Notes from the Chairman

Dear Friends:

This is the first newsletter after our recovery and reorganization. I am very happy to tell you that the Department has fully recovered and is in full operational mode and looking forward to the future. Our undergraduates are happy with their education and involved in the Department and in rebuilding the community. Many of them participate in service learning and public service projects and this will be a distinctive aspect of the Tulane education in the years to come. Employment and internship opportunities for our undergraduates have tremendously improved and we are very grateful to our dedicated alumni who are helping provide these opportunities. Our graduates are doing wonderfully in post-graduate studies and in the workplace.

Research and Graduate Studies in the Department continue with intensity and vibrancy. Several new grants have come in including grants from the NSF, the NIH, DoE and EPA. Particularly encouraging is a major grant from the State through the Research Commercialization and Educational Enhancement Program. The grant will have a significant impact on the enhancement of our educational and research infrastructure.

Our primary objective in the coming year is to build our research and grow the department. A major aspect of this is the renovation of the Taylor Laboratory. We are well on the way to raising the funds for the renovation and have reached the half way point to our goal of 3 M. The university has agreed to match our fundraising on a 1:1 level, which makes the task very feasible. There are laboratory naming opportunities and two major teaching laboratories will be named in honor of Dean Raymond Bailey and Dean Samuel Sullivan. I request the alumni to contribute to this endeavor, especially as their contribution will be matched by the University.

As always, we look forward to hearing from our alumni. You have made us proud through your accomplishments, and we intend to maintain the standards of excellence in research and education through the coming years. Wish us well.

With very best regards,

Vijay John, Chair

Alumni Spotlight

We are thrilled that one of our alumni, Supriya Jindal (1993) is the First Lady of Louisiana! Supriya has had a distinguished career at Albemarle Corporation after graduation from Tulane. We wish Supriya and Bobby all the best in the years to come.

Board of Advisors Member Profile – Commissioner Lisa P. Jackson

This year we are honored to have a new member of our Board – Ms. Lisa Jackson (class of 83), currently serves as Commissioner for the New Jersey Dept. of Environmental Protection.

Before her nomination by Governor Corzine, Lisa served consecutively as the DEP’s Assistant Commissioner for Land Use Management and Assistant Commissioner for the Division of Compliance and Enforcement. Prior to joining DEP, she served for 16 years with the U.S. Environmental Protection Agency (EPA).

Lisa grew up in New Orleans, where she attended Tulane and graduated summa cum laude in chemical engineering. She then went to Princeton where she earned a master’s degree in chemical engineering. Lisa is very keen to help in the recovery of the region. She will be a great asset to our department.
Faculty News

Hank Ashbaugh is this year’s recipient of the Tulane President’s Early Career Development Award which honors “outstanding Tulane scientists and engineers who show exceptional potential in the early stages of their career”. Hank was chosen for the award because of his potential as a researcher and contributions to the study of “natively unfolded proteins” and how they interact with each other.

The team of Kim O’Connor, Vijay John, Kyriakos Papadopoulos, and Darryl Overby (Biomedical Engineering), headed up by W Godbey as principal investigator, was successful in obtaining funds from the Louisiana Board of Regents in the form of an Enhancement Grant to purchase a Fluorescence Activated Cell Sorter (FACS).

Vijay John and Kyriakos Papadopoulos are members of the newly established Louisiana Vaccine Center, a collaborative effort between the Health Sciences Campuses of Louisiana State University and Tulane University, and Xavier University’s School of Pharmaceutical Sciences. The Center was funded through a 5.5M grant from the Board of Regents. Our department’s research will focus on developing new technologies for transcutaneous vaccine delivery.

Victor Law and John Prindle received a $382,744 grant from the Department of Energy to support the development of more efficient technologies for hydrogen production that are compatible with nuclear reactor processes.

Through their collaboration with researchers at Penn State, University of South Carolina, and Argonne National labs, Vic and John will be developing processes for several thermochemical cycles which have the potential for efficiencies higher than those obtained through direct electrolysis of water. This work will focus specifically on electrochemical processes and technologies common to the cycles of interest. The process modeling and flowsheet analysis expertise provided by Tulane will be used to guide the experimental work performed at the other institutions. A paper on earlier work entitled “Analysis of the Copper Sulfate Cycle for the Thermochemical Splitting of Water for Hydrogen Production” was presented at the recent AIChE Annual meeting in Salt Lake City, UT.

