IOWA STATE UNIVERSITY
College of Engineering

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Department of Chemical and Biological Engineering
Fall 2011 | Issue Number 22

THE BIO RENEWABLE GENERATION

page 4

Catie Brewer earns the 2011 George Washington Carver Award at this year's World Congress on Industrial Biotechnology & Bioprocessing.

Catie Brewer
Katzer Energy fellow
Ph.D. candidate

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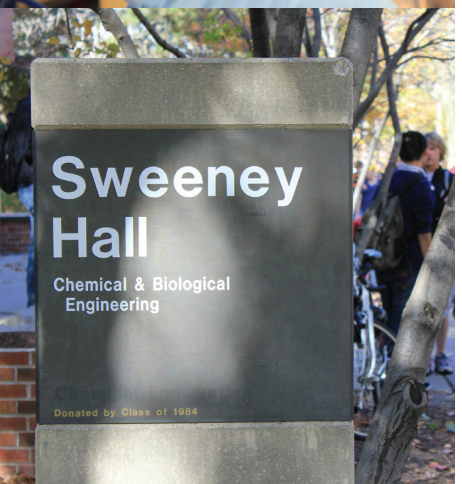
Letter from the Chair

Dr. Surya K. Mallapragada
Chair, Department of Chemical and Biological Engineering
Stanley Chair in Interdisciplinary Engineering



Dear Alumni and Friends:

Iowa State's Department of Chemical and Biological Engineering is proud of its accomplishments in 2011.

Undergraduate enrollment is at an all-time high with 554 students registered this fall, up 59 students from fall 2010. Graduate enrollment is also increasing. Of our entire student population 202 received at least one scholarship, while many received several, totaling almost $350,000 in scholarship and fellowship awards. Congratulations to our deserving, high quality student base, and thank you for making it possible.

Our students are quite inspiring. CBE graduate student **Catie Brewer** received the James Katzer Energy Fellowship this year (page 4). She honorably serves CBE's "quest to be the best" in improving energy technologies with her outstanding research related to biochar engineering. CBE senior **Elliot Combs** – our student highlight story (page 13) – received the Burkhart Senior Award in honor of his outstanding and well-rounded achievements in courses, research and leadership activities. Postdoc research associate **Latrisha Petersen** won an ISU Research Excellence Award and placed second in the AIChE Bionanotechnology Graduate Student Competition (page 10). 2011 alumnae **Ann Gleason** was named a Tau Beta Pi Laureate – one of only 72 students named nationally within the 29-year history of the Tau Beta Pi Laureate Program (page 9).

In 2011 our research expenditures set a record at over $9 million, a 13 percent increase from last year. Much of the funding came from federal and industrial sources. We received several major grants, especially those in partnership with area universities and government agencies. Many of these awards are highlighted in this newsletter: a $20 million collaborative NSF grant on biorenewables that Anson Marston Distinguished Professor **Robert Brown** shares with the University of Iowa and the University of Northern Iowa; a $300,000 NSF grant to Assistant Professor **Laura Jarboe** for hybrid processing research in biorenewable chemicals (page 7); a $300,000 grant Assistant Professor **Ian Schneider** received from the Roy J. Carver Charitable Trust of Muscatine regarding cell migration to improve the grading of cancers (page 7); a $300,000 DOE grant to Distinguished Professor **Rodney Fox** for estimating reliability in gas-particle flow simulations (page 7); Mike and Jean Steffenson Professor **Brent Shanks** continues to provide outstanding leadership to the NSF-funded CBiRC Engineering Research Center at Iowa State; and many more.

Several of our faculty members received special honors. **Charles Glatz** was named University Professor (page 7); Assistant Professor **Eric Cochran** received College of Engineering's Early Career Engineering Faculty Research Award and was named the inaugural Karen & Denny Vaughn Faculty Fellow (page 7); and Distinguished Professor **Rodney Fox** earned the LaGrange Fellowship.

Our alumni have made us proud as well. **Allen Jacobson** (B.S. ChE '47) earned the Iowa State Distinguished Alumni Award (page 8); **Ken Garrett** (B.S. ChE '64) received the Marston Medal (page 7); **Bryce Freeman** (B.S. ChE '96) earned the ISU Young Alumni Award (page 9); **Paul Fisher** (B.S. ChE '87), **Gary Griswold** (B.S. ChE '67) and **Nick Wilson** (B.S. ChE '67) all received a Professional Achievement Citation in Engineering (PACE) Award (page 6); George (Ph.D. ChE '51) and Agatha Burnet received the Order of the Knoll Faculty and Staff Award (page 6); **Ganesh Sriram** (Ph.D. ChE '04) was awarded the 2011 Maryland Outstanding Engineer of the Year (page 6); and more.

The CBE Department centennial approaches. We are producing a book of the department's history since its founding in 1913. This project is led by Anson Marston Distinguished Professor Emeritus **George Burnet**. Print bids have been placed for the book, which we plan to make available to all alumni and friends in spring 2013. Work is also underway to complete renovation of research spaces in the 1964 wing of Sweeney Hall, provided by an NSF grant. In addition we hope to complete renovation of some teaching and student services spaces to make Sweeney Hall ready in time for the CBE centennial.

Your successes help the department continue to build its outstanding reputation. Please keep in touch by writing us (see back cover). We also invite you to stay in touch with us by viewing our re-designed website and through social media on Facebook, Twitter and LinkedIn. Have a pleasant holiday season and wonderful 2012.

Best Regards,

M. Surya

Surya K. Mallapragada

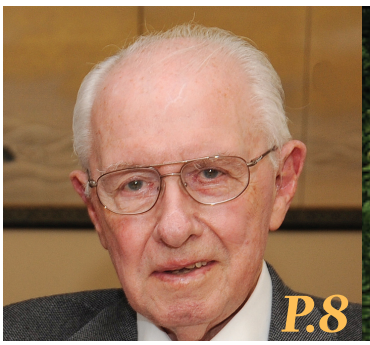
Chair, Department of Chemical and Biological Engineering
Stanley Chair in Interdisciplinary Engineering

BE>YOU IMAGINED
Chemical and Biological Engineering

Katzer gives for biorenewable future


P.4

Allen Jacobson, Distinguished Alumnus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Kenneth Garrett, Marston Medal winner


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Our future

We are proud of what our students have achieved this year


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New to us

Meet the talented additions to CBE faculty and staff


P.6

Our legacy

See what your fellow CBE alumni have accomplished


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How we shine

Read about CBE faculty promotions and awards from 2011


P.13

Student spotlight

Meet Elliot Combs, an undergrad who puts Iowa State CBE on the map

P.14

To our donors

We recognize individuals and organizations who gave this year

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Department of Chemical and Biological Engineering | Fall 2011 | Issue Number 22

Professor and Chair, Department of Chemical and Biological Engineering
Stanley Chair of Interdisciplinary Engineering
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Jody G. Danielson

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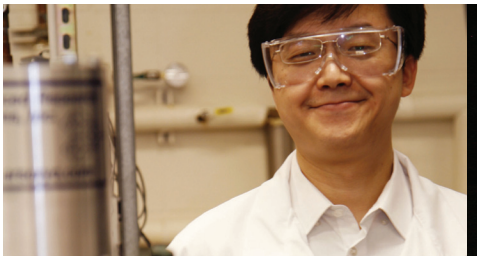


(Left to right) Dr. James Katzer, affiliate professor in CBE and creator of the James Katzer Energy Fellowship, meets with students from universities in Beijing, China, at the 6th Annual Sino-U.S. Joint Conference of Chemical Engineering in Beijing November 7-10. Katzer joins Manley Hoppe Professor Dr. Jacqueline Shanks, Mike and Jean Steffenson Professor Dr. Brent Shanks and Associate Professor/Associate Chair for Graduate Studies Dr. Monica Lamm at the SIno-U.S. Joint Conference of Chemical Engineering. 2011 James Katzer Energy Fellowship recipient Catie Brewer displays biochar in the research fields at Iowa State University. Biochar is a biomass charcoal that enhances soil quality — a biorenewable material that Brewer has been studying throughout her graduate career at Iowa State with Anson Marston Distinguished Professor Dr. Robert Brown.

Photos courtesy of James Katzer and Iowa State University Bioeconomy Institute

Gift creates grad fellowships to recruit and retain top CBE graduate students

Dr. James Katzer

Dr. **James Katzer** (B.S. ChE '64), a CBE department advisory council member and affiliate professor in CBE, and his wife, Isabelle, have donated more than $350,000 to establish the James Katzer Energy Fellowship for the benefit of Iowa State CBE graduate students. Dr. Katzer was elected to the National Academy of Engineering in 1998 for his outstanding research accomplishments and retired from ExxonMobil Research and Engineering Company in 2003. He was a professor in chemical engineering at the University of Delaware before joining Mobil in 1981.

