawrence K. Cecil Environmental Division Award of the Institute of Chemical Engineers for 2001 and the Charles E. Coates Award of the Local Sections of the American Chemical Society and American Institute of Chemical Engineers for 2002.

Reible is also the author of two textbooks, *Fundamentals of Environmental Engineering* and *Diffusion Models of Environmental Transport*.

Just prior to his retirement, Reible was elected to the National Academy of Engineering for his development of widely used methods of managing contaminated sediments. Election to the National Academy of Engineering is the highest professional distinction bestowed to an engineer in the United States.

In August of 2004 he became the Bettie Margaret Smith Chair of Environmental Health Engineering in the Department of Civil, Architectural and Environmental Engineering at the University of Texas in Austin. He seems to be enjoying his new post and is happy to be back in his home state of Texas.



The department bid a fond farewell to Reible at a party, held in July 2004. We wish him the best of luck in his newest endeavor.

## Faculty Publications and Presentations

**Kerry Dooley** presented two papers at the AIChE Meeting held in November 2004: "Methylketone Manufacture by Acid Condensation Using Metal/Rare Earth Oxide Catalysts" co-authored with **Arvind Bhat** (a recent M.S. graduate of Dooley's), and Amitava Roy (CAMD); and, "Rapid Carbonation of Cements and Cement/Polymer Composites Using Supercritical and Near-Critical CO<sub>2</sub>" co-authored with Fred Harry, David Schmerfeld, Sarah Gates, **Carl Knopf**, Les Butler, and Kyungmin Ham. In addition, he published the following article in a recent issue of *Chemical Engineering Science*, "Dynamic Modeling of Crosslinking and Gelation in Continuous Ethylene-Propylene-Diene Polymerization Reactors Using the Pseudo-Kinetic Constant Approach," which was co-authored by **R. Li**, **A.B. Corripio**, M.A. Henson, and M.J. Kurtz.

**Elizabeth Podlaha** was an invited speaker at the Fall Electrochemical Society Meeting where she presented the following:

E.J. Podlaha, Y. Li, Q. Huang, J. Zhang, M. Moldovan, D. Young, "Electrodeposited GMR Multilayer Thin Films, Nanowires and Microposts," 2004 Joint International Meeting of The Electrochemical Society (ECS) and the 2004 Fall Meeting of the Electrochemical Society of Japan in Honolulu, Hawaii, October 7, 2004.

**Jerry Spivey** presented the Kenote Lecture at the ACS National Meeting in Philadelphia for the *Advances in petroleum processing and clean energy technology* session on August 25, 2004. The paper was titled, "Catalytic approaches to the development of clean energy technologies" and was co-authored by George W. Roberts, H. Henry Lamb, Paul Chin, Susan Sigmon, Biran Silletti, Xiaolei Sun, Xianqin Wang (NC State University), and James G. Goodwin, Jr. (Clemson University).

## Faculty News and Awards



**Armando Corripio** was honored for his role as a Leadership Giver for the 2004 LSU campaign of the Capital Area United Way. His name was placed in a drawing and he won a LSU Baseball Team Poster (autographed, matted, and framed).

**Ralph Pike** and **Kerry Dooley** have been awarded a \$255,000 grant by the U.S. Army Missile Defense Command titled, "Thermal Decomposer for Hydrogen Peroxide." Pike will serve as the PI for this grant while Dooley will serve as the co-PI. The grant is funded for the period 2004-06. Its purpose is to conduct a study of the thermal decomposition of propellant grade hydrogen peroxide in hopes of finding a more environmentally friendly alternative to propellants like hydrazine.

Congratulations to **Carl Knopf** for achieving 25 years of service at LSU. He, along with a bevy of other university employees, were honored for their years of service (25, 30, 35, and 40) at the 14th Annual Employee Recognition Program, which was hosted by Chancellor O'Keefe on May 4, 2005.

**Elizabeth Podlaha** was the academic organizer for the National Science Foundation Nanoscale Science and Engineering (NSE) Grantee Conference held in Arlington, Virginia, December 13-15, 2004. The conference goal was to promote dissemination of innovative research progress, facilitate research partnerships, and identify future research directions. Podlaha will also be serving as co-PI for three recently awarded grants from the Louisiana Board of Regents. The first of these is the largest and will be conducted with her husband, Michael Murphy (of the Department of Mechanical Engineering), to develop microsensors using electrodeposited materials; it is a collaboration with Schlumberger. The details for all three grants follows: "Downhole Microsystems for the Oil Industry," PI: M. Murphy, co-PI: E. Podlaha, J. Goettert, with Schlumberger, State of Louisiana Board of Regents/ITRS, 2005-08, \$260,000; "Enhancement of Mammalian Cell Culture Facilities at LSU-BR," PI: R. Devireddy, co-PI: M. Murphy, S. Soper, E. Podlaha, State of Louisiana Board of Regents/

Enhancement Program, 2005-06, \$90,000; and, "Material Science and Engineering Symposium at Louisiana State University and Tulane," PI: John F. DiTusa, co-PI: Elizabeth Podlaha, Ilya Vekhter, Yufeng Lu, and Zhiqiang Mao, State of Louisiana Board of Regents/Enhancement Program, 2005-07, \$57,000. In addition, Podlaha spent the 2005 spring semester on sabbatical, conducting research at MIT in Boston.

**Jerry Spivey** was recently awarded a \$225,000 contract through the DOE's State Technology Advancement Collaborative program to study catalysts for the Fischer Tropsch process. The project will make use of LSU's CAMD facility; Amitava Roy of CAMD will serve as co-PI. LSU is a subcontractor to Clemson University on the project, which has a total cost of \$1.3 million. The project team includes the Louisiana and State Carolina State Energy offices, RTI, Sud Chemie, and Rentech. In addition Spivey, along with Kevin Kelly from the Department of Mechanical Engineering, has recently been awarded a \$182,000 project from the Board of Regents to study catalytic heat exchangers for fuel processing; and he has begun a project with DOE's National Energy Technology Lab (NETL) in Morgantown, West Virginia, to study reforming of military fuels. Spivey spent the last summer carrying out research at NETL, with Abol Shamsi, under DOE's Faculty Research Participation program. Spivey's work focused on catalytic reforming of natural gas and liquid fuels, particularly coke formation and deactivation.

**Karsten Thompson** is a recipient of a LSU Tiger Athletic Foundation Undergraduate Teaching Award for 2005. This award was created by TAF to recognize the most outstanding educators on LSU's campus.

**Kalliat Valsaraj** has received two recent grants: 1) a grant from the U.S. Army Corps of Engineers to investigate the effects of sediments and resulting air emission estimates; 2) a small grant for Exploratory Research (SGER) from the National Science Foundation for investigating the use of photonic crystals for air pollution control. In addition, he received word on the continuing support of his grant from NSF to study the behavior of polycyclic aromatic hydrocarbon vapors at the air-water interface of fog and ice. This brings the total support for this research to \$551,400.



