Dear alumni, colleagues, and friends,

It is with great pleasure that I write to you as the new chair for the Department of Chemical and Biomolecular Engineering. Our department is one of the oldest in the country—it was first started in 1894 with an annual tuition of $80, worth $2,105 in 2012 currency. We currently offer instruction and training to approximately 85 undergraduate students, with a graduating class in 2012 of 15. We have 37 graduate students, with Alex Girau (MS, 2012) and Luigi Verdoni (PhD, 2012) our most recent graduates.

CBE led the School of Science and Engineering in grant revenue in fiscal year 2011, and has been a leader in research in the school for the past three years. I am enthusiastic about the current state of the department, and see the opportunities for continued success and national visibility and prominence.

With the completion of new research facilities within the four-story, 24,000 square foot facility of Flower Hall anticipated in October of 2012, we look forward to a growth in research capabilities. I encourage those of you who remember the Francis Taylor undergraduate laboratory to return to visit the new facilities and see the reconstructed Taylor laboratory within Flower Hall. We are grateful to the alumni and friends whose generosity has enabled this critical addition to our department and the school.

Chemical and Biomolecular Engineering at Tulane will continue to provide outstanding education for undergraduate and graduate students, and I look forward to sharing this exciting future with you.

Anne Skaja Robinson, Chair
A Hearty Welcome

Anne Skaja Robinson said she was drawn to Tulane because of the opportunity to enhance her research and teaching as the Boh professor and at the new Donna and Paul Flower Hall for Research and Innovation, opening this fall.

She arrived at Tulane in January after teaching for 14 years at the University of Delaware, where she gained a global reputation for her efforts to decipher neurodegenerative brain disorders like Alzheimer’s disease.

“Understanding what is happening to brain cells is key,” Robinson said during a slide-show presentation of her research, which focuses on interactions between molecules. Once that mystery is solved, the cure for Alzheimer’s and similar diseases could be within reach.”

“Things are happening so fast, any given day we may find the key insight needed to enable a cure,” Robinson said.

Adapted from New Wave and Wavemakers articles, March 13, 2012 - Read more and view the video: - [http://tinyurl.com/8uw7hsv](http://tinyurl.com/8uw7hsv)

Hussain Dahodwala joined the department in January 2012 as a postdoctoral scholar in Anne Robinson’s lab. His focus will be on membrane protein expression studies and Alzheimer’s related studies both in yeast and mammalian cells. Dahodwala earned a doctoral degree in biochemistry and biophysics from Rensselaer Polytechnic Institute. He holds a degree in bioinformatics and has worked in the biotechnology industry. His dissertation work involved studying the influence of epigenetic changes on transcription in CHO cells.

Bennetta Horne joined the department in January 2012 as a Grants/Contract Accountant II. Her primary responsibility is the financial management and programmatic coordination of the project, “The Science and Technology of Dispersants as Relevant to Deep Sea Oil Releases” headed by Vijay John. Other responsibilities include grant communication, reporting, and education outreach. Horne holds a master’s degree from Louisiana State University Health Sciences Center in microbiology, immunology, and parasitology and a bachelor’s in biology from Xavier University of Louisiana. Horne is an adjunct instructor of biology at Dillard University.

Alumni Spotlight

CBE Alumnus and Former Professor – now UK’s, College of Engineering Dean

John Y. Walz, (BS ’82) and former Tulane chemical engineering faculty member is now the 10th dean of the University of Kentucky, College of Engineering.

In his welcome letter, Walz, who received his doctoral degree from Carnegie Mellon University in 1992, mentions “a world-class faculty, a growing, talented student body and a sought-after alumni base” as aspects of the college that have him “energized about the future.”

In a recent article, Walz said he was drawn to the University of Kentucky because of the opportunities to collaborate with the medical school, dental school and pharmacy school which are located in close proximity to the College of Engineering.
Outreach

CBE undergraduates pass on their love for science to K-7 students from St. James Methodist Church Summer Camp as part of the outreach component of Vijay John’s C-MEDS project. The research experience and community outreach were sponsored by the Gulf of Mexico Research Initiative and the National Science Foundation.

From left CBE undergraduates Brian Broom-Peltz, Sinead Holleran and Nickolas Altieri. One of the youngest budding scientists, Cassidy (top left), is the daughter of Bennetta Horne, C-MEDS Program Administrator and Outreach Coordinator, who helped organize the event along with Eric Roque of Tulane’s Center for Engaged Learning and Teaching (CELT).

Undergraduates participating in the REU organized by Noshir Pesika and Lawrence Pratt as part of a National Science Foundation EPSCoR, LA-SiGMA grant, presented their research at the Summer Undergraduate Research Forum (SURF) poster presentation Friday, July 27, 2012 at LSU in Baton Rouge, LA.