He spent his career working with energy technologies and emphasizes their importance in meeting the growing demand for energy. "It is important to step back and assess goals, objectives, progress and impact of these energy activities," Katzer said. "It is for this reason I decided to initiate this fellowship."

Katzer's gift recognizes the importance of chemical engineers and their development of solutions to national energy crises. Today CBE aims to foster new and innovative energy-related research through biorenewable materials. The James Katzer Energy Fellowship is an endowed graduate fellowship for a dedicated graduate student in the CBE department working in this area.

Catie Brewer, a chemical engineering Ph.D. candidate and recipient of this year's James Katzer Energy Fellowship, sets the bar for graduate education in biochar energy research. Biochar is a charcoal created from a thermochemical decomposition of biomass like corn. This solid byproduct enhances soil quality, which yields a longer, sustainable crop.

As a graduate student Brewer already has four refereed journal articles involving biochar engineering; five oral presentations nationally and internationally; four poster presentations made throughout the U.S. and Brazil; and a book chapter co-authored with Iowa State Anson Marston Distinguished Professor **Robert Brown**. She currently is co-developing new teaching labs and biochar collaborations at the Biorenewables Research Laboratory with Iowa State chemistry, agronomy, and horticulture departments. Brewer also is president of the Chemical Engineering Graduate Student Organization, and volunteers for the Ames Laboratory Science Bowl and State Science & Technology Fair of Iowa. In addition to the Katzer fellowship, Brewer received the prestigious three-year National Science Foundation Graduate Fellowship earlier in her graduate career.

Brewer will use the James Katzer Energy Fellowship to further research in biochar characterization and engineering within this year. She plans to complete her doctor of philosophy degree this May.

She is the second recipient of the James Katzer Energy Fellowship. **Yongsuk Choi**, a graduate student who works with Mike and Jean Steffenson Professor Dr. Brent Shanks, was the inaugural recipient in October 2010.

New faces and spaces around Sweeney Hall

Thanks to a competitive $1.75 million grant from the National Science Foundation (NSF), we are renovating research labs throughout the 1964 wing of Sweeney Hall, which will be complete this spring. In addition to the NSF support, private support from individual donors such as Dean (B.S. ChE '68) and Sharon Vance, will help complete the research renovations. We are also upgrading the teaching and learning spaces in 1964 Sweeney in time for our Department Centennial in 2013. Clockwise from the very top: Room 1123, a new computer laboratory; a third floor research lab; Room 3149, a new student study space; and a second floor research lab undergoing renovation.

Kaitlin Bratlie

Kaitlin Bratlie is a new assistant professor of materials science and engineering and chemical and biological engineering.

As a graduate student at the University of California-Berkeley, she worked with metal surfaces and found she enjoyed the research and interactions of surface science. She then made the switch to biomedical research as a postdoctoral fellow at the Massachusetts Institute of Technology (MIT).

Her research team at MIT worked to reverse type 1 diabetes by using pig pancreas cells in humans whose own pancreases did not function.

Now heading her own lab, Bratlie will focus on what makes biomaterials, like heart valve and hip replacements, compatible in organisms. The project outcome will include a list of biomaterials that function best in organisms and ones that are rejected. These findings will be used to engineer more compatible and effective biomaterials.

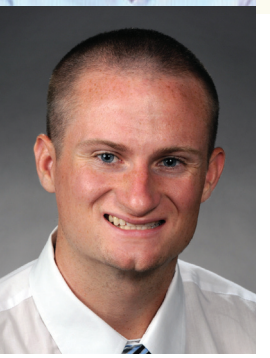
Shannon Grundmeier

An Iowa native, Academic Adviser I **Shannon Grundmeier** joined CBE June 1. She splits advising duties with the materials science and engineering department.

Before joining us Shannon worked five years in the Iowa State University Financial Aid Office as a student peer mentor, graduate assistant and, eventually, a full-time financial aid adviser. She earned dual bachelor's degrees in management and psychology from Iowa State in 2007. While an undergrad Shannon studied abroad in Greece as part of a Greek language/literature program there in 2006. She later earned her master's degree in higher education in 2009 with an emphasis in educational leadership and policy studies, also from Iowa State. It was in graduate school when Shannon realized student advising was her passion.

She is married to Jake, her husband of three years. At home she has two dogs: Nero, a black Labrador, and Keela, a Visla mix.

Chris Neary



Born in Royal Oak, Michigan, **Chris Neary** has come a long way to join CBE as its communications specialist II. He started at Iowa State August 1.

Before joining us Chris was a public information specialist at Aiken Technical College in Aiken, South Carolina. He spent 16 months developing the college's Facebook, Twitter and YouTube pages, writing press releases and web news, designing publications and advertisements and photographing collegiate events. Before that he was a school portrait photographer for a year at Lifetouch National School Studios, based out of Elgin, South Carolina.

Chris graduated from Michigan State University with a bachelor's degree in journalism in summer 2009. As a student he worked in the MSU Physical Plant Division redesigning the division's publications, photographing events and reporting on several high profile projects. Chris also led the MSU chapter of Society for News Design as president, vice president and secretary from October 2005 to April 2009.

Gayle Roberts (B.S. ChE '81) received the 2010 Upward Mobility Award from the Society of Women Engineers. Roberts, who also is on the CBE advisory council, was honored for bringing exceptional technical and management abilities to corporate leadership as president and chief operating officer of Stanley Consultants. She started as a process engineer at the Des Moines-based provider of worldwide engineering, environmental and construction services, and through 20 years of service gained valuable leadership experience as an underrepresented minority in the industry. Roberts officially received the award at the Society for Women Engineers Annual Conference (WE10) in Orlando, Florida, November 4, 2010.

Dr. Ganesh Sriram (Ph.D. ChE '04) was named the 2011 Maryland Outstanding Young Engineer by the Maryland Science Center. The award was established in 1988 by the Maryland Academy of Sciences to encourage important work of young scientists and engineers living in Maryland and increase public awareness of their accomplishments. As an assistant professor at the University of Maryland's Department of Chemical and Biomolecular Engineering, Sriram's expertise is metabolic engineering and systems biology.

Drs. George (Ph.D. ChE '51) and **Agatha** (M.S. Textiles and Clothing '56) **Burnet** were honored as recipients of the 2011 Iowa State Order of the Knoll Faculty and Staff Award. The couple was recognized for their long-time outstanding service to Iowa State University as faculty and leaders in their respective departments and colleges. George led the CBE department from 1961-77, was named Anson Marston distinguished professor, served as the national president of the American Society for Engineering Education, and led at the college administrative level as associate dean and interim dean.

Walt Inkofer (B.S. ChE '58) and his wife, Marie, recently gave $7,500 to establish the Chemical and Biological Engineering Centennial Fund. Their donation will help fund planning and activities pertaining to the 100-year celebration of the Iowa State chemical and biological engineering department, including department alumni events, award medallions and associated publications. As a student, Inkofer was vice president of the local chapter of AIChE during his senior year and was involved in the Theta Delta Chi fraternity.

Lindsay Leveen (M.S. ChE '77) presented "Chemical Engineers Must Be Cabinetmakers and Need to Make Fine Furniture Out of Wood" in light of his winning the 2011 AIChE NorCal Chemical Engineering Excellence Award in Professional Development. Leveen's presentation was held in Walnut Creek, California, on September 15, 2011. His expertise is in thermodynamics, which transcends into international energy policy and sustainability education in Japan and South Africa.

A fundraising campaign is underway for the Richard C. Seagrave Professorship in Chemical and Biological Engineering in honor of Anson Marston Distinguished Professor Emeritus **Richard Seagrave**. **Mary Jane Hagenson** (M.S., Ph.D Biomedical Engineering '76,'80) and her husband, Randy, have provided a lead gift. The goal is to raise $500,000 by 2013 to establish a permanent endowment for the Seagrave Professorship (see back cover).

CBE Alumni Highlights

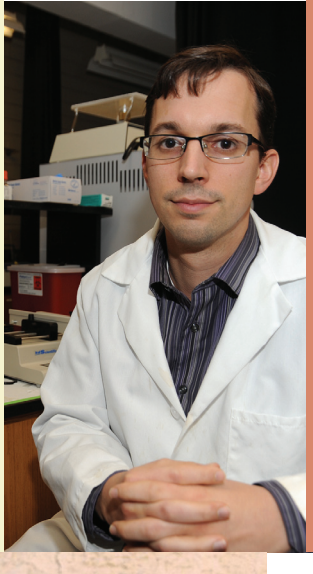
2011

Paul Fisher (B.S. ChE '87), earned an Iowa State Professional Achievement Citation in Engineering (PACE) Award at the ISU Alumni Association Homecoming Awards Ceremony October 21. Fisher is president of Energy Control Technologies, a company he started in 2008. The company provides innovative soluitions to energy savings and more.