Congratulations to **Elmer B. Ledesma** and **Lisa Brenskelle** who were married on Saturday, April 16, 2005. Ledesma is a postdoctoral research associate working with Mary J. Wornat and Brenskelle is a Ph.D. student under the direction of Martin Hjortso. The wedding took place at the Lutheran Church of Our Savior on Jones Creek Road in Baton Rouge. We wish them the best of luck.



## Department News



**Benjamin McCoy**, Gordon A. and Mary Cain Chair, has retired from LSU with the close of the spring 2005 semester. McCoy was the first Cain Chair hired following the 1998 donation from Mr. and Mrs. Gordon Cain. He came to LSU following a lengthy career at the University of California, Davis. He was a valuable asset to the department and we are sorry to see him leave.

We wish him the best as he embarks upon retirement.

**Hazel Ann LaCoste** passed away on August 28, 2004. She worked as an executive secretary in the department beginning in the late 1960s through the early 1980s. **Laurier "Larry" Veilleux**, a research associate in chemical engineering from 1967-1987, passed away on May 25, 2005. He was a native of Maine and a veteran of World War II. Both are well remembered by their former colleagues and friends in the department. We extend our belated condolences to their families.

*The 3rd Annual Chemical Engineering Alumni Reunion that was scheduled for October 8, 2005, has been postponed due to Hurricane Katrina and the aftereffects the storm poses for this area.*

*We plan to reschedule the reunion for spring 2006 and will disseminate more information once a date is established.*

# 2004-05 Departmental Distinguished Seminar Series

## Manoj Kumar Ram, Ph.D.

Fractal Systems Inc., Safety Harbor, Florida  
January 14, 2005

### *Supra molecular Engineering of Conducting Materials*

Rapid progress in the field of conducting polymers in the past 25 years has led to the discovery of new electronic materials, new concepts, and development of new technologies. A large number of conducting polymers such as polyacetylene, polypyrrole, polythiophene, polycarbazole, poly(phenylene vinylenes) and their copolymer, nanocomposite with metal oxide, nanocomposite with carbon nanotube etc. have been the subject of multidisciplinary research. Such conducting materials have been intensively investigated due to its excellent physical and chemical properties. Ultrathin multilayered structures of these conducting materials are important for various applications in nonlinear optics, microelectronics, light-emitting devices, and, chemical and biological sensors. The morphology and stability in electrical properties of the films are necessary for their uses in molecular electronics devices, and the sensor's applications. An investigation of methodologies to engineer supramolecular films of organic materials was discussed. The functionalization is important for the fabrication of monolayer assembling of organic material. The Langmuir-Blodgett, layer-by-layer, insitu self-assembly techniques for fabrication of supramolecular films was presented during the talk. The physical, chemical, and structural properties of such ordered films was also discussed at length along with the chemical (NO<sub>x</sub>, NH<sub>3</sub>, CW, and BW) sensing applications of such supramolecular films. Ram's visit was hosted by **Kalliat Valsaraj**.

## Virginia A. Davis, Ph.D.

Rice University, Department of Chemical Engineering, Carbon Nanotechnology Laboratory  
January 31, 2005

### *Phase Behavior, Rheology, and Fiber Spinning of Single-Walled Carbon Nanotubes (SWNTs) in Superacids*

In this seminar, Davis discussed her ongoing research on understanding the liquid crystal science of SWNTs and on the engineering of these suspensions into liquid crystal science of SWNTs and on the engineering of these suspensions into nanotube fibers. She also presented future directions of her research, in which knowledge of SWNT liquid crystals may be extended to other nanorods. Finally, she discussed how additional investigations of carbon nanotube structure-processing-property relationships, including the impact of nanotube length and functionalization, will facilitate the development of additional macroscopic articles including coatings and films. Davis' visit was hosted by **Douglas Harrison**.

## Alberto Striolo, Ph.D.

Research Associate, Vanderbilt University, Department of Chemical Engineering  
February 10, 2005

### *Simulations: The Molecular Tool for Interpreting Experimental Results*

Development in nanotechnology relies greatly on the accurate interpretation of experimental results at the molecular level. In his talk, Striolo presented two examples where molecular simulations play a major role in understanding key experimental observations. Adsorption of water in porous materials served as the first example. It has been shown that the presence of water can compromise the performance of porous carbons, widely used in the industry. Grand canonical Monte Carlo simulations are used to study water adsorption in carbon-slit pores, carbon nanotubes, and realistic representations of carbon adsorbents. The results from these simulations: adsorption isotherms, heats of adsorption, and structure of confined water. These were presented and compared to experimental data.

Complex polymeric systems containing nanoparticles, i.e. silsesquioxane monomers, served as the second example. Silsesquioxane monomers, nanoparticles based on silica and oxygen atoms, are used to reinforce polymeric materials. The mechanism of reinforcement has not yet been understood. Molecular dynamics simulations are used to characterize systems containing silsesquioxane monomers dissolved in hexadecane and poly(dimethyl siloxane). The results from these simulations: potentials of mean force and self-diffusion coefficients. These were discussed to reveal the properties of complex nano-particulate systems. Striolo's visit was hosted by **Douglas Harrison**.

## Robert Hurt, Ph.D.

Professor, Brown University, Division of Engineering-Fluid, Thermal and Chemical Processes  
February 18, 2005

### *Nature's Minuet in C: Thermal, Catalytic, and Supramolecular Routes to New Carbon Nanomaterials* *The Graffin Lecture of the American Carbon Society*

Elemental carbon assembles into diverse nanoforms that include fullerenes, onions, shells, "horns," films, and "peapods" as well as numerous nanotube and nanofiber varieties. These exciting new nanomaterials are best understood as members of the larger carbon material family that includes sorbents, fibers, composites, and structural graphites. Professor Hurt's seminar covered the principles of carbon science relevant to both nanometric and macroscopic carbon materials. A range of new carbon nanoforms was then

presented, touching on synthesis, structure, and properties, as well as selected applications and their development status. Special emphasis was given to new supramolecular routes being pursued at Brown, which are based on liquid crystal assembly and covalent capture. The talk ended with a brief discussion of the potential impacts of carbon nanomaterials on human health, and ongoing research designed to overcome this barrier to commercial success. Hurt's visit was hosted by **Judy Wornat**.

### **Matthew Liberatore, Ph.D.**

University of Delaware, Department of Chemical Engineering  
February 21, 2005

#### *Flow-induced phenomena in solutions of wormlike micelles*

Surfactant molecules in solution can self-assemble into wormlike micelles. Micellar solutions are common in the cosmetic, detergent, and food industries. Solutions of these wormlike micelles have behavior similar to that of polymers, but are also able to reversibly break and recombine. Current work probing two viscoelastic micellar solutions of identical surfactant concentration has found the concentration of incorporated salt to critically influence solution behavior. While the two samples are quite similar in viscosity across a range of shear rates, only one sample exhibits shear-induced phase separation (SIPS). The important length scales of the two micellar networks are investigated via dynamic rheology, rheo-optics and small-angle neutron scattering (SANS). The smaller mesh size and entanglement length of the micelles that exhibit SIPS are smaller than the other sample. Therefore, the solution that phase separates under flow forms a more dense entangled network. Additional investigation into the nonlinear rheology of these samples finds shear banding for the sample exhibiting SIPS while the other sample behaves like a power law fluid. Based on these finds, future investigations into solutions of entangled polymers as well as surfactant-polymer mixtures appear promising, and ultimately the ability to systematically tune a material's viscoelastic properties will be understood. Liberatore's visit was hosted by **Douglas Harrison**.