From left Thaddeus Howard, University of Dallas, Jospeh McPherson, Rhodes College, Julia Russ, Ithaca College and Ellie Rodebeck, Tulane University participated in nine weeks of laboratory research with professors Noshir Pesika, Lawrence Pratt, Hank Ashbaugh, Anne Robinson and Zhiqiang Mao (Physics Dept.).

Prof-in-Residence Helps Create Unique Community | New Wave | Belinda Lacoste | March 22, 2012

W Godbey moved into the Wall Residential College on campus with his family last summer to serve as the Wall professor in residence.

“The purpose of the Wall professor is to bridge the chasm between students and faculty,” Godbey says. “We want the students to realize even faculty are always learning – and since we’re all doing the same thing we should be able to rub elbows with each other.”

Godbey organizes a variety of events and activities to bring faculty members and students together in a casual environment. His favorite activity is having a couple of students over for breakfast or dinner and seeing what’s on their minds.

“They talk about academics, sports, music and life after graduation,” Godbey says. “It turns out that many students are concerned with issues that do not show up on college applications or during classroom discussions. I never know what’s going to come up, and it’s always interesting!”

Submit news items, address changes to: Belinda Lacoste, Editor, ChE Wave, bal@tulane.edu Department of Chemical and Biomolecular Engineering Tulane University, New Orleans, LA 70118-5698
Faculty News

**Vijay John**, is the lead investigator of one of eight research consortia which received a total of $112 million in 2-4 year grants administered by the Gulf of Mexico Research Initiative (GoMRI), in August 2011.

The Consortium for the Molecular Engineering of Dispersants (C-MEDS), with Tulane as the host institution, was awarded $10,388,000 to investigate the fate of crude oil discharges on the environment, the impacts of the Deepwater Horizon oil spill on the Gulf of Mexico, and the development of new tools and technology for responding to future spills.

C-MEDS comprises 43 researchers from 22 institutions. Along with Vijay John, investigators from CBE at Tulane include Lawrence Pratt, Noshir Pesika, Hank Ashbaugh and Kyriakos Papadopoulos.

**Read more and view current research on our web site –** [http://tulane.edu/sse/cbe/](http://tulane.edu/sse/cbe/)

**Brian Mitchell**, who was recently elected Fellow in the American Institute of Chemical Engineers, has received a fellowship from the Alexander von Humboldt Foundation for a Renewed Research Stay to be carried out at the Max Planck Institute of Colloids and Interfaces in Potsdam, Germany during the summer of 2012.

Mitchell is collaborating with Dr. Dmitry Shchukin of the Max Planck Institute for Colloids and Interfaces (MPIKG) in Potsdam on the doping of functionalized silicon nanoparticles using sonication. Dr. Shchukin is investigating the use of high energy sonication to dope semiconductor nanoparticles with metals such as Lithium and Aluminum in order to change the nanoparticle properties.

The silicon nanoparticles are formed in a mechanochemical process that was patented by Mitchell, Prof. Mark Fink of the Chemistry Department, and Mitchell’s former graduate student Dr. Andrew Heintz.

Mitchell plans to combine these two techniques to modify the optoelectronic properties of silicon nanoparticles for eventual use in batteries, displays, and as biological markers.

**Kim O'Connor** received $499,377 from the National Science Foundation to support research to develop effective stem cell technologies to repair damaged bone by gaining insight into the heterogeneity in composition of bone marrow-derived, human mesenchymal stem cells at the cellular and molecular levels.

Bone marrow is a promising source of stem cells for regenerative medicine to repair a variety of damaged tissues and organs. Mesenchymal stem cells derived from bone marrow are a highly heterogeneous mixture of cells, whose composition varies substantially from patient to patient.

These compositional changes are significant in that they greatly impact the effectiveness of stem cell therapies under development.

The goal of the research is to develop novel technologies to isolate specific cell populations in heterogeneous mixtures of mesenchymal stem cells at the cellular level and to pharmacologically regulate interactions between different stem cell populations that govern bone formation at the molecular level.

The practical application of these intervention strategies and cell isolation methods is the consistent and rapid production of highly efficacious stem cell therapies to repair bone.

**Lawrence Pratt** (with seven other Tulane colleagues) was awarded $498,651 for one year from the National Science Foundation to study computational materials science under the "Louisiana Alliance for Simulation Guided Materials Applications" (LA-SiGMA: Louisiana EPSCoR Research Infrastructure Improvement: Computational Materials).

**Learn more about the project at** [http://lasigma.loni.org](http://lasigma.loni.org)
Alumni News

CBE Board of Advisors Member, EPA’s Lisa Jackson – 2012 Commencement Keynote Speaker

Jackson, the New Orleans native whose life journey has taken her from the Ninth Ward to the White House, delivered the keynote address at the Tulane University Commencement 2012.