Nick Wilson (B.S. ChE '67) also earned a PACE award from the ISU Alumni Association in October. He is president and CEO of Morrison Container Handling Solutions - a company he started 40 years ago to provide packaging solutions for companies around the world. As a student Wilson was a research assistant for The Ames Laboratory.

Gary Griswold (B.S. ChE '67) was one of three CBE alumni to receive the ISU PACE Award this year. He is a retired president and chief intellectual property counsel of 3M Innovative Properties Company. He is now a consultant for and chair emeritus of the Coalition for 21st Century Patent Reform. The coalition combines efforts of about 50 companies that pursue patent law reform.

Dr. **Charles E. Glatz**, professor of chemical and biological engineering, attained the title of university professor this year for his consistent dedication to the improvement of Iowa State. Here he is pictured with President Gregory Geoffroy and Executive Vice President and Provost Elizabeth Hoffman. In addition to his exemplary teaching, research and department leadership Glatz has contributed throughout his Iowa State career through the Honors Program, the Center for Teaching Excellence and the Faculty Review Board.

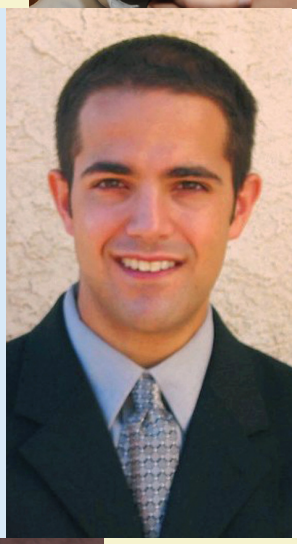


In July 2011 Assistant Professor Dr. **Ian Schneider** received the Roy J. Carver Award, a 3-year, $300,000 grant used to fund his research project on engineering complex environments for probing mechanisms of cell migration, especially in the grading of cancers.

The goal of this project is to use several engineering techniques to create fully tunable "in vitro" migration.

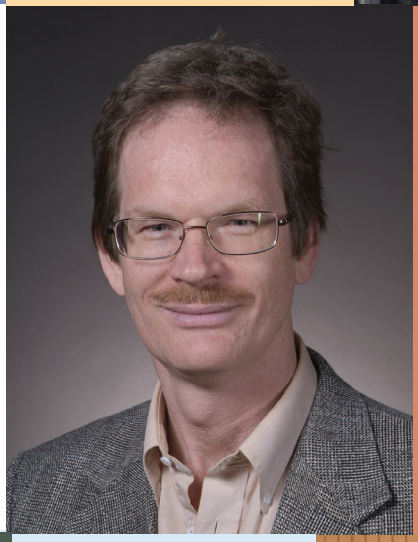
The National Science Foundation recently awarded Iowa State chemical engineering Assistant Professor Dr. **Laura Jarboe** and her team a $300,000 grant to produce biorenewable chemicals from bacteria and microalgae more efficiently in bio-oil. The goal of her project is to produce biorenewable chemicals from bio-oil, using microalgae and bacteria, in this case E. coli, as a catalyst. The microalgae, in one process, and E.coli in another, convert sugars in the bio-oil to hydrocarbons — a major world energy source.

Assistant Professor Dr. **Eric Cochran** received two awards in 2011. First, he was named the inaugural Karen and Denny Vaughn Faculty Fellow. He will use funding for student research support for the development of elastomers that use soybean oil in asphalt production. Cochran also was awarded the Early Career Engineering Faculty Research Award, which was officially recognized at the College of Engineering Convocation August 31.



CBE Faculty Highlights

2011



Distinguished Professor Dr. **Rodney Fox** was recently named associate editor of AIChE Journal, the premier chemical engineering journal in the United States. In October he was awarded a $300,000 grant in October from the U.S. Department of Energy. The grant will fund a 3-year project where he and his team will develop a methodology and implement code for estimating uncertainty in simulations of multiphase gas-particle flows.

This year Associate Dean for Research Dr. **Balaji Narasimhan** earned a U.S. patent for a method of producing time-released polymer vaccines, or particles contained in a pill, that treat common respiratory viruses. This needle-free process eliminates the need for booster shots. In 2010 Narasimhan received a $1,485,000 grant from the U.S. Health Resources and Services Administration to help establish a three-lab, collaborative center for research on the time-released polymer vaccines. On October 18 Narasimhan earned the AIChE Area 15b Plenary Award from the Food, Pharmaceuticals and Bioengineering Division of AIChE. The Plenary lecture was on his project on pathogen mimicking nanoparticles for prevention and treatment of respiratory infectious diseases.

CBE Department Chair and Stanley Chair in Interdisciplinary Engineering Dr. **Surya Mallapragada** received a Young Alumni Achievement Award from the Indian Institute of Technology-Bombay. Mallapragada also received a $4 million award this year from the U.S. Army Medical Research and Materiel Command for her research on nerve damage and brain injury recovery.

Professor Dr. **Kurt Hebert** is working to understand the formation of nanoporous aluminium oxide and titanium oxide films. The formation of highly regular nanopores in these materials is important for their use in applications like solar cells and sensors. His team showed that morphological instability leads to the formation of porous films and the work was published in the high-impact *Nature Materials* journal.

Jacobson named 'distinguished alumnus'

Friends and family of 2011 Iowa State University Distinghuished Alumnus Allen Jacobson (B.S. ChE '47) celebrate at Jacobson's condo in Naples, Florida, in January 2011, including Iowa State President Gregory Geoffroy (back left), CBE department chair Surya Mallapragada (in red), ISU Alumni Association President Jeffery Johnson (kneeling in middle) and College of Engineering Dean Jonathan Wickert (tallest in middle). Photo courtesy of the Iowa State University Foundation.

Dozens of family, friends and colleagues celebrated **Allen Jacobson** (B.S. ChE '47) and his receiving a 2011 Iowa State University Distinguished Alumni Award. Jacobson was noted for his professional devotion to and outstanding leadership of 3M, where he advanced his career from working in 3M's Scotch tape laboratory to becoming chairman of the board and CEO. During his tenure as CEO from 1986-91, Jacobson increased 3M's revenue more than 50 percent to $13 billion and increased income 67 percent to $1.3 billion. His Iowa State Distinguished Alumnus Award was officially recognized at his home in Naples, Florida, in January 2011. The 3M Innovations-sponsored research lab at 3060 Sweeney Hall is named after him. The Distinguished Alumni Award honors Iowa State alumni who are nationally and/or internationally recognized for preeminent contributions to their professions or life's work.

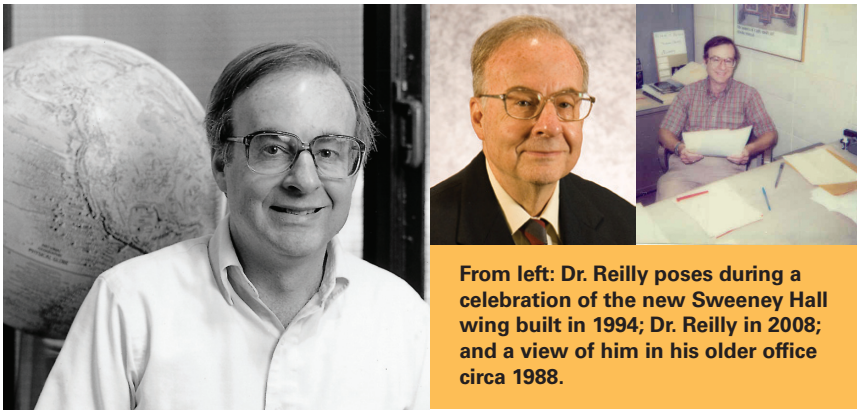
Reilly celebrates 35 years of CBE service

More than 35 years ago now-Anson Marston Distinguished Professor Dr. **Pete Reilly** began his academic career at Iowa State University. By then Reilly already had six years experience as an assistant professor at the University of Nebraska, and four years work as a research engineer at DuPont in Deepwater, New Jersey, 130 miles from his hometown of Pompton Lakes, New Jersey.

"When I first came to campus, a gravel parking lot was where Durham Center is now, and west of Sweeney Hall was almost completely empty. The campus then, and now, was so beautiful and open," Reilly said.