### **George S. Goff, Ph.D.**

University of Texas at Austin, Department of Chemical Engineering  
March 3, 2005

#### *Inhibiting the Oxidative Degradation of Monoethanolamine in CO<sub>2</sub> Capture Processes*

With the increased interest in mitigating global warming, research is underway to improve existing technologies for removing CO<sub>2</sub> from flue gas. Aqueous absorption/stripping with alkanolamines is the current technology of choice for CO<sub>2</sub> capture, with aqueous monoethanolamine (MEA) being the most widely used solvent. Since most gas treating applications that use amines for CO<sub>2</sub> removal do not contain oxygen, oxidative degradation is an additional type of degradation specific to CO<sub>2</sub> removal from flue gas that can account for more than 10% of the total cost of CO<sub>2</sub> avoided. The

current work has focused on quantifying degradation over a range of significant industrial conditions and shown that the rate of degradation is controlled by the rate of O<sub>2</sub> mass transfer into the amine solution. Based on this research, three additives have been identified that effectively inhibit the oxidative degradation of MEA and are currently being evaluated by a Fortune 500 engineering firm for incorporation into their CO<sub>2</sub> capture process. Goff's visit was hosted by **Douglas Harrison**.

### **Jason de Joannis, Ph.D.**

Postdoctoral Fellow, Emory University, Department of Chemistry  
March 10, 2005

#### *Multi-scale Modeling of Self Assembled Biological Systems Applications*

Self assembled membranes provide porous encapsulation of microscopic aqueous volumes in cells and in drug delivery technologies. These bilayers are just one of the equilibrium structures formed by such amphiphilic molecules as phospholipids. Heterogeneities in the molecular distribution can give rise to special structures with stable edges such as pores or discs. The shear breadth of time and length scales arising in these systems requires that modeling efforts are directed at several levels of detail. We have used atomistic and course-grained molecular dynamics simulations in concert with Monte Carlo techniques and with simple elastic and statistical models to further the understanding of the effect of heterogeneity on the line tension and stability of edges, and on the elasticity of a lipid bilayer. de Joannis' visit was hosted by **Douglas Harrison**.

### **James Henry, Ph.D.**

Texas A&M University, Department of Chemical Engineering  
March 16, 2005

#### *Development of Nano-Scale Sensors & Biomimetic Surfaces for Biomedical Applications*

Current detection methods in biomedical applications have failed to advance at the same rate as technology. This complacency leaves a considerable void in research and development that can be filled by chemical engineers with great success. The analytical and problem-solving skills required for today's classical chemical engineers can easily be applied to today's biomedical and biochemical applications. Our unique analytical techniques can create a more practical point of view often overlooked by more classical scientists. This work shows how using these skills can lead to advancements in areas outside the classical bounds of chemical engineering. Examples in this work include the development of a sensor for prions (causing mad cow disease), biomimetic molecules for therapy and analysis of AB (causing Alzheimer's disease), and a sensor for organophosphates (commonly found in neurotoxic warfare agents). Furthermore, the work addresses important characteristics and design tools that can be used in further sensor development and optimization. Henry's visit was hosted by **Douglas Harrison**.

**Pavel Jungwirth, Ph.D.**

Research Group Head, Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic  
April 1, 2005

*Molecular Simulations of Atmospheric Aerosols: Ions at the Air/Water Interface Applications*

There is increasing evidence that the air/water interface is of a key importance in many heterogeneous chemical processes in the atmosphere, such as the release of reactive halogen species from aqueous sea salt aerosols in the marine boundary layer or tropospheric ozone destruction in the Arctic during polar sunrise. The role of aerosol loading has also been invoked in the process of thundercloud electrification. Despite this, little has been known about the structure and physical properties of aqueous aerosols at a detailed, molecular level. Here, we summarize results of molecular dynamics simulations of surfaces of concentrated aqueous salt, acid, and base solutions. The main questions addressed by the simulations concern the distribution of ions at the surface and in the aqueous bulk. A key result of the simulations is the observation that polarizable anions (e.g., chloride, bromide, and iodide), as well as hydronium cations, are present at the air-water interface of bulk solutions in amounts sufficient for the heterogeneous atmospheric chemistry to take place. The calculations also reveal that bromide and iodide actually exhibit surfactant activity, i.e. their concentration at certain regions of the interface is higher than in the bulk. This is in contradiction with the standard Onsager model of the surface of electrolytes, however, it is in accord with the observed enhanced atmospheric reactivity of aqueous bromide compared to chloride and with recent spectroscopic and SEM experiments. Jungwirth's visit was hosted by **Kalliat Valsaraj**.

**George "Rusty" Irwin, Ph.D.**

April 15, 2005

*Biotechnology and Bioprocessing: an Engineer's View*

Irwin's seminar reviewed some of the developments in biotechnology over the past 30 years as well as an analysis of the engineer's role in this still rapidly developing technology. Specific attention was devoted to process operations and engineering skills of importance in research, development, engineering design, and manufacturing. In addition, focus on the multi-disciplinary nature of biotechnology, especially collaboration among engineers, life scientists, and regulatory agencies was discussed. Irwin is a 1974 Ph.D. graduate of our department. His visit was hosted by **Kalliat Valsaraj**.

**Marugappan Muthukumar, Ph.D.**

Professor, University of Massachusetts, Department of Polymer Science and Engineering  
April 29, 2005

*How DNA Worms Through Protein Channels*

Professor Muthukumar's seminar focused on the translocation of electrically charged macromolecules through narrow channels as a fundamental process in life. The physical chemistry of this process was narrated using simulations and polymer physics concepts against a background of single-molecule experiments. Specifically, the movement of single-stranded DNA/RNA through alpha-hemolysin channels under an external electric field was exemplified. The implications to DNA-sequencing in biotechnology, and transport of mRNA through nuclear pores in mammalian cells was also discussed. Muthukumar's visit was co-hosted by Paul Russo (LSU Department of Chemistry) and **Karsten Thompson**.



## Student News

The following three Ph.D. students made presentations this year at various conferences. **Kalliat Valsaraj** serves as the research advisor for all three of them:

**Hongfei Lin** made the following presentations this year: H.F. Lin and K.T. Valsaraj, "A Titania Optical Fiber Monolith Reactor for Photo-degradation of Organic Contaminants in Dilute Wastewaters," Symposium on Advanced Materials for Purification of Water With Systems, *Center of Advanced Materials for the Purification of Water with Systems*, Atlanta, Georgia, April 13-15, 2005; and, H.F. Lin and K.T. Valsaraj, "Development of optical fiber monolith reactor for wastewater treatment," Third International Congress on Ultraviolet Technologies, Whistler, British Columbia, Canada, May 24-27, 2005.