Newsweek named Jackson, who was appointed administrator of the U.S. Environmental Protection Agency by President Barack Obama, one of the “Most Important People in 2010.” TIME magazine featured her on its list of the “100 Most Influential People in the World” and she was one of Essence magazine’s “40 Women Who Have Influenced the World.”

Adapted from Tulane New Wave, March 2012 – Read more at http://tulane.edu/grads/speaker.cfm

Tommy Meehan (‘83) was the recipient of the SSE Outstanding Service Award at the Tulane University School of Science and Engineering alumni awards ceremony in the Lavin-Bernick Center on April 12.

The award is presented to “those alumni who, through their dedicated and voluntary efforts to support the programs and mission of Tulane, express their gratitude to the School and insure it’s enlarging impact on our community and future generations of students”.


Miriam E. John (’72) received the School of Science and Engineering Outstanding Alumna award in April 2011. The award is the highest form of alumni recognition given by the School of Science and Engineering.

The recipient is defined as: “One singularly successful individual who, through exemplary accomplishments and recognition, epitomizes the potential of a Tulane education and thereby brings credit and honor to the School and University.

Read Mir John’s biography: - http://tulane.edu/sse/cbe/alumni/news/

CBE Graduate Promoted to Associate Professor

Juan P. Hinestroza, a 2002 Ph.D. graduate from our department, has been promoted to associate professor with tenure at Cornell University.

Hinestroza works in the area of polymer rheology, in particular, on understanding fundamental phenomena at the nanoscale that are of relevance to fiber and polymer science.

Read more at - http://tulane.edu/sse/cbe/alumni/news/juanhinestroza.cfm

Hong Song was appointed assistant professor in the Division of Nuclear Medicine of the Department of Radiology at Johns Hopkins University School of Medicine.

Song earned a combined Ph.D. in chemical engineering and M.S. in molecular and cellular biology from Tulane in 2003. He is currently working on targeted therapy of breast cancer metastases using novel approaches, such as cancer vaccines in combination with targeted alpha-particles to overcome tumor immunosuppression.
Spring 2012 Undergraduate Awards

CBE senior, Jordan Rissolo, won the AIChE Activity Award for outstanding services to the profession.

The AIChE Senior Scholarship Award was presented to Beau Pritchett, the senior with the highest scholastic average.

Joseph (J.P.) Greene, won the AIChE award for a junior with the Highest Scholastic Average.

Steven Williams & Michelle Park were presented the American Institute of Chemists outstanding senior award.

Senior, Jordan Rissolo, received the Francis M. Taylor Award for outstanding citizenship.

J.P. Greene and Etham Frenkel received the Chevron Corporation Award for outstanding juniors.

Alexander Girau, was chosen by undergraduate students as the Outstanding Teaching Assistant.

Jonathan Lucia and Nicholas Altieri received the Randall K. Nichols Award for juniors with talents worthy of recognition and encouragement.

Fall 2011 Graduate Student Awards

The Distinguished Graduate Student Award was presented to eight graduate students whose research resulted in a first-authored journal publication in calendar year 2011.

The awards were presented at a ceremony in Dec. 2011, to (L-R) Amin Azizi, Katie Russell, Miguel Garcia-Bermudes, Qing Wang, Santosh Dhule, Bhanu Sunkara, Rajesh Venkatasubramanian and Peixi Zhu.

Santosh Dhule and Qing Wang received the American Institute of Chemists (AIC) Outstanding Graduate Student award.

The Outstanding Research Award was presented to Katie Russell as a graduate student who has demonstrated creativity, independence, self-motivation and productivity.

Jingjing Zhan (L) won the AIC Outstanding Postdoctoral Researcher award.

Class of 2012

Top L-R:
Byron Nelson
Michael Soforenko
Jordan Rissolo
Patrick Taylor
Steven Williams
Beau Pritchett

Front L-R:
Evan Gary
Michelle Park
Jeremy Griffith
Andrew Max
Ashlin Barnes
Robert Ozdowy
Rachel Calloway
Outstanding Students and Researchers

On ABC 26-News With a Twist, **Bhan Sunkara** (L), a graduate student in Vijay John’s laboratory, explains how composite particles used to clean contaminants in groundwater are made from Louisiana sugarcane and crawfish shells.

View the video online at:  [http://tinyurl.com/7j8jacnj](http://tinyurl.com/7j8jacnj)

**Sunkara** and **Jingjing Zhan**, (R) a postdoctoral researcher, in John’s lab, develop NanoFex particles that absorb harmful chemicals and cause them to naturally degrade.