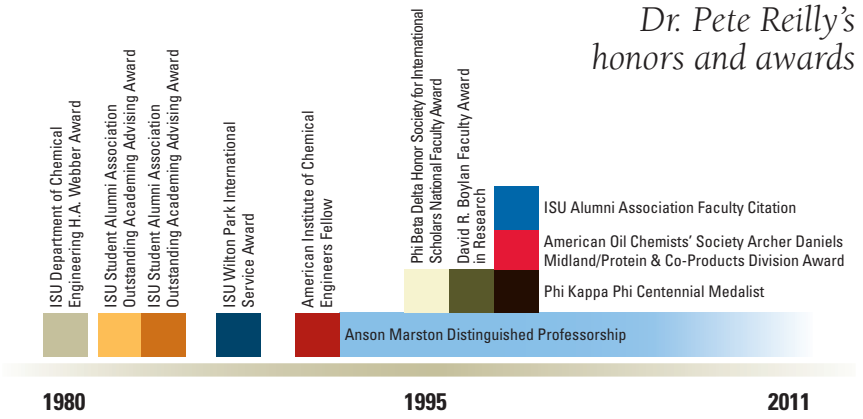
Reilly has published 146 refereed publications, including his proudest and most cited: "Modeling of aldopyranosyl ring puckering with MME (92)" co-authored by **Michael K. Dowd** (M.S., Ph.D. ChE '84,'86) and Alfred D. French of the U.S. Department of Agriculture in April 1994. This paper is cited often in national and international carbohydrate research.

Reilly's research interests are computation of enzyme structure and function by molecular mechanics, molecular dynamics and quantum mechanics.



From left: Dr. Reilly poses during a celebration of the new Sweeney Hall wing built in 1994; Dr. Reilly in 2008; and a view of him in his older office circa 1988.

Dr. Pete Reilly's honors and awards



Ken Garrett awarded Anson Marston Medal

Kenneth Garrett (B.S. ChE '64) received the Anson Marston Medal this year. The Marston Medal, established at Iowa State in 1938, recognizes outstanding College of Engineerng alumni achievement in advancing engineering science, technology or policy having national and international impact in academics, industry, public service, government or other values. Garrett contributed his skills through exceptional work at AT&T, where he worked for 30 years in many engineering and operations positions. His latest position as senior vice president at AT&T involved the designing, building and operating of AT&T's telecommunications network during a major network transformation. With this came significant qualitative improvements in AT&T customer service and profitability.

His devotion to Iowa State remains strong as he created the endowed Kenneth L. Garrett Scholarship in Chemical and Biological Engineering a few years ago. The recipient this year is chemical engineering student Abby Jensen. In the inset photo at right, Garrett browses his academic records from his senior year at Iowa State University in 1964. Garrett is a lifetime member of the ISU Alumni Association is currently a member of the ISU Foundation Order of the Knoll.

Ken Garrett (B.S. ChE '64) receives the Anson Marston Medal from College of Engineering Dean Jonathan Wickert at the ISU Alumni Association Homecoming Awards Ceremony October 21.

Outstanding Young Alumni honors go to Freeman

Bryce Freeman

Since **Bryce Freeman** (B.S. ChE '96) graduated from Iowa State in 1996, he set himself on a career track with Proctor & Gamble. His successes at P&G and volunteering efforts garnered a 2011 Iowa State Outstanding Young Alumni Award.

Freeman started as a process engineer at P&G in Iowa City, transferred to Hunt Valley, Maryland, in 2003, and was recently appointed associate director of P&G's European cosmetics manufacturing in Ireland.Within P&G Freeman has earned several awards, including Outstanding Quality Leader of the Year in 2007, P&G Personal Beauty Care Product Supply Award in 2007 and P&G Recognition Shares Award for his organizational work with respect and diversity in 1999.

His community service efforts are equally strong. Freeman has been actively involved with FarmHouse Fraternity (including a progressive leadership to international board president 2006-10), United Way, Neighborhood Centers of Johnson County (Iowa), Big Brothers/Big Sisters, the American Cancer Society and Our Daily Bread.

The CBE department honored him and other alumni awardees at a reception on October 21.

ChE alumnae named Tau Beta Pi laureate

Ann Gleason

Recent chemical engineering alumnae **Ann Gleason** (B.S. ChE '11) was named a prestigious Tau Beta Pi (TBP) laureate in 2011.

Gleason was one of only 74 Tau Beta Pi laureates ever named nationally since the program started in 1982. The TBP Laureate Program was established then to recognize extraordinary engineering students who have excelled in areas beyond their technical majors.

As a TBP laureate, Gleason received a commemorative plaque and $2,500 cash award at the 106th Annual Tau Beta Pi Convention, held at the Crowne Plaza Hotel in Indianapolis, Indiana, October 27-29.

In addition to her 3.9+ GPA, Gleason was a varsity goalie for the Iowa State Cyclone's soccer team for four years. Athletic honors include all-time leader in career wins, shutouts and saves. She also was named to the ESPN The Magazine Academic All-America second team, the only Cyclone to ever to do so.

Gleason currently works as a research process engineer at 3M's Corporate Research Process Laboratory in St. Paul, Minnesota.

Petersen excels with ISU, nat'l recognitions

Latrisha Petersen wins two prestigious graduate student awards this year.

Latrisha Petersen, who graduated with a Ph.D. in 2011 from the Iowa State CBE department, earned second place in the American Institute of Chemical Engineers (AIChE) BioNanotechnology Graduate Student Competition, presented at AIChE's annual meeting in Minneapolis, Minnesota.

Petersen earned the award for her research on the rational design of pathogen mimicking amphiphilic nanoparticle adjuvants. While treating diseases like anthrax and pneumonia, the goal of her research as a Ph.D. candidate was to develop a vaccine that mimics an immune response to an infection while avoiding undesirable side effects of the disease the vaccine treats. The project originated when Petersen was a graduate student in the biomaterials/biomedical engineering research thrust of Iowa State's chemical engineering program. Associate Dean for Research **Balaji Narasimhan** was her faculty adviser.

This was the third year in a row that an ISU chemical engineering graduate student placed in the competition. In 2010 **Brenda Carrillo-Conde** (Ph.D. ChE '11), who is now a post-doctoral research associate at the University of Texas-Austin, placed third. **Bret Ulery** (Ph.D. ChE '10), who now works at the University of Connecticut as a post-doc, won AIChE's Bionanotechnology Graduate Student Competition in 2009.

Petersen also earned a Research Excellence Award last spring, which is awarded to "the best of the best" graduate students at Iowa State who show outstanding research and creativity.

Brenda Carrillo-Conde tells 'Mazatlan to Ames' story

Brenda Carrillo-Conde, a native of Mazatlan, Mexico, was a senior at Monterrey Institute of Technology (Monterrey, Mexico) and planned on a career in industry. Then she made a big decision: to travel with two of her classmates more than 3,000 miles to spend the summer at Iowa State as a participant in the Biological Materials and Process (BioMaP) Research Experience for Undergraduates (REU) project.

Former graduate student and Mexican native Brenda Carrillo-Conde takes advantage of research opportunities at Iowa State after attending the BioMaP REU program in 2006. Carrillo-Conde is now a postdoc researcher at the University of Texas-Austin.

During the REU experience Carrillo-Conde had the opportunity to work with Dr. **Balaji Narasimhan** and his research team on increasing the effectiveness of vaccine delivery systems and developing new vaccination strategies based on biomaterials. She enjoyed working with Narasimhan over the 10-week program. So much so, that when offered the opportunity to return to Iowa State and continue working with Narasimhan as a graduate student, she happily accepted.

Since then, Carrillo-Conde worked on the same line of research that she began during that summer five years ago. And the research has produced great results. The team has improved the delivery vehicles to be used in vaccine formulations from polyanhydride microparticles to nanoparticles from the same chemistry but with functional groups on their surfaces. Successful in-vivo trials have been held geared towards creating single-dose versions of existing vaccines (tetanus toxoid, pneumonic plague, anthrax, and others). The team is also honing in on more cost-effective production of vaccinations and the development altogether of new ones (for example, to protect against HIV).

Collaborations as part of the research have allowed Carrillo-Conde to work with experts from the chemistry department, veterinary microbiology and preventative medicine, and the immunobiology department at Iowa State. Such interactions have been one of Carrillo-Conde's favorite aspects of her experience. And she knows that this interdisciplinary work has prepared her for her professional future.

For someone who hadn't planned on attending graduate school, Carrillo-Conde has come a long way. In August 2011 she finished her Ph.D. in chemical and biological engineering, with a minor in immunobiology. She is now a post-doctoral research associate at the University of Texas-Austin.