**Suresh Raja** made the following presentation recently: S. Raja and K.T. Valsaraj, "Heterogeneous oxidation of naphthalene vapors on the air-water interface of fog droplets," Annual AWMA conference, Minneapolis, Minnesota, June (2005).

**Qing Zhong Yuan** made the following presentations recently: Q.Z. Yuan and K.T. Valsaraj, "Transport and fate of contaminants in capped sediment systems," Fourth SETAC World Congress/25th Annual Meeting in North America, Portland, Oregon, November (2004); and, Q.Z. Yuan and K.T. Valsaraj, "Transport and fate of contaminants in capped sediment systems," Third International Battelle Conference on remediation of contaminated sediments, New Orleans, Louisiana, January 24-27 (2005).



The department's annual Crab Boil was held on October 8, 2004. This event is coordinated by the graduate students and invitees include the graduate students and their families as well as department faculty and staff. As can be seen from these photos, it appears all who attended had an enjoyable time despite the dismal, rainy weather.



## Profiles in Student Excellence



**Jennifer Armstrong** is currently a senior in our undergraduate program (with a cumulative gpa of 4.0) and is a participant in the Chancellor's Future Leaders in Research program, which is one of the highest distinctions LSU undergraduates can hold.

Because of this distinction and the fact that she has been working in one of **Elizabeth Podlaha's** research labs since entering LSU, she was given the rare opportunity of presenting her research findings at the 2004 Summer Undergraduate Research Forum. This is the same forum at which our own REU participants present their summer research in addition to undergraduates in similar programs from various disciplines across campus.

Armstrong's research concerns the affect nanoparticles have on the codeposition of NiW thin films. The resulting nanocomposites are of interest for improved wear and hardness properties of the thin films for surface coating treatment. In the course of her work, she has observed an interesting phenomenon that has never before been reported: the nanoparticles enhance the composition of W in the film, by inhibiting the Ni rate. Podlaha's research team, including Armstrong, will be examining this phenomenon further during the upcoming academic year. In addition, Armstrong may be presenting her work at one of the Electrochemical Society Meetings next year.

In May of 2005, Armstrong added to her already long list of awards and achievements as she was selected as one of only a handful of recipients for the Southwest Chemical Association's annual scholarship. This is a \$5,000 award and will be presented to her in August at the association's presentation dinner, which will be held in Houston.

Armstrong is from Luling, Louisiana. She graduated from high school with a perfect 4.0 and served as the class valedictorian at her graduation. We would like to congratulate Armstrong on all of her achievements thus far and wish her continued academic excellence.



**Brandon Iglesias**, also a senior in our undergraduate program, has been garnering news as the CEO of his own information technology company, which he is planning to launch as a software package this year.

His Web site is FamilyXL.com and he created the idea while participating in a student exchange program in Hawaii two years ago, during which time he was briefly hospitalized. The site provides a way for families to stay in close contact while separated by vast distances. It is a "virtual home for your family and friends to stay in touch with one another if they are on exchanges, if parents are abroad or if you're in the military," Iglesias said when interviewed by the LSU student-run newspaper *The Reveille*, in November 2004.

Iglesias' business is housed by the Louisiana Business and Technology center, an on-campus business incubator that facilitates 25 small businesses. Iglesias funds the development of his Web site through his various consulting work—graphic design and general IT consulting—he does for local companies, including several chemical and engineering companies.

Currently, Iglesias is testing his product with soldiers at Camp Pendleton, the largest marine base in the nation, since military families would be a target market as so many soldiers are away from their families, on assignment, all across the world.

In addition to his success thus far, Iglesias was named 2nd place *Sunbelt Collegiate Entrepreneur*, at the 2005 Sunbelt Student Entrepreneur Awards conducted by John Cook School of Business—Jefferson Smurfit Center for Entrepreneurial Studies, Saint Louis University in conjunction with The University of Texas at El Paso. It is awarded to students who demonstrate outstanding skills running a business while in undergraduate studies.

Congratulations from the entire department to Iglesias on his entrepreneurial achievements and best wishes for continued success.

## Two Chemical Engineering Seniors Selected for Leadership LSU

**Katie Gonsoulin** and **Callie McNair** were selected to participate in Leadership LSU for the spring 2005 semester. They are among 25 students, out of more than 200 nominees, to be selected for this honor. Students are chosen based on their academic accomplishments, demonstrated leadership abilities, and involvement in both campus and community activities while attending LSU. We congratulate both Gonsoulin and McNair on receiving one of the University's most distinctive honors.

## Student Awards

**Matthew Balhoff**, a Ph.D. student supervised by **Karsten Thompson**, received an ICES fellowship for postdoctoral studies at the University of Texas in Austin; ICES is the Institute for Computational Engineering and Sciences. He will begin his postdoc this summer in Austin working with Mary Wheeler. Balhoff is also a recipient of an American Chemical Society award, *Excellence in Graduate Polymer Research Award*. He received the award at an ACS symposium on Excellence in Graduate Polymer Research at the 2004 Fall ACS meeting held in Philadelphia. He was nominated by the macromolecular group at LSU.

**Justin Birdwell**, a Ph.D. student supervised by **Louis Thibodeaux**, is a recipient of a 2004 Environmental Chemistry Graduate Student Award. This award is presented annually by the Environmental Chemistry Division of the American Chemical Society to recognize graduate students who are working in areas related to environmental chemistry.

**Alan Bussard**, a Ph.D. student supervised by **Kerry Dooley**, is the recipient of a Donald Clayton Fellowship awarded by the College of Engineering. The stipend amount for the Clayton Fellowship ranges from \$10,000 to \$20,000 annually and is funded by an endowment from Donald W. Clayton (B.S., Petroleum Engineering). It is awarded to outstanding graduate students who plan to pursue a career in academics. Bussard also won a best poster prize at the Southwest Regional Catalysis Society Symposium, which was held in Houston earlier this year. He received a cash prize of \$200, funded by ExxonMobil.

**Zhanhu Guo**, a Ph.D. student supervised by **Elizabeth Podlaha**, received a LSU Graduate School student travel grant to attend the 49th 2004 Magnetism and Magnetic Materials Conference in Jacksonville, Florida, where he presented his work, "Magnetic Behavior of Co-Cu and Co-Au Core-shell Nanoparticles."



Lozano and his wife at the Sigma-Xi banquet.

**Alonso Lozano**, a Ph.D. student supervised by **Elizabeth Podlaha**, was selected for one of the Sigma-Xi Grants in Aid awards by the LSU Chapter for his proposal, "Electrodeposited nanocomposites as thin films and high aspect ratio microstructures for MEMS." The objective of his proposal is "to investigate and characterize the effects of  $\text{CeO}_2$  nanoparticles on the

electrodeposition of copper to explore Cu- $\text{CeO}_2$  deposition as a potential micro-catalyst. The award was presented to Lozano at the Chapter's annual spring banquet, held in the LSU Union on April 13, 2005.