Brian S. Mitchell and Hank Ashbaugh, along with Mark Fink of the Chemistry Department, were recently awarded a three-year grant by the Materials Processing and Manufacturing division of NSF to study the formation of functionalized silicon nanoparticles for optoelectronic applications.

Brian S. Mitchell is currently chair of the Materials Engineering and Science Division (MESD) of AIChE. He continues to participate in the Louisiana Board of Regents "Speaking of Science" program, and most recently made a presentation to students at Springfield Elementary School in May. In June, he participated in the German Academic Exchange Service's (DAAD) conference on "Worldwide Scientific and Research Migration and Mobility," in Sao Paulo, Brazil.

Kim O'Connor has received a R03 grant from the National Institutes of Health to develop strategies to enrich the content of adult stem cells in cultures of human bone marrow stromal cells (hMSCs). Preserving the stem cell content during ex vivo amplification is necessary for the use of hMSCs as cell therapies in regenerative medicine. Prof. O’Connor will design enrichment strategies using both a experimental and computational approach based on the population dynamics of stem cells and mature cells in hMSC cultures.

Kim O'Connor recently received a grant from the National Institutes of Health for the rational design of culture conditions that favor the enrichment of adult stem and progenitor cells in cultures of human bone marrow stromal cells. She is corresponding author for a review article on tissue engineering with adult stem cells that was highlighted by the Editorial Board of the journal Tissue Engineering. Prof. O'Connor delivered speeches on tissue assembly at AIChE in San Francisco and Society for In Vitro Biology in Minneapolis and has recently served on peer-review panels for the National Science Foundation.

John Prindle was recently elected by his fellow PE’s at Tulane to receive a 2008 Engineering Faculty Professionalism Award. This award will be presented to John at the Louisiana Engineering Society’s Awards Banquet in January.
**Student News**

**Tulane ChemE recipient of a Goldwater Scholarship**

*Harold (Wick) Hatch* is one of eight chemical engineering undergraduates nationwide who are recipients of the Barry M. Goldwater Scholarship. As excerpted from the Website (http://www.act.org/goldwater/), "The Barry M. Goldwater Scholarship and Excellence in Education Program was established by Congress in 1986 to honor Senator Barry M. Goldwater, who served his country for 56 years as a soldier and statesman, including 30 years of service in the U.S. Senate. The purpose of the Foundation is to provide a continuing source of highly qualified scientists, mathematicians, and engineers by awarding scholarships to college students who intend to pursue careers in these fields." Wick is the second Tulane ChemE student in two years (Jonathan Bakke, who won it in 2005, is now at Stanford) who has won the Scholarship. Wick is doing research with Professor Ashbaugh on molecular simulations. The Department is proud of him.

**Summer Undergraduate Research Experiences**

Many of our students participate in summer research programs at Tulane and at Universities and Federal Laboratories throughout the country. Some of the REU participants this summer were Jaime Castillo at Ohio State, Whitney Stoppel at the University of Massachusetts, Rachel Lynn at Dartmouth, Kristin Meyertholen at the NIH, Alex Lupulescu, Jennifer Staton and Cari Launiere at Tulane, Wick Hatch at Cornell, Andrew Katz at UT Austin and Ai Nguyen at Texas A&M. Their experiences are online at http://cbe.tulane.edu/intra_departmental/currentstudents.php.
Professor Papadopoulos visits China

June 29 – July 6, together with my wife, I visited China on an invitation from Professor Lixiong Wen of the Beijing University of Chemical Technology (BUCT). Professor Wen received his PhD from our department in 2001, then worked for INTEL in Los Angeles for a year before joining the faculty at BUCT, where he has risen through the ranks to the level of full Professor with tenure. He is also the deputy director of the Key Lab for Nanomaterials, Ministry of Education.