Celebrate our CBE student scholars in 2011-12

GRADUATE FELLOWSHIPS

Jason Anderson
Miller Fellowship

Michael Baker
Miller Fellowship

Catie Brewer
Katzer Energy Fellowship

Mark Brown
Plant Sciences Institute Fellowship

Jonathan Goodman
Miller Fellowship

Nacu Hernandez
Chevron Phillips Fellowship, Martinson Fellowship

Latrisha Petersen
Graduate Research Excellence Award

UPPERCLASS

Rafael Alameda
A. Douglas & Helen Steffenson Scholarship

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Lindsay Berkenpas
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Cody Berra
Manley R. Hoppe Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

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Ralph S. Millhone Scholarship, National Merit Finalist

Nicholas Bormann
Manley R. Hoppe Scholarship

Taylor Bove
Stuart M. Totty Scholarship

Pavel Brodskiy
Ralph S. Millhone Scholarship, National Merit Finalist

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Caterpillar Foundation Scholarship

Austin Christner
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Erin Claeys
Engineering Undergraduate Merit Scholarship

Timothy Clayton
Nicholas L. Reding/Monsanto Scholarship in Engineering

Austin Cocciolone
Engineering Undergraduate Merit Scholarship

Matthew Cole
Chemical Engineering Scholarship

Elliot Combs
Dow Chemical Company Scholarship

Collin Coon
Ross White Engineering Scholarship

Sydney Copley
Ross White Engineering Scholarship

Amanda Cosgrove
Engineering Undergraduate Merit Scholarship

Courtney Crego
Eugene Devere Travis Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Katelyn Dahlke
Tau Beta Pi Scholars Program Scholarship, Frederick Martinson Scholarship

Anna Dasilva
Barbara L. Feroe Scholarship

Mark Deaton
Clifford A. Shillinglaw Scholarship

Lindsey Debruin
Manley R. Hoppe Scholarship, Engineering Undergraduate Merit Scholarship

Burak Demirci
Donald H. Beisner Scholarship in Honor of Dr. Morton Smutz

Priya Desai
Rockwell Collins-Engineering Leadership Program Scholarship

Jessie Dowding
Skogen-Hagenson Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Daniel Ducharme
Frederick Martinson Scholarship

Nicholas Eddy
Rockwell Collins-Engineering Leadership Program Scholarship

Lars Ellingson
Frederick Martinson Scholarship, National Merit Finalist

Matthew Ellis
Dow Chemical Company Scholarship, Benjamin Ma Scholarship

Ethan Erickson
Frederick Martinson Scholarship

Michael Forrester
Rockwell Collins-Engineering Leadership Program Scholarship, National Merit Finalist

Nathan Fowler
Ralph S. Millhone Scholarship

Casey Frank
Engineering Undergraduate Merit Scholarship

Margaret Gannon
Engineering Undergraduate Merit Scholarship

Debanjan Ghosh
Rockwell Collins-Engineering Leadership Program Scholarship

Meredith Gibson
Rockwell Collins-Engineering Leadership Program Scholarship, Engineering Undergraduate Merit Scholarship

Justin Glasper
Griffen Family Scholarship, National Merit Finalist

Christina Goeddel
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Breanna Gordon
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Christopher Grace
Engineering Student Leadership Development Scholarship

Korey Gramenz
Erwin and DeLoris Whitney Scholarship

Daniel Grisard
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Robert Hable
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Ryan Hall
Jerrold S. & Mary R. Feroe Scholarship, Mike and Jean Steffenson Scholarship

Christopher Heitkamp
Frederick Martinson Scholarship, Engineering Undergraduate Merit Scholarship

Jacob Hemberger
Frederick Martinson Scholarship, Mike and Jean Steffenson Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Andrew Hemken
Frederick Martinson Scholarship, Engineering Undergraduate Merit Scholarship

Amber Hilderbrand
Alpha Chi Sigma Scholarship, Engineering Undergraduate Merit Scholarship, National Merit Finalist

Megan Hingtgen
Ralph S. Millhone Scholarship

Zhiqian Huang
Chemical Engineering Scholarship

Dalton Hughes
Chemical Engineering Scholarship, Donald H. BeisnerScholarship in Honor of Dr. Morton Smutz

Christopher Jacobs
CAT Engineering Leadership Program Scholarship, Engineering Undergraduate Merit Scholarship

Nicholas Jaegers
Frederick Martinson Scholarship

Abby Jensen
Kathy & Ken Garrett Scholarship, Lyle J. & Marcia L. Higgins Scholarship

Lizette Jimenez
E2020 Scholarship

Bradley Jimenez
Frederick Martinson Scholarship

Peter Joers
Eugene Devere Travis Scholarship, Engineering Undergraduate Merit Scholarship

Bo Johnson
Chemical Engineering Excellence Scholarship

Amanda Kavlie
Frederick Martinson Scholarship, Lyle J. & Marcia L. Higgins Scholarship

Brent Keller
Eugene Devere Travis Scholarship, Engineering Undergraduate Merit Scholarship

Christopher Killingsworth
Frederick Martinson Scholarship

John King
E2020 Scholarship

Jared Koliha
Frederick Martinson Scholarship

Marissa Kruse
Erwin and DeLoris Whitney Scholarship, Mike and Jean Steffenson Scholarship

Austin Lange
Nicholas L. Reding/Monsanto Scholarship in Engineering

August LaRenzie
Tau Beta Pi Scholars Program Scholarship, Chemical Engineering Scholarship

Nicole Larson
Building a World of Difference Renewable Energy Scholarship in Engineering, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Cassidy Leclaire
Frederick Martinson Scholarship, Engineering Undergraduate Merit Scholarship

CONTINUED ON PAGE 12

Recently created CBE graduate and faculty fellowships

Karen (B.S. ChE '70) **and Denny Vaughn** (B.S. ChE '70) created the Karen and Denny Vaughn Faculty Fellowship (to recruit, retain and support outstanding faculty) in the Department of Chemical and Biological Engineering. The inaugural recipient of this fellowship is Assistant Professor Dr. **Eric Cochran** (see page 7). Denny Vaughn has served on the CBE department advisory council since 2010 and is a retired corporate director of international environment, health and safety and global safety at General Mills, Inc.

Jack and **Carol Johnson** (B.S. ChE '80) created the Jack R. and Carol A. Johnson Faculty Fellowship so the CBE department can recruit, retain and support outstanding faculty. Carol is a business analyst at Intel and served on the CBE department advisory council from 1998 to 2003.

Lanny A. Robbins (B.S., M.S., Ph.D. ChE '61, '63, '66) established the Lanny A. Robbins Endowed Graduate Fellowship this year to encourage chemical engineering graduate students to advance their education to the best of their abilities. After receiving his Ph.D. from Iowa State, Robbins worked for Dow Chemical Company in Midland, Michigan, where developed many chemical processes for world scale products. He also was elected to the National Academy of Engineering and published a book on distillation control, optimization and tuning.

STUDENT AWARDS

CONTINUED FROM PAGE 11

Christine Leise
Manley R. Hoppe Scholarship, Engineering Undergraduate Merit Scholarship

Carin Lightner
Devin & Indira Shepard Scholarship, National Merit Finalist

William Lohry
Ralph S. Millhone Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Scott Lokkesmoe
Chemical Engineering Excellence Scholarship

Kaylyn Ludwig
Engineering Undergraduate Merit Scholarship

Paul Lyrenmann
Engineering Undergraduate Merit Scholarship

Amanda Machacek
Skogen-Hagenson Scholarship

Kelly Markham
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Alma Marquez
Lois and Manley Hoppe Scholarship

Sarah Maslo
Rockwell Collins-Engineering Leadership Program Scholarship; Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Edward McCoy
Donald H. Beisner Scholarship in Honor of Dr. Morton Smutz

Matthew McGrory
Skogen-Hagenson Scholarship

Ethan McGuire
E2020 Scholarship, National Merit Finalist

Sydney McKechnie
Frederick Martinson Scholarship, Engineering Undergraduate Merit Scholarship

Scott Meester
Chemical Engineering Scholarship, National Merit Finalist

Katelyn Metzger
Ralph S. Millhone Scholarship

Mazdak Ian Mina
Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Chance Moore
Erwin and DeLoris Whitney Scholarship

Stephanie Mulder
Frederick Martinson Scholarship, National Merit Finalist

Lisa Nelson
Don Delahunt Scholarship

Lauren Nelson
E2020 Scholarship

Brandi Newman
Ralph S. Millhone Scholarship

Leonel Nguedon
Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

David Nguyen
Lois and Manley Hoppe Scholarship

Brent Novey
Frederick Martinson Scholarship

Chika Okano
Chemical Engineering Scholarship

Lucas Palkert
Skogen-Hagenson Scholarship

German Parada
Donald H. Beisner Scholarship in Honor of Dr. Morton Smutz

Christopher Pedersen
Lawrence E. Burkhart Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Cara Petrie
Engineering Undergraduate Merit Scholarship

Vadim Petruk
Chemical Engineering Excellence Scholarship

Ngoc Phan
Chemical Engineering Scholarship

Jordon Platte
Kenneth & Mary Heilman Scholarship, Lyle J. & Marcia L. Higgins Scholarship