**Thomas Miller**, a chemical engineering 2005 graduating senior, is the recipient of the department's Jesse Coates Award. This award

is given to the graduating senior exhibiting outstanding professional, campus, and community activities and is decided by faculty votes. The award is given in the form of a LSU wristwatch that is engraved with the awardee's name, the date, and the award name. It is funded by an endowment set up by the friends of Professor Coates upon his retirement. Miller is also the recipient of the Southwest Chemical Association scholarship for 2004. This is a \$5,000 scholarship.



David Wetzel presented the Coates award to Miller at the commencement reception.

**Rohit Mishra**, a Ph.D. student supervised by **Elizabeth Podlaha**, received a LSU Graduate School student travel grant to attend the Joint 206th Meeting of The Electrochemical Society (ECS) and the 2004 Fall Meeting of the Electrochemical Society of Japan in Honolulu, Hawaii. He presented his work, *Electrodeposition of Rare Earth-Transition Metal Alloys from an Aqueous Electrolyte*.

**Omkar Askok Namjoshi**, a sophomore in chemical engineering, was one of 2004's Gordon Cain Chancellor Scholarship recipients. These scholarships are given to the best of the incoming freshman class. Namjoshi, along with all other Chancellor's Alumni Scholars awardees were honored at the 2004 Annual Scholars' Banquet held in November of 2004.

**Craig Plaisance**, a M.S. student supervised by **Kerry Dooley**, won *best graduate student presentation* at CAMD day held in April.

**Aimin Xu**, a 2004 Ph.D. graduate, has been awarded the 2004 AIChE Baton Rouge Best Dissertation Award for his dissertation, "Chemical Production Complex Optimization, Pollution Reduction and Sustainable Development." His major professor during his studies was **Ralph Pike**.

**Wenli Zhang**, a Ph.D. student supervised by **Karsten Thompson**, was awarded second place for his research poster at the 5th Louisiana Conference on Advanced Materials and Emerging Technologies, which was held at Tulane University in late January.

Students receiving annual departmental awards are as follows:

**Benjamin Caire** - 2005 recipient of the American Institute of Chemists Award

**Matthew Kent Desmond** - High GPA Sophomore award

**Beau Louis Monnot** and **Thomas Martin Miller** (co-awardees) - High GPA Junior award

**Laura Elizabeth Stromer** - High GPA Senior award

**2004-05  
Scholarship Recipients**

**O. Dewitt Duncan Scholarship**

Stephen Cox  
William Geier  
James R. Johnson  
Alexander Sideris  
Luke Stein  
Brian Tetreau

**Gerard Family Undergraduate Scholarship**

Anthony Bonilla  
James Callahan III  
Callie McNair  
Eric Robertson  
Leigh Theyry  
Mitchell Toon  
Andrew Wale  
Nadine Yougoubare

**Clara & Frank R. Groves, Sr.  
Undergraduate Scholarship**

Jennifer Armstrong

**R.L. Hartman Scholarship**

Eric Dixon  
Katie Gonsoulin  
Richard Green

**Paul M. Horton Undergraduate Scholarship**

Daniel Fortier  
Charles Staton

**William McFatter Scholarship**

Carlos Stewart

**BP Amoco Scholarship**

Matthew Desmond

**Chemical Engineering Scholarship**

Tamasha Baptiste  
Ashley Milligan

**Chevron/Texaco Chemical Engineering  
Scholarship**

Donald Morris  
Matthew Stephens

**Marathon Ashland Petroleum/Chemical  
Engineering Scholarship**

Christopher Boudreaux  
Zachary Scheibal  
Joseph Woodson

**Summer 2004 Commencement**

**Bachelor of Science in Chemical Engineering**

Richard Kyle Cockerham

**Master of Science in Chemical Engineering**

Arvind Bhat  
Bruce Ellis

**Fall 2004 Commencement**

**Bachelor of Science in Chemical Engineering**

John Louis Bartus (*Cum Laude*)  
James Murry Callahan III  
Patrick Joseph Hobbins  
Pamela Denise Jackson  
Mitchell W. Toon



Pamela Jackson (pictured above) and Mitchell Toon (pictured left) enjoyed the department's reception with their families.



**Master of Science in Chemical Engineering**

Yutong Li  
Henry Eloke Nwabuzor  
David Timothy Solberg  
Jay William Stephenson  
Ming Yin



David Solberg (left) pictured with Elizabeth Podlaha



Aimin Xu (left) with his advisor, Ralph Pike

**Doctor of Philosophy in Chemical Engineering**  
Aimin Xu



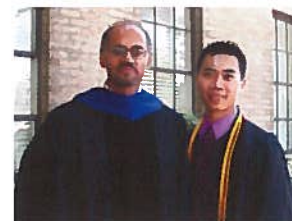
# Spring 2005 Commencement

## *Bachelor of Science in Chemical Engineering*

Msalli Awad Al-Otaibi  
 Bett McCoy Antes  
 Tamasha Lashon Baptiste  
 Regina Ann Bergeron  
 Anthony Bonilla  
 Heidi Ann Bourgeois  
 A. Luke Buisson  
 Benjamin Randle Caire  
 Neal Andrew Cotton  
 Stephen Machen Cox  
 Marion Elizabeth Cronin (*Summa Cum Laude*)  
 Clay Whitney Currier  
 Mario Couto DeOliveira  
 Kara Marie Flair  
 Ryan Michael Flarity  
 Raina Louise Foret  
 Courtney Levie Gaspard  
 Katie Olivia Gonsoulin  
 Shaun Phillip Gravois (*Cum Laude*)  
 Hristina Plamenova Hitsova  
 Christina Diane Jackson



Cassie Monique Jones  
 Michael Wayne Luneau  
 Michael Thomas Martinez  
 Clinton Wayne McDougal  
 Callie Lemar McNair  
 Thomas Martin Miller, Jr. (*Summa Cum Laude*)  
 Ashley Gayle Milligan  
 Beau Louis Monnot (*Summa Cum Laude*)  
 Michael Joseph Mumma  
 Nam Hoang "Paul" Nguyen  
 Thu A. Nguyen  
 Marshal Todd O'Neal  
 Ryan Michael Resweber  
 Eric Lynn Robertson  
 Oren Ruth, Jr.  
 Scott Charles Simon  
 Candice Monique Spears  
 Carlos Culane Stewart  
 Brian Paul Tetreau  
 Leigh Anne Thiery  
 Christina Marie Walker  
 Joseph Carter Woodson



## *Master of Science in Chemical Engineering*

Despina Davis  
 Kenneth Alexander Fountain II  
 Maoshi Guan  
 Zachary Thomas Hoffman  
 Wenli Zhang



Zachary Hoffman (right) with his advisor, Armando Corripio.

## *Doctor of Philosophy in Chemical Engineering*

Yunzhou Chai  
 Lidong Wang  
 Le Yan



Lidong Wang (left) and Greg Griffin, his research advisor.