I was quite impressed by the level and intensity of work at BUCT as well as by the very sophisticated laboratories and equipment. When I gave my seminar talk, the auditorium was filled by a participating audience of graduate students, post-docs and professors, and the questions asked were probing and enlightening. Professor Wen has already graduated several students, and I was particularly impressed by the work of his recent PhD graduate (Dr. Jing Cheng) who used the video capillary microscopy technique to look at the ion transport through an oil membrane and the crystallization behaviors within a transparent microtube. Over dinner at an exquisite restaurant with Professor Wen’s colleagues, Department Chair Professor Jiangfeng Chen, and Professor Wei Wu, I had the chance to learn about the technological challenges and opportunities in China.

Thanks also go to his graduate students, Mr. Tian Hou, Mr. Xudong Liang and Ms. Jing Gao, who helped with the airport rides and the sightseeing.

This was our very first visit to China, so our friend and colleague Yunfeng Lu (now a Professor at UCLA with adjunct appointments at Tulane and several Chinese universities), made sure to be in Beijing for some of the time that we were also there. He arranged for some very fruitful and pleasant gatherings, organized on one occasion by Professors Zhengdong Yang and Zhihua Gan of the Chinese Academy of Sciences, where both Yunfeng Lu and Lixiong Wen had obtained their Masters degree before coming to the United States. Another wonderful occasion was hosted by Professor Duan Weng of Tsinghua University and Professor Meiqing Shen of Tianjin University. A most memorable event will also be the meeting we had in Xi’an City with Lixiong’s childhood friend Mr. Mao, his wife Ms. Li and son Mark. Mark, just turning fourteen that very day, truly charmed us with his personality and wit.

The scheduling of the non-technical part of our visit could not have been planned any better, all thanks to Lucy, Lixiong’s wife, who had attended the University of New Orleans when he was earning his PhD at Tulane, and now has an enviable career in industry in Beijing.

Even though Laura and I had always been fascinated by China, having read books and seen it in movies and documentaries, this trip made us love it even more.

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Alumni News

Siblings, Azaria Azene (2002), and Hendekea Azene (2005), are making the Department proud competing in CBS Television’s, “The Amazing Race”. As of Sunday, December 2nd, Azaria and Hendekea won three out of five segments and are going on to compete for a one million dollar prize. See CBS’s web site at http://alpha.cbs.com/primetime/amazing_race12/ for the team’s bio and recaps of previous segments.

Shawn Haynes, M.S.(2003), has accepted the role of process control engineer for the SCO Olefins organization at Dow. He will be a key contributor in establishing a formal process control team for SC-1 and SC-2. Prior to joining Dow in 2005, Shawn worked for the U.S. Department of Energy modeling the thermodynamic behavior of cavern crude oil and cavern integrity.

Dr. Juan Hinestroza, Ph.D. (2002), Assistant Professor, Cornell University, has been selected by the Society of Hispanic Professional Engineers (SHPE) as Educator of the Year in Higher Education. Congratulations Juan!

Zhijun Xiao, Ph.D. (1998), recently left Schlumberger for a new position at Shell International Exploration and Production. He is still on production engineering/reservoir stimulation with a little shift from R&D to operation support.
The Department is awarded a major grant from the Board of Regents RCEEP Program

Tulane’s Department of Chemical and Biomolecular Engineering led an inter-institutional team that was successful in obtaining a 3.9 M grant from the State Board of Regents through the Research Commercialization and Educational Enhancement Program (RCEEP). Other members of the team were Xavier University’s Department of Chemistry and Department of Mathematics and Nunez Community College’s Process Technology Program. The overall objective of the State’s RCEEP initiative is to revitalize the region’s economy through research commercialization and a highly-skilled workforce.

The proposal to the State was written based on the following guiding principles (a) that Chemical Engineering and the Chemical Sciences are intrinsic to the economic development of the region, which has a strong base in the chemical industry. The fields are inherently interdisciplinary encompassing research and education in health, energy, and the environment (b) Providing high quality programs that integrate research and education in chemical engineering and the chemical sciences will help recruit students to the affected universities (c) that providing enhanced educational opportunities to students from underrepresented minority groups and low/middle income communities will enable them to excel academically and transition to rewarding careers in the chemical industry.

At Tulane, the grant will significantly improve our research and educational infrastructure, allowing us to position ourselves as a distinguished program in chemical and biomolecular engineering.