Daniel Potter
Frederick Martinson Scholarship

Sarah Randall
Engineering Undergraduate Merit Scholarship, National Merit Finalist

John Renbarger
Gretchen L. Bruffy Scholarship

Sabdiel Reyes
Laurence T. & Jessie Davidson Gaylord Scholarship

Emily Rickenbach
Dow Chemical Company Scholarship, Lyle J. & Marcia L. Higgins Scholarship

Amy Roggendorf
Manley R. Hoppe Scholarship

Vania Romay
Hans Buehler Scholarship, Floyd Herman Cook Scholarship

Samantha Sauerbrei
E2020 Scholarship

Sara Schaubroeck
Nicholas L. Reding/Monsanto Scholarship in Engineering, National Merit Finalist

Emily Schauer
Ross White Engineering Scholarship

Heather Schulte
Frederick Martinson Scholarship, Johnson-Engel Scholarship Endowment in Engineering, National Merit Finalist

Kossi Sessou
Chemical Engineering Scholarship, Nikhil Shah Chemical Engineering Scholarship

John Skubic
Edwin John Hull Scholarship, Lyle J. & Marcia L. Higgins Scholarship

Cole Smith
Ralph S. Millhone Scholarship

Tori Sorensen
Frederick Martinson Scholarship, Lois and Manley Hoppe Scholarship

Timothy Sprick
Rockwell Collins-Engineering Leadership Program Scholarship

Sarah Steffen
Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Taylor Struthers
Ralph Luebbers Scholarship

Kari Sylvester
Don Delahunt Scholarship

Fana Teffera
Chemical Engineering Excellence Scholarship

Semehar Tesfaye
Chemical Engineering Excellence Scholarship

Erin Theros
Frederick Martinson Scholarship, Engineering Undergraduate Merit Scholarship

Taylor Tomlinson
Rockwell Collins-Engineering Leadership Program Scholarship, Engineering Undergraduate Merit Scholarship

Hai Tran
Chemical Engineering Scholarship

Horaleo Ukpan
Dr. Owen A. Heng Chemical and Biological Engineering Scholarship

Ryan Unash
Edward W. & Joyce C. Backhaus Scholarship in Chemical & Biological Engineering

Erika Vaassen
Lois and Manley Hoppe Scholarship, Lyle J. & Marcia L. Higgins Scholarship

Hannah Vanevery
Ross White Engineering Scholarship

Sean Vanosdale
Engineering Undergraduate Merit Scholarship

Maria Wahl
Frederick Martinson Scholarship; Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Michelle Wallace
Frederick Martinson Scholarship, Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship, Mike and Jean Steffenson Scholarship, Cargill Oviedo Scholarship, Maurice & Ruth Larson International Scholarship, Chadwick Morris Memorial Scholarship

Andrew Walsh
Engineering Undergraduate Merit Scholarship

Heidi Welsh
Mike and Jean Steffenson Scholarship

Nicholas Wetzel
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Sara White
Engineering Undergraduate Merit Scholarship

Jeff Wilson
Vander Linden Scholarship

Olivia Wilwert
Eugene Devere Travis Scholarship

Tiana Wollin
Chemical Engineering Scholarship

Abdikadir Yussuf
Nicholas L. Reding/Monsanto Scholarship

FRESHMEN

Ian Abarr
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Tina Akinyi
Engineering Undergraduate Merit Scholarship

Jessica Bangen
Engineering Undergraduate Merit Scholarship

Lisa Barker
Engineering Talent in Every County Scholarship

Alison Beck
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

William Black
Engineering Undergraduate Merit Scholarship

Joseph Cicchese
Engineering Undergraduate Merit Scholarship

Alison Clark
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship, Engineering Talent in Every County Scholarship

Taylor Datema
Paul Emerson Morgan Scholarship

Karen Dau
Stephen E. Simon Scholarship

Courtney Dewell
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Jordan Donner
Engineering Undergraduate Merit Scholarship

Veronica Elling
Engineering Undergraduate Merit Scholarship

Taylor Francis
Engineering Undergraduate Merit Scholarship

Jennifer Freeland
National Merit Finalist, Ralph S. Millhone Scholarship Engineering, Talent in Every County Scholarship

Caleb Gaudian
Engineering Undergraduate Merit Scholarship

Spencer Gibson
Engineering Undergraduate Merit Scholarship

Adrian Gordon
E2020 Scholarship

Paul Gregory
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Ryan Gunckel
Engineering Undergraduate Merit Scholarship

Travis Hattery
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Eric Hessing
Ross White Engineering Scholarship

Jeremy Hilstrom
John F. Stevens Scholarship

Parker Hoye
National Merit Finalist, Ralph S. Millhone Scholarship

Angelica Iacobucci
Engineering Undergraduate Merit Scholarship

Carlie Iehl
Engineering Undergraduate Merit Scholarship

Mitchell Irlmeier
Engineering Undergraduate Merit Scholarship

Tanner Jaeger
Engineering Undergraduate Merit Scholarship

Courtney Johnson
E2020 Scholarship

Tyler Johnson
Ross White Engineering Scholarship

Matthew Kenney
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship, Engineering Talent in Every County Scholarship

Megan Kleckler
Engineering Undergraduate Merit Scholarship

Philip Kaufman
Roderick Seward, Flossie Radcliffe & Helen M. Galloway Scholarship

Jessica Kuyper
Engineering Undergraduate Merit Scholarship

Eric Lee
Engineering Undergraduate Merit Scholarship

Rachel Lieser
Engineering Undergraduate Merit Scholarship, Larry J. McComber Scholarship

Shana Matthews
National Merit Finalist, Ralph S. Millhone Scholarship

Justin Miller
Engineering Undergraduate Merit Scholarship

Brandon Morris
Engineering Undergraduate Merit Scholarship

Rachel Morris
Engineering Undergraduate Merit Scholarship

Blake Nichting
Engineering Undergraduate Merit Scholarship

Moska Ommaid
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Sara Parupsky
Engineering Undergraduate Merit Scholarship

Alex Pettit
Engineering Talent in Every County Scholarship, E2020 Scholarship

Andrew Radencich
Engineering Undergraduate Merit Scholarship

Janani Ragothaman
Engineering Undergraduate Merit Scholarship

Tobias Rains
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Grace Ricker
Engineering Undergraduate Merit Scholarship

Eric Rowe
National Merit Finalist, Ralph S. Millhone Scholarship

Kelsey Schieltz
Engineering Undergraduate Merit Scholarship, Engineering Talent in Every County Scholarship, Tau Beta Pi Scholarship, Engineering Undergraduate Scholarship

Amy Sheflet
Engineering Undergraduate Merit Scholarship

Ryan Spellerberg
Engineering Undergraduate Merit Scholarship

Michael Stoeker
Johnson Transfer Scholarship Program

Ian Storey
Engineering Undergraduate Merit Scholarship

Sarah Sutter
National Merit Finalist, Ralph S. Millhone Scholarship

Thomas Teav
Donald H. Beisner Scholarship in Honor of Dr. Morton Smutz

Stephen Todey
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Jordan Vetter
Engineering Undergraduate Merit Scholarship

Audrey Wallace
L.C. "Doc" & Lina Allen Scholarship

Caitlin Weber
Wickert Family Scholarship in Engineering

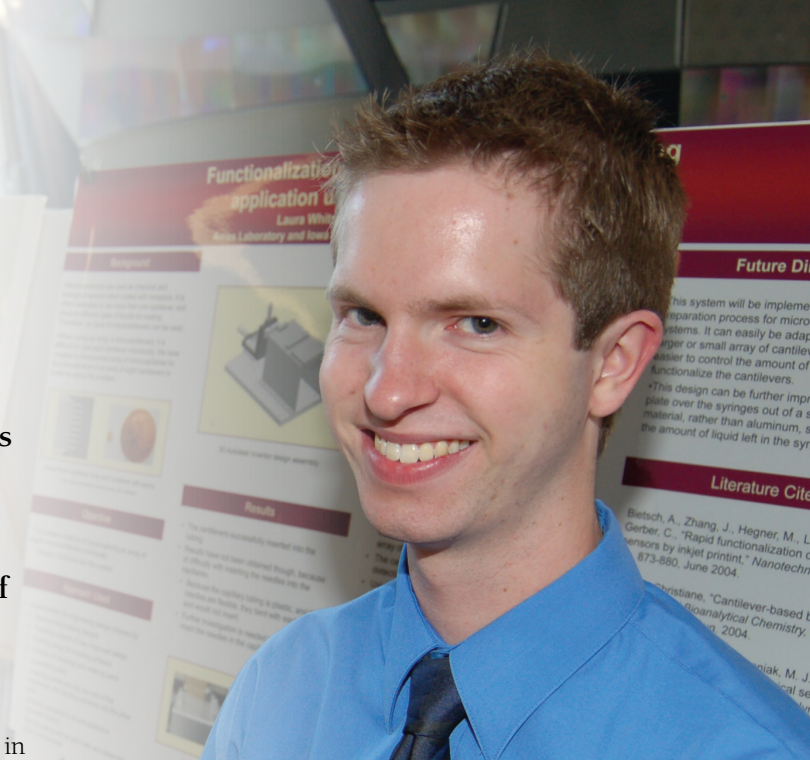
Erika Weimer
E2020 Scholarship

Daniel Wiegel
Engineering Undergraduate Merit Scholarship

Michael Zimmerman
Roderick Seward, Flossie Ratcliffe & Helen M. Galloway Scholarship

Thank you to all who gave to make these scholarships and fellowships possible. In 2011 CBE awarded nearly $350,000 to 202 freshmen and upperclass scholarship recipients, as well as graduate fellowships. See page 14 for a complete list of donors who contributed in 2011.