## AIChE News

### 2004-05 Officers

*President:* Ryan Resweber  
*Vice-President:* Christina Walker  
*Treasurer:* Don Morris  
*Secretary:* John Rhodes  
*Senior Representative:* Kara Flair  
*Junior Representative:* Ryan Johnson

*Fund-raising Chair:* Laura Harvey  
*Social Chair:* Daniel Fortier  
*Engineering Council Rep/Conference Coordinator:* Benjamin Caire  
*Graduate Student Representative:* Zachary Hoffman



The LSU Student Chapter of AIChE spent most of the academic year preparing for the AIChE 2005 Southern Regional Conference. Our student chapter co-hosted the conference along with Tulane's student chapter. It was held in March in New Orleans. The student officers organized most of the conference on their own, with a little help from faculty adviser **Karsten Thompson**. Attendance was high and mainly consisted of undergraduate

chemical engineers from across the entire southeastern region and included a student chapter from Puerto Rico.

The student chapter would like to thank all of the companies that donated money as without their contributions many of the conference's events would not have been possible. The LSU AIChE student chapter is supported solely through fund-raising and donations.

## Summer 2004 REU Program

In summer 2004, the department again participated in the annual REU Program. **Kerry Dooley** once more headed the program for chemical engineering while Steve Watkins headed it for chemistry. Following is a listing of the undergraduate students who participated in last summer's program as well as the faculty members and graduate students who the participants each worked with and the titles of their projects:

**Liese Beenken** (University of Arizona) - **Karsten Thompson** and **Wenli Zhang**

*The Onset of Ordering in Dense Packings of Cylinders*

**Nick DeSantis** (Rowan University in New Jersey) - **Jerry Spivey** and **Adefemi Egbebi**

*Design and Characterization of Catalysts for the Production of Ethanol from Bio-derived Synthesis Gas*

**Heather Dunsheath** (Rice University) - **Gregory Griffin** and **Lidong Wang**

*Deposition of Palladium Seed Layers for Copper Electroless Deposition*

**Adam Ekenseair** (University of Arkansas) - **Kerry Dooley**  
*Direct Catalytic Partial Oxidation of Alkenes: Comparison of Oxidation Modes*



REU participants (left to right): Robert Sandoval, Adam Ekenseair, Heather Dunsheath, Liese Beenken, Thomas Eyster, and Nick DeSantis

**Thomas W. Eyster** (Tri-State University) - **Elizabeth Podlaha**  
*Electrodeposition of Multilayer CoCuNi Nanowires*

**Robert Sandoval** (Michigan Technological University) - **Karsten Thompson** and **Le Yan**  
*Stability and Rheology of Colloidal Liquid Aphrons*

## Alumni News

### Ton named Young Alumnus of the Year



Quay "Charlie" Ton is a 1995 B.S. graduate in chemical engineering and an inductee into the 2004 LSU Alumni Association's Hall of Distinction. Ton was named the 2004 Alumnus of the Year by the LSUAA and was honored at the annual Hall of Distinction ceremony, held on November 19, 2004, along with nine other inductees. As reported in our 2004 newsletter, Ton is the founder and owner of the Regal Nails

salons (more than 700 nationwide) and Charlie's Coffee Shops (4). He also owns six warehouses and a manufacturing plant. We congratulate Ton on his achievements thus far and wish him continued success in his entrepreneurial endeavors.

### Alumnus Lauded for Volunteer Work

Robert Bujol, a 1943 B.S. recipient in chemical engineering, was presented a 2003 DEEDS Award at the summer 2004 luncheon meeting of the ExxonMobil Fleur De Lis Retirees Club of Baton Rouge, which was held on June 1, 2004. The DEEDS Award is presented by ExxonMobil to recognize those who have donated sufficient time to a charitable group to qualify that group for a donation from the ExxonMobil Volunteer Involvement Program. We wish a wholehearted congratulations to Bujol on receiving this philanthropic award and thank him for his tireless contributions to the community.

### Alumnus Involved in International Conferences

Claire Cagnolatti, a 1978 B.S. graduate, spoke at three seminars this spring: Global Ethylene Plant Performance Comparisons at AIChE's 16th Annual Ethylene Producers Conference in Atlanta, Georgia, April 10-14, 2005; Session Seven: Update on Current Environment & Legislation Issues Within the Petrochemical Sector at the World Refining Association's Global Petrochemicals Conference in Cologne, Germany, April 27-28, 2005; and, a paper on Worldwide Butadiene Plant Performance Analyses presented at BASF's Butadiene Extraction Process Experience Exchange Meeting 2005 in Marseille, France, in May 2005.

Cagnolatti is currently the manager of Petrochemicals Operations for Solomon Associates in Dallas, Texas; she has been with Solomon Associates since 1994 and is responsible for all of Solomon's global, multi-client comparative performance analyses for petrochemical plants in addition to various client-specific projects. Prior to joining Solomon's she worked for 14 years in chemical and petrochemical operations for Occidental Chemical Company, Allied Corporation, and Stauffer Chemical Company. Upon receiving her B.S., she earned her M.B.A. from LSU in 1982.

### Alumnus named to Board of Directors



John T. Shelton, who received his B.S. in chemical engineering from LSU in 1953, has been named an At-Large Representative for the 2005 LSU Alumni Association Board of Directors. He is the retired vice chairman, executive vice president, director, and chief operations officer of Texas Olefins Co. as well as its petrochemical subsidiary, Texas Petrochemicals Corp. In addition, he is the

benefactor for the John and Rose Ann Shelton Gift Center, which is located in the Lod & Carole Cook Conference Center and Hotel, and a conference room in the Lod Cook Alumni Center. Shelton was named the LSUAA Alumnus of the Year in 1995. He has been a member of the LSUAA Board of Directors since 1991 and is a member of the Tiger Athletic Foundation Board of Directors as well. He resides in Houston with his wife.

### Cuban Alumni Reunion

The LSU Cuban Alumni Reunion was held September 10-12, 2004 on the LSU campus. Ten ChE Cuban alumni from the 1960s and 1970s were in attendance and visited the department on September 10 where they were given a complimentary lunch and a tour of our facilities.



Attendees are pictured, from left to right, Enrique Lopez-Aguilar (B.S. 1968, M.S. 1970), Martin Pinilla (B.S. 1967, M.S. 1975), Grady Smith-honorary Cuban (B.S. 1969, M.S. 1976), Alberto Rovira (B.S. 1964, M.S. 1966, Ph.D. 1981), Carlos Finalet (B.S. 1967), Armando Corripio-host (B.S. 1963, M.S. 1967, Ph.D. 1970), Juan Santa Coloma (B.S. 1964), Nemesio Viso (B.S. 1964, M.S. 1971), Enrique Levy (B.S. 1961), and Henry Insua (B.S. 1961).

## 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](mailto:gradcoor@lsu.edu). We would love to hear from you!*

### 1940s

**Samuel C. Kahn (B.S., 1943)** went to work for DuPont after the war and, over the next 40 years, worked in eight locations (counting Wilmington Headquarters three times). During the later years, he came interested in computers and eventually became a DuPont Fellow in Information Systems. After retiring in 1986, he was a consultant on Information Systems for several years. Then, he came a volunteer for Habitat for Humanity and has worked with this great organization for the last 16 years. He married Eileen Desmond (LSU Dietetics, 1944) in 1945. Over the next wonderful 58 years, they raised six children. In 2002, Eileen died of pancreatic cancer.