Read more on our web site:  [http://tulane.edu/sse/cbe/](http://tulane.edu/sse/cbe/)
Or visit the NanoFex web site:  [http://nanofexllc.com](http://nanofexllc.com)

**Katie Russell**, a doctoral student in Kim O’Connor’s laboratory, published featured articles as first author in Stem Cells in 2010 and in Biotechnology & Bioengineering in 2011. She is coauthor on an additional three peer-reviewed publications and a patent application.

Her poster “High-capacity assay to quantify the clonal heterogeneity in potency of mesenchymal stem cells” was selected as a finalist (top 7%) at the European Society for Animal Cell Technology, Vienna, Austria in 2011.

Katie received a competitive NIH travel award to present her research at the NIH National Graduate Student Research Conference in Bethesda, MD in 2011.

**Lakhinder Kamboj**, a doctoral student in Noshir Pesika’s laboratory submitted a winning proposal to the Bill & Melinda Gates Foundation netting a $100,000, Round 8 Grand Challenges Explorations Grant.

Kamboj, along with Sergey Shevkoplyas (Biomedical Engineering), lead PI on the project, propose to design a device which utilizes biomimetic adhesive surfaces developed by Pesika, to facilitate safe and easy childbirth in resource-limited settings.

“The idea came from the fact that only two types of instruments, metal forceps and a suction device similar to a plunger, have been used in history,” says Kamboj, “and what can be done to eliminate them completely.”

The microfabricated bi-directional membrane could be an inexpensive option for easing the baby’s passage through the birth canal without the use of potentially harmful instruments to aid in delivery.

In July 2012, **Wei Zhang**, a doctoral student in Lawrence Pratt’s laboratory and president of the CBE Graduate Student Association, organized a graduate student retreat as part of Pratt’s LA-SiGMA grant.

Graduate students, undergraduates and postdoctoral researchers from Tulane, Xavier, UNO, LSU, LA Tech and Southern University in Baton Rouge attended a morning lecture organized by Pratt featuring physicist and author, Peter Feibelman, entitled “Junior Scientist Survival Training.”

During the afternoon retreat graduate students had an opportunity to present their research in an “elevator talk” type competition, they had a visit from a representative of Tulane Career Services and spent time planning the next retreat.


**Alex Girau** (MS ‘12), a graduate student in Brian Mitchell’s laboratory, along with medical student Olivia Chang developed SODI-CAN – a plastic container with a coating inside that kills germs and bacteria in water when heated by the sun. The container could potentially be used in areas with limited access to clean drinking water.

Girau and Chang won a $5,000 prize in a Medical Science Innovation Challenge at the Tulane School of Medicine.

*Adapted from Tulane New Wave, April 2012 – Read more:  [http://tulane.edu/sse/cbe/](http://tulane.edu/sse/cbe/)*
“Dr. Law, I remember you had the best laugh,” Lynette Collins Walker said to Professor Victor Law when they reunited on Tulane’s campus after thirty years. “I would come into your office and cry and you would say everything is going to be ok. You were very solid, very reassuring. And [I thought] Dr. Law says it’s going to be ok, it’s going to be ok, I can do this,” Walker said.

“And you did,” said Law who was head of the Computer and Information Systems program when Walker graduated in 1979. Walker attended Tulane as a math major until Law encouraged her to pursue computer science during an advising session. She was among the very first groups of women to graduate from the School of Engineering.

“It was Dr. Law’s attitude, work hard, play hard. This is what I remember,” Walker said. “Have some confidence, focus.” “You sat behind your desk and laid the law down,” Walker said to Law jokingly.

After graduation Law recommended Walker for her first job at a local computer store. “This guy Bill Lucky sold things to us in the computer science department,” said Law, “and he told me one day he wanted to hire someone to do customer support and interact with the customers – and I said, well you need Lynette.” “And it really was a great job,” said Walker, “because there was so much to learn then. Computers were changing by the second and you really had to be on top of it and I had a lot to learn. And also it was a good people job. I was shyer then and it made me less shy and learn how to deal with people dynamics.”

Several years later after the birth of her two sons, Walker decided to be a stay-at-home mom and soon after took up painting, originally as an activity to do with her children. “I took my math brain and my computer brain – because math is very logical and very geometric,” said Walker. “I learned to paint, now twenty years later this is what I do.”

Walker now has an agent and does commission work in the New Orleans area painting large abstract geometrics.

Next year (2013) will be Law’s 50th anniversary teaching at Tulane. He earned a B.S. (’60), M.S. (’62) and Ph.D. (’63) in Chemical Engineering from Tulane and began teaching in the Chemical Engineering Department in 1963.

He was head of the Computer Information Systems program and what grew to become the Department of Computer Science from 1973 to 1982.