ELLIOT COMBS



Senior chemical engineering student Elliot Combs is arguably the quintessential student of the biorenewable generation. The Wisconsin native devotes himself to the knowledge and understanding of biorenewable chemicals, particularly biofuels.

He is an advocate of solving problems for future generations, the most pertinent being energy sources. After meeting Professor **Brent Shanks** in spring 2008, Combs quickly learned that he could make a big difference in how biorenewable energy could go mainstream. "Professor Shanks inspired me to get involved in the growing biobased movement in the chemical and fuel industries," he said.

Growing up, Combs lived in West Bend, Wisconsin; Raleigh, North Carolina; Bonn, Germany; and Dubuque, Iowa, before coming to Iowa State in 2007. He attributes the wealth of different cultural perspectives, particularly the international experience in Germany, to his drive to solve energy crises. In fact, he returned to Germany for eight weeks at the Fritz-Haber Institute in Berlin last summer to pursue his own research project on the complexation of alkaline earth metal salts with carbohydrates.

With the Fritz-Haber Institute summer internship, Combs has acquired a remarkable four semesters and three summers worth of undergraduate research experience. From January – August 2010 he interned for Cargill in Des Moines, where he applied engineering concepts to occupational safety and health (OSHA) standards at the corn oil and soybean oil refinery. In summer 2009, Combs did an internship with the Ames Laboratory. And since 2007, Combs has volunteered to moderate Ames Lab high school quiz bowl competitions, attracting schools across Iowa and surrounding areas in contests of science, technology, engineering and mathematics knowledge. As a student, Combs organized the 2010 Mid-America AIChE Conference, which he hosted at Iowa State, as president of the ISU AIChE student chapter. He also is a member of Tau Beta Pi and a recipient of the Dow Chemical Company Scholarship. Most recently Combs received the Lawrence E. Burkhart Outstanding Senior Award, which recognizes excellence in performance in a CBE graduating senior. The award is in honor of late Professor Lawrence E. Burkhart, a pioneer in analog and digital computation in teaching chemical engineering design from 1959 to 1989.

Combs graduates with a bachelor's degree in chemical engineering this fall, but of course, he won't stop there. While his immediate goal is to pursue graduate school, his dream job is to work for the Department of Energy. The Argonne National Lab in Chicago piques his interest as an avenue to apply his research to national energy policy.

Combs values faculty members, particularly Brent Shanks in his case, who encourage chemical engineering students at any level to participate in cutting-edge research. "Iowa State faculty offer active research opportunities to both undergraduate and graduate students whenever possible," Combs said. "The true value of my education is there."

***Top*: Combs poses at the 2010 Mid-America AIChE Conference, which he organized at ISU as president of the ISU AIChE student chapter then. *Middle*: Combs conducts experiments at the U.S. Department of Energy Ames Laboratory during his summer 2009 internship there. Dr. Alexander H. King, director of The Ames Lab, honors Combs' on the completion of his internship. *Bottom*: With parents Pamela and Larry Combs, he celebrates his Dow Chemical Company Scholarship at the 2011 CBE Awards Banquet September 30.** Photos courtesy of Elliot Combs.

Verna Webber turns 108!

Born on February 24, 1903, **Verna Webber** celebrated her 108th birthday with friends at the Riverside Manor in Ames. Verna is the wife of Dr. **Henry A. Webber**, an important professor during the time O.R. Sweeney was the department chair of CBE. Dr. Webber joined Iowa State in 1924 as a graduate assistant, and eventually earned his Ph.D. in 1929. Webber taught electrochemistry and was "professor in charge" of the unit operations laboratory until he suffered a stroke in 1961. He died in 1965. Since then Verna has remained a loyal friend to the department.

(Left to right) Edra Wheelock and University Professor Emeritus Thomas Wheelock, Department Chair Surya Mallapragada, Verna Webber, Dr. Agatha Burnet and Dr. George Burnet at Verna's 108th birthday celebration February 24.

Chemical engineering senior German Parada was awarded second place in AIChE's Student Poster Contest at the 2011 AIChE Annual Meeting in October. His poster was about the optimization of protocol for detection of potential pancreatic cancer marker MUC4 using surface-enhanced Raman spectroscopy. Parada is the president of the Iowa State student chapter of AIChE.

Thank you for your kind gift.

INDIVIDUALS

Russell & Sally Abarr
Thomas & Carole Adams
Michael Anctil
Brian Anderson & Yanhui Hu
Ronald & Keitha Anderson
William & Priscilla Armstrong
Janardhana Baliga
Jon & Lidia Barkman
Vasfi & Pauline Basaran
John & Carol Bates
Don & Judy Beisner
Thomas & Judy Benda
Nathan & Ann Bibus
Charles Block
Ronald & Mary Blough
Carol Bohnenkamp
Clifford Boldt & Annamarie Sandecki
Howard Borgman
Michelle & Brad Borman
Jeffrey & Jean Boyce
Allan & Joy Boyken
David Boylan
Francis & Kristen Bozanek
Frank & Mary Bozanek
Daina Briedis & Dennis Miller
John & Corrine Briggs
Melvin & Mary Brown
Mary & Brian Brunsvold
George Burnet & Agatha Huepenbecker Burnet
Robert & Patricia Bush
Elton & Frances Carey
Jarod & Angela Carl
Edward & Roberta Chase
Ralph & Janet Clements
J. Robert & Sylvia Coates
Jerry & Sally Cochran
Fred & Carol Coffey
Gregory & Lois Cottington
William & Karen Louise Cramer
Alan & Debra Crowther
Joe & Pat Cunning
Jay Davenport
Jim Davis
Douglas & Tiffany Dawson
Donna De Vinney
Gary & Peggy Demers
Michael & Amy Determan
Bob & Marie Dierks
Ronald & Chomita Doofe
Pamela & Michael Downing
Walter Drobot
Alfred Drumm
Kevin & Lisa Duffy
Wallace & Florence Dyste
Erik & Annabel Edwards
William & Barbara Ellis
Dan & Lorraine Endres
Lisa & Paul Fallen
K.W. & N. Farminer
Dennis & Faye Fear
Rowland & Suzanne Felt
Louis & Laura Filosa
Harry & Margaret Flaugh
Dale & Carolyn Fridley
Friebes Frances
Peter & Angela Fuhrken
Ken & Kathy Garrett
Harry & Sara Glidden
Robert & Barbara Green
George & Bonnie Griffiths
Gary & Karen Guetzko
Randy & Mary Jane Hagenson
Richard & Ellen Hall
Robert & Elizabeth Hall
Kelly Hammar & Kirk Stulen
Patrick Harris & Sherrie Fritze-Harris
Tanya Harris
Douglas & Dawn Hayes
James & Kathryn Hayward
David & June Heckmiller
Ken & Mary Heilman
DeAnne & Keith Hellyer
Frank Helmer
Peter & Pam Hemken
Cathy Heng
Duane & Mary Jane Heng
Thomas Herzberg & Lisa Hebeisen
Kurt & Nancy Hoefer
Brett & Shelley Holtz
Richard & Janet Holtz
K.C. & Koon Hong
Arnold & Betty Ann Huntress
Walt & Marie Inkofer
Alexander & Nancy Irvine
Evan Iverson
Michael & Barbara Jackson
Allen Jacobson
John Jansma
Bruno & Marilyn Jaselskis
Ronald Jensen
Judy Ostendorff
Carol & Jack Johnson
David & Judy Johnson
Gary Johnson
James & Ann Johnson
Karl & Penny Johnson
Ronald & Joanne Johnson
Paul Josephson
David Juist & Annie Fabio
Robert & Pauline Kaiser
Jim & Isabelle Katzer
Harold & Nancy Kaufman
Alice Keene
Terry & Kathleen King
Bryan Kinnamon & Susan Waller
Donald & Susan Kjerland
John & Anita Knudtson
Myron Kolpack
Gene & Marilyn Kruger
Joseph & Nancy Kubec
W.D. Kuhlman
Kevin & Jane Kutsch
Roger & Nancy Ladehoff
Robert Lane
Robert & Louise Langerhans
Ron & Donna Lantz
Jenean Larsen & Michael Friesema
Mark & Laurie Lashier
William Lehfeld
Kristine & Brian Levy
Louis & Claire Licht
Bruce & Diane Long
Keith & Jennifer Long
Gregg & Jody Lorimor
Wanda Lowe
Harold & Mary Lowry
Deepak & Beth Lumba
Loren & Donna Luppes
Wallace & Ruth Malmstedt
John & Cheryl Marsh
Elaina Mason
John & Margaret McDonald
Edward & Helen Mead
Ann & David Meitz
Norman & Letitia Merriam
Scott & Elizabeth Micek
Stanley & Merrilee Morris
Peter & Darlene Munk
Conrad & Elizabeth Muzzy
Ram & Padma Narayan
Bruce & Marcia Nettleton
Robert & Iola Neumayer
Richard & Cynthia Nielsen
Eric Olander & Jeanie Morrison Olander
Andrew & Gail Owens
George & Sally Parrott
Terry & Mary Patton
Allen & Marilyn Pearson
Richard & Fran Perry
Robert & Donna Petersen
Reid & Lisa Peterson
Donald & Kathryn Petr
George & Nancy Pfeiffer
Jeffrey & Ann Philiph
Mark Pipal & Constance Rice
Richard & Regina Plapp
Robert Pollet
Fakhri & Nasima Poonawalla
Alan & Linda Powell
Elvin & Janet Powell
John Pyles
Richard & Jennifer Rahn
Joan Ranallo
Dale & Marnae Ranta
Raymond & Gail Richardson
Lanny & Connie Robbins
Bob & Beatrice Rounsley
Reza & Cornelia Sadeghbeigi
David Sageman & Ruth Fitzgerald
James & Tara Salge
Charlie & Vicki Sampson
Terri & James Sanderson
John & Kathryn Sattizahn
Steven & Laronna Sawin
Ian & Maria Schneider
Edyth Schoenrich
William & Harriet Scholle
Richard Schuck
David & Stacy Schwake
Roger & Betty Sebenik
Helen Sewell Johnson & Donald Johnson
Carl & Therese Shank
Andrew & Kathryn Shell
Anne Sherman
Kevin & Sonia Siefering
Naomi & Stefan Slagowski
Fred & Patricia Smith
Gordon & Cora Specht
George Spooner
Karen & Jeffery Staley
Mike & Jean Steffenson
Mark & Andrea Strenger
Lawrence & Cynthia Stretz
Richard & Nancy Summers
Jeffrey Sweterlitsch
Joseph Sytwu & Woan-Hwa Lee
Randall Teare
John & Carol Thompson
Kirk & Leigh Thompson
Delmar & Alice Timm
Robert & Shirley Tischer
David & Rosemary Tobelmann
Stephen & Kristine Tost
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Those who gave to the Iowa State Department of Chemical and Biological Engineering between September 10, 2010, and October 15, 2011, are shown on this list. The list is produced by the Iowa State University Foundation.