### 1950s

**J. Giralt “Keeno” Mestre (B.S., 1950)** is enjoying retirement after 28 years with Texaco Chemical. He regularly attends sporting events of his five granddaughters, including swimming, softball, and horsemanship. He also enjoys fishing in Galveston and Rockport, Texas. He and his wife celebrated their 50th wedding anniversary on July 25.

**Paul Otto (B.S., 1955)** is retired from DuPont and resides in Arkansas.

**Marvin D. Roof (M.S., 1955)** is retired from Ethyl Corp and is enjoying the “general” retirement agenda including: children, grandchildren, household projects, family activities, etc.

**Joseph Wheeler, Jr. (Ph.D., 1959)** retired from Shell in 1991. He is living in Houston with his wife, Pam. They have a country place in Ball, Louisiana, and spend a lot of time there with shrubs, flowers, and trees. His wife is from Bunkie, Louisiana, and they have friends and relatives there. They also have two daughters and a son who is an electrical engineer.

### 1960s

**Joseph Bindo (B.S., 1965)** is retired and living in Austin, Texas.

**Charles R. Guerin (B.S., 1962)** retired from Mobil Chemical in 1995 after a 30 year career that included both domestic and international management assignments. He started Guerin Business Development Corp to provide management assistance to small, local companies.

**Donald Winkler (Ph.D., 1961)** received his M.D. in 1968. He then served as an Army MD from 1968-74, including residency in Ophthalmology and began his practice in St. Augustine, Florida in 1975. He is still there, now semi-retired and continuing his hobby of research into SeaWater Conversion, which will soon be needed in Florida.

### 1970s

**Madhusudan Nathany (M.S., 1973)** is employed by Crescent Foundry, which is an ISO 9001:2000 manufacturer of cast iron and ductile iron castings as well as fabricated steel products and employees more than 500 people. It is located in India.

**John A. Miller (Ph.D., 1970)** is looking for employment while raising his youngest daughter (7).

**Tim Pavelle (B.S., 1979)** is a management consultant in the health sector in England.

**Michael Ray Spivey (B.S., 1970)** retired from Cytec Industries in May 2003. He is currently involved in an alternative certification program to teach high school math. He substitutes in area high schools and tutors in math. He enjoys fishing and his retirement.

**Patrick Takahashi (Ph.D., 1971)** is Director Emeritus and a retired professor

of engineering at the University of Hawaii. In his latest endeavor, he addressed UNESCO of the United Nations in Paris to propose an international partnership for the Blue Revolution.

### 1980s

**Connie Puls Fabre (B.S., 1986)** became executive director for the Greater Baton Rouge Industrial Managers Association, Inc. (GBRIMA) in March 2004. Prior to joining GBRIMA, she worked for Exxon Chemicals in Cologne, Germany; the B.F. Goodrich Company in Plaquemine and Cleveland, Ohio; Monsanto Company in Luling, Louisiana; Focused Developments, LLC in Baton Rouge; and the Louisiana Chemical Association, which is also in Baton Rouge. She grew up in New Jersey and overseas, following her father’s career with Exxon. She came to Baton Rouge in 1976, moved away for several years while working as a chemical engineer, but then returned to adopt Louisiana as her home. She enjoys the outdoors, motorcycle riding, and spending time with her husband and family.

**Mark LaCour (B.S., 1987)** is a senior principal engineer for ConocoPhillips.

**James Maness (B.S., 1984; M.S., 1987)** is a business improvement manager at Georgia Pacific.

**Ross J. Roussel (B.S., 1984)** is a process engineer for INVISTA, a subsidiary of Koch Industries (formerly DuPont Nylon). He is an avid tennis player and LSU football fan.

**Anthony Swan (B.S., 1986)** has been employed by Rubicon LLC since 1987, first at the Geismar plant. He is currently the site manager at the Huntsman Polyurethanes TPU Plant in Ringwood, Illinois.

**Ron Usie (B.S., 1980)** worked at Dow Chemical in Plaquemine from 1980-86 and

has been working at Georgia-Pacific in Zachary since 1986.

### 1990s

**Christopher Aarons (B.S., 1996)** has worked as a process engineer for the past six years with Engelhard Corporation in Pasadena, Texas, polyolefin catalyst development and production. He has been the supervisor in the Semi-Commercial and Pilot Plant units since February of 2001. Mainly responsible for developing and implementing process changes as well as new product introduction following concept validation in his unit. He also does toll work for external customers. His other work is in optimization and cost reduction throughout the plant. He is married to his college sweetheart but no children. He is a licensed private pilot, a slight computer geek, a car enthusiast, and a volunteer with animal shelters.

**Dennis Banks (B.S., 1993)** is currently employed as a staff process engineer at Valero in Texas City, Texas.

**Rocky Chen (B.S., 1994)** is currently working for the Oklahoma Department of Environmental Quality as an environmental engineer in the Water Quality Division. In 2003, he earned his accreditation as a certified massage therapist. Since 2000, he has been working with athletes at local health clubs and also at local, state, national, and international sporting events in the Oklahoma City area. He was selected as one of 60 international sports massage therapists to serve on the Athens Health Services Sports Massage Team 2004 where he provided sports massage to the athletes of the Athens 2004 Paralympics.

**Catherine Gauthier Coats (B.S., 1995)** joined Halliburton Energy Services immediately upon graduation and has celebrated her ninth anniversary with the Oilfield Services Division. She and her husband, R.J. Coats, have one daughter-Rose Marie (5). Catherine has obtained her Professional Engineering License in Petroleum Engineering and is currently working in New Orleans.

We would like to congratulate **Michael G. Corripio (B.S., 1997)** on being selected as

Employee of the Year in the Technology Department of the Hovensa Refinery in St. Croix, U.S. Virgin Islands. Corripio has been a chemical engineer at the refinery since 2000.

**Mohammad Fahrurrozi (Ph.D., 1997)** is a faculty member at Gadjah Mada University in Indonesia.

**Philip Hadaway, P.E. (B.S., 1995)** is a senior process engineer with Shell International Exploration and Production. He works in the E&P Projects division in the New Orleans office.

**Bianca McWilliams Jackson (B.S., 1996)** works for Honeywell. She contributed to two plant start-ups at Honeywell from 2000-03 while serving as production supervisor for those areas and was recently awarded an operations manager position. She is happily married with two children. She and her family are very active volunteering in the Gardere community near LSU.

**Peter Kim (M.S., 1997)** currently is a technical support engineer for Shell/CRI-Criterion Catalysts in Houston. He recently married and is enjoying the move back to Texas. He says to Nick, Clint, and Bijan, "Hope you guys are doing great wherever you are!"

**Jada Lewis (B.S., 1997)** is working as an environmental chemical specialist with the State of Louisiana's Department of Environmental Quality.