Remember those who we've lost recently.

Donald Beisner, MD (B.S. ChE '64) died June 25, 2010, at the age of 71. After Iowa State, Donald earned a medical doctor degree at the University of Iowa, and later practiced ophthalmology in Springfield, Missouri. For many years Donald served as an examiner on the American Board of Ophthalmology. In addition to medicine, Donald raced vintage cars and became a pilot. He established the Donald H. Beisner Scholarship in Honor of Dr. Morton Smutz, which is awarded in the CBE department at Iowa State.

Leon Godchaux II (M.S. ChE '39) died September 20 at his New Orleans home at the age of 94. Godchaux was a chemical engineer in the sugar business, among many other things. He became president of Godchaux Sugars, Inc., Gulf States Land & Industries, Franklin Realty, Touro Infirmary Board, Central Area Commission, and the New Orleans Philharmonic Orchestra at various points of his vibrant professional and civic career.

Martin "Ray" Hertz (B.S. ChE '38) died March 8, 2011, at the age of 94. Ray later earned master's degree in bacteriology from Iowa State in 1940. In 1941, Ray became an aeronautical engineer for the U.S. Air Force maintaining B-25 and B-17 bombers fighting German submarines in the Atlantic Ocean. He later flew B-25 and B-17 bombers as a command pilot, earning the Distinguished Flying Cross for his leading 108 B-17s in Air Force missions over Germany. After World War II Ray conducted nuclear research at the Goodyear Atomic Plant in Portsmouth, Ohio, and Mound Laboratory in Miamisburg, Ohio. At the Mound Lab he developed neutron sources for industrial applications and radio-isotopic power sources used in space exploration.

Dr. Richard Hewlett (B.S. ChE '57) died November 11, 2010, at the age of 76. Dr. Hewlett was a consulting technical project manager at Searchlight Materials Corp. at the time of his death. He was considered a geological/metallurgical engineer who "worked tirelessly to contribute to the success of" Searchlight Materials Corp.'s Clarkdale Project in 2005. After Iowa State Dr. Hewlett received a master of science in mining engineering, doctor of science in mining engineering and doctor of philosophy geological engineering from the University of Arizona.

Richard Hiserodt (B.S. ChE '48) died July 18 at the age of 85. While at Iowa State, Hiserodt was a quarterback for the Cyclones football team, was a member of Phi Delta Theta fraternity and enlisted in the U.S. Navy. After graduating in 1948, he worked as a chemical engineer for Allied Chemical in Syracuse, New York, and Morristown, New Jersey, and later at Church & Dwight in Princeton, New Jersey, until retirement.

Robert Lee Smith (B.S. ChE '54) died October 31, 2010, at the age of 88. Bob was the head of research and development at Mead Johnson company from 1959-62, where he developed the first nutritional supplement drink, Metrecal. From 1962 through the '70s Bob was an associate professor in food science and technology at Oregon State University and established Tec Laboratories in Albany, Oregon. Tec Laboratories is best known for the invention of Tecnu, a poison oak and ivy skin cleanser.

George A. Spooner (B.S. ChE '48) died December 22, 2010, at the age of 87. While a student in the chemical engineering program at Iowa State, Spooner was a member of the Sigma Nu fraternity. He was an Army technician who worked on the Manhattan Project in Oak Ridge, Tennessee, during World War II. Spooner named the CBE department as a beneficiary upon his death.

PHOTOGRAPHS *of Iowa State*

Photos by Chris Neary

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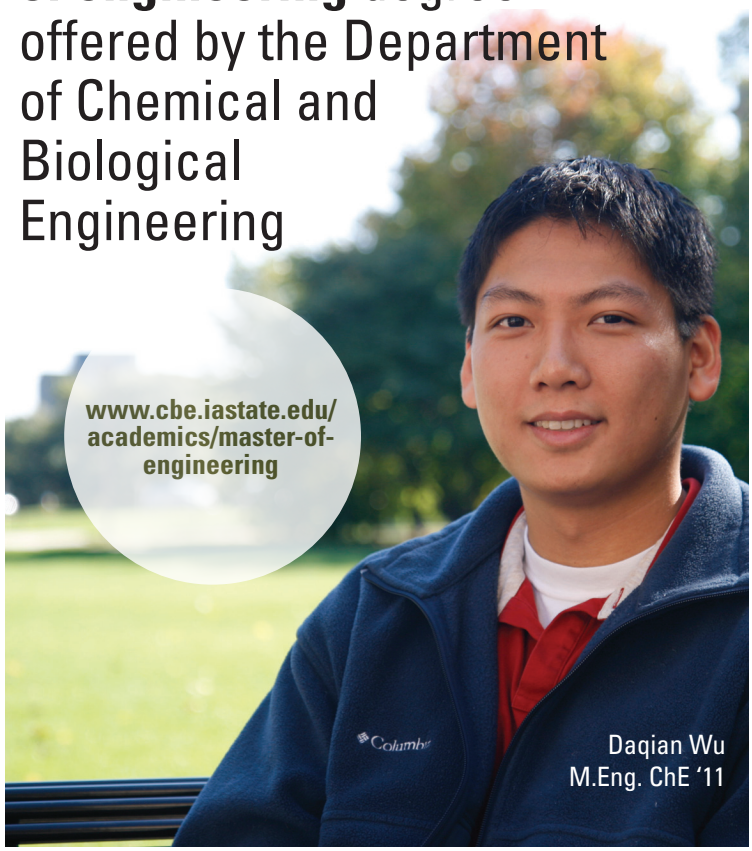

Daqian Wu
M.Eng. ChE '11