**Tommy Luong (M.S., 1996)** is the planning and economics manager at Valero's St. Charles Refinery in Norco, Louisiana. He has two children: Austin (5) and Emily (3).

**Cory Moss (B.S., 1993)** worked for Citgo Lake Charles Refinery for seven and a half years after graduation as a process engineer, refinery planner, and engineering supervisor. He changed companies to Valero Energy three years ago and is currently the operations complex manager at Valero's Texas City Refinery. He has been happily married for 10 years with three kids: Braden (6), Collin (4), and Victoria (2).

**Nishit Sahay (M.S., 1992)** is a technology manager for ABB Lummus Global Inc in

Houston. He received his M.B.A. from the University of Houston in 2001. He enjoys golf, cricket, travel, and music.

**Todd Gage Winterton (B.S., 1997)** is the project manager at the BST Biopharmaceutical facility for Monsanto Company in Kundl, Austria.

**Stefan Vogt (B.S., 1996)** is currently the Smelting Production Manager at Alcoa's Pre-bake Aluminum Smelter in San Ciprian, Spain. He's been living on Spain's northwest coast in the province of Galicia with his wife, Tanya, for one and a half years. Prior to this, he was located at Alcoa's smelter in Frederick, Maryland. Vogt states that he has many great memories of studying many hours at LSU. He gives lots of thanks to the professors (Corripio, Knopf, Dooley, Harrison, and especially Thibodeaux) for the inspiration they have given him.

### 2000s

**Mark Browning (B.S., 2003)** is currently working for United Parcel Service as the international coordinator for the Gulf South District. He does a lot of traveling in Louisiana and Mississippi. He says it is not exactly a chemical engineering job but an industrial engineering job. It goes to show that a chemical engineering graduate can do almost any type of engineering.

**Melissa Dillon (B.S., 2000)** currently works for Shell Chemical in control systems.

**Cynthia Lim (B.S., 2003)** works with the development group at Solvay Engineered Polymers in Mansfield, Texas. Her home is in Arlington, about a half hour away from Dallas. She loves the area and says the food and entertainment are great!

**Elaine Lim (B.S., 2003)** worked for Albemarle Corporation after graduation. She is now employed by Dupont-Dow Elastomers as run-plant engineer for the Chlorinated Polyethylene plant at Dow Chemicals in Plaquemine. Her husband will be graduating from LSU in Petroleum and Mechanical Engineering in the fall of 2004. They do not currently have any children and are planning to remain in Louisiana.

**David McGraw (B.S., 2000)** began working as a production engineer with ATOFINA petrochemicals after graduation. His past experiences with ATOFINA include production and project support in two HDPE units and a Butyl Acrylate unit. In the spring of 2004, he moved into a senior engineering position. Currently, he has been focusing on production support, DCS/PLC programming, advanced process controls, and an M.B.A.

**David Monett (B.S., 2003)** is a senior process engineer for Rubicon, LLC in Geismar, Louisiana.

**Aatish Patel (B.S., 2000)** is now in his second year at LSU Medical School in New

Orleans after working a few years as an engineer at URS Corporation. He says, "A chemical engineering degree can take you anywhere!"

**Robin Price Toups (B.S., 2002)** is currently attending law school at LSU.

**Allison P. White (B.S., 2002)** graduated *Cum Laude* from Georgia College and State University with a Master's degree in business administration in the fall of 2004. Currently, she is working for the U.S. Air Force-Department of Defense in Warner Robins, Georgia as a process and facility engineer, which covers process engineering, project engineering, production support, and equipment repair/purchasing activities.

Since graduating from LSU, she has had numerous opportunities to prove the worthiness of LSU's programs...she sends a belated thanks to the LSU faculty! In other news, she took a group of 10 Cadette and Senior Girl Scouts to New York City over Memorial Day weekend and was interviewed by *Good Morning America*. White attended the New Year's Day Capital One Bowl to cheer the Tigers on!

**Grettel Zamora-Estrada (B.S., 2000)** is working towards her Ph.D. in Cosmetic Science. She lives in Cincinnati, Ohio and loves traveling, dancing, and cigars.

## In Memoriam

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



*Isadore Austin Allen (B.S., 1933)*  
*Claude J. Baggett (M.S., 1937)*  
*Phillip Bertin, Jr. (B.S., 1934)*  
*Reginald N. Blaize, Jr. (B.S., 1934)*  
*Thomas Fulton Burke (B.S., 1972)*  
*John Michael Chambers (B.S., 1935)*  
*Allen Lawrence Chaney, Sr. (B.S., 1937)*  
*Ronald Lynn Clark (B.S., 1961)*  
*Robert Edward Coffman (B.S., 1932)*  
*Frank R. Cusimano (B.S., 1972)*  
*Miles Edward Davidson (B.S., 1967)*  
*Oscar Dewitt Duncan (B.S., 1952)*  
*William Victor Dunne (B.S., 1938)*  
*Harold Lee Finch (B.S., 1949)*  
*George Oliver Hillard, Jr. (B.S., 1937)*  
*Thomas W. Howard (B.S., 1956)*  
*James Elder Humphrey (B.S., 1936)*  
*Jewel Ann Hymel (B.S., 1960)*  
*Charles Lester Carville (B.S., 1942)*  
*Bernie Joseph Lofaso, Jr. (B.S., 1980)*  
*Ivan Lowry, Jr. (M.S., 1966)*  
*William Dean Luker (B.S., 1941)*

*Ernest Elvin McCollough (B.S., 1924; M.S., 1925)*  
*Edmund Frank Metz (B.S., 1949)*  
*John Augustus Moore (B.S., 1936)*  
*John Preston Moore, Jr. (B.S., 1962)*  
*Martha M. Mora (M.S., 1957; Ph.D., 1962)*  
*George Henry Nusloch II (B.S., 1948)*  
*Fred Carl O'Rourke, Jr. (B.S., 1947)*  
*Emile Christian Rolfs, Jr. (B.S., 1929; M.S., 1930)*  
*Alvin Rolufs (B.S., 1936)*  
*James M. Shipp, Jr. (B.S., 1962)*  
*Lawrence Lloyd Smith (B.S., 1939; M.S., 1941)*  
*Quentin Jared Trahan (B.S., 1944)*  
*Marcel Joseph Voorhies, Jr. (B.S., 1938)*  
*Edward Joseph Vorman, Jr. (B.S., 1948)*  
*David C. Walsh, Jr. (B.S., 1939)*  
*Durward Ogden Wilkes (B.S., 1932)*  
*Charles Burton Williams (B.S., 1961)*  
*Mark Allan Williard (M.S., 1972)*

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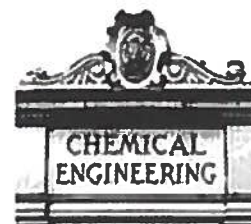
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## ALUMNI QUESTIONNAIRE

**WE WOULD LOVE TO HEAR FROM YOU!**

Please complete and return the following information form to:  
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You may also submit the information electronically to [gradcoor@lsu.edu](mailto:gradcoor@lsu.edu) or through our Web site, [www.che.lsu.edu](http://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 \_\_\_\_\_  
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