Message From the Chairman

Dear Alumni, Colleagues and Friends,

It is always a pleasure to communicate to you our department’s news for the 2009/2010 academic year. During the past year we have had many outstanding achievements and successes. However, there have been still a number of multi-scale challenges that we have faced and at the mean time opportunities to our department.

In April 2010, Dr. Kim Henthorn and Dr. David Henthorn received their tenure and promotion and Kim won the Woman Faculty of the Year Award.

Our undergraduate students’ enrolment continues to grow. This has brought additional challenges along with the budget cut we have received. We had a successful retreat in September 2009 in which we had addressed and established a well structured plan for the ABET program educational objectives and program outcomes assessments. Since then our faculty members have been working with the department ABET committee and the chair to execute the plan and collect the needed data for the required assessments. A report has been submitted to ABET in June 2009. During 2009/2011, the graduate students’ applications have increased significantly and also the number of PhD students. We were able to obtain this year four Chancellor fellowships for US PhD students which will cover their tuition and fees while in the past the department had usually received only one fellowship. We have attracted many international graduate and undergraduate students on their governments support.

To enhance our teaching effectiveness major improvement has been made to our computer laboratory classes by replacing the old computers with up-to-date computers and software and having new furniture. Furthermore, we have renovated our department computing laboratory with up-to-date computers and software and proper furniture. This lab is available for the students 24 hours and seven days a week. With the help of our Alumni, we have initiated a fund to renovate our undergraduate unit operations laboratory and to add new experiments. Our undergraduate study lounge and our department suite have been renovated. Also to provide help to our undergraduate students and to the instructors and at the mean time overcome the limitation of the availability of graduate teaching assistants (GTAs), grading system has been introduced where very good undergraduate students have been involved in our teaching activities as graders besides our GTAs. Our undergraduate team of Chem-E car won the national competition in Ames, Iowa and also won the poster competition and took first place for best design. Increased numbers of undergraduate students have been involved in research during the regular semesters and summer which is important in developing in them the critical thinking, the ability to solve problems to make them better engineers and to work and interact with our graduate students and researchers. Our undergraduate committee has worked with our faculty members on revisiting our curriculum and contents of courses to further improve and enhance our undergraduate program along with the current market needs. This task is currently in progress. I am very pleased that our students continue to attract companies to hire them during the difficult time and again they have topped the starting salary at about 90k per year range.

Our department took an active role in establishing a center on safety engineering and to prepare and propose a graduate certification on safety engineering with multiple tracks that cover engineering and human factors safety aspects. In addition to that, our department also took active roles in campus-wide initiatives related to energy, environment and education. We have taken the initiative to outreach to Leonard Wood Fort to offer them an undergraduate certificate.

Our graduate committee worked with our faculty members where our graduate program has been revisited and improved. We have taken the effort to provide the GTAs to only PhD students who stay longer and with gaining experience they can benefit our undergraduate students better. We have significant increase in the number of PhD US and international students including graduate students on the government support.

Our faculty members have made the best effort in attracting external funding and resources as demonstrated by the significant increase in our research expenditure, external grants, international funding and collaboration and in submitted proposals. In addition, our scholarly activities have increased noticeably in terms of publications, invited talks and plenary lectures, national and international conference presentations and posters. The current success in attracting external funding will further impact positively our graduate studies and provide more research opportunities to our undergraduate students. Despite such effort, our faculty members continue to be committed to provide high quality education to our students and services to the department, university and profession. A number of our faculty members have received university, national and international awards and recognition.

Our success and achievements are supported by dedicated and hard working staff who also strive to provide the best service possible to our students, faculty and department.

A new website has been established and its development continues for further improvement.

Since I joined the department in January 2009, I have realized that our department is blessed with great and successful alumni and friends who are a source of pride and inspiration for all of us. Due to the budget cut, our GTAs have been reduced significantly which will impact our undergraduate education. However, our Academy took the initiative during its meeting in April 2010 to raise
the funds for two GTAs. Furthermore, in 2010 we have a record of our Phonathon results where we have received 22% increase in the raised funds compared to 2009. Such help along with the grading system that we have introduced we have been able to cover the classes and to maintain the quality of our undergraduate education. Hence, with the current and future cut of our budget, our alumni and friends can play an essential role and their help is needed more than ever to maintain our academic and undergraduate education strength by fulfilling and sustaining the financial needs of our department. In this regard, I include in this newsletter excerpts from the last year letter of Dr. John Culter, The Academy President, to alumni. I shall take this opportunity to urge you all to be responding positively to John’s request for the benefit of our students and the future of our department. We are all confident that our alumni and friends will do it.

It is unfortunate that at the end of July and in early August 2010 we have received news that three of our faculty members are leaving. We feel sorry that Dr. Kim Henthorn, Dr. David Henthorn and Dr. KB Lee have accepted new positions and they will not be with us starting fall 2010 semester. Although this is a loss to our department, we wish them the best in their new positions and places. Despite such unfortunate news, I am confident that with the dedication of our faculty and staff members our department will continue moving forward and will continue providing the best education to our students.

I have enjoyed meeting our alumni and academy members during the April meetings and during my trip to Houston. I hope to meet and interact with all of you in the near future.

We always welcome any feedback, comments, suggestions, and support from you and on behalf of all students, faculty and staff I extend my sincere appreciation to all what you have done for our students and department and to all your future support and contributions.

Sincerely,

Muthanna Al-Dahhan
Chairman

Attention ChBE Alumni!

As part of our ABET accreditation, a survey for assessing our program educational objectives was sent during the summer of 2009 to 140 alumni who graduated with a BS degree in 2004, 2005, and 2006. The alumni were reminded first by postcards and then by email, and were given the option of completing the survey online or on paper. Overall 18 alumni responded (13 by mail and 5 online), giving a response rate of ~13% which is lower than but still comparable to 20.5% in 2002 and 23% in 2008.

The Alumni Survey is the centerpiece of the Assessment Plan for Program Educational Objectives which represents a direct measure regarding objectives attainment. The survey consists of a set of questions for each of the four Program Educational Objectives and their attributes. The questions request our alumni to indicate: 1) The importance of each educational objective in meeting their educational and professional needs during their careers (postgraduate activities) and 2) Their level of preparation for meeting the educational objective. A 5-point Likert scale (0-low to 4-high) was used for the responses.

The summer of 2012 surveys will be sent out to ChBE alumni who have graduated, with a BS in ChBE, the years of 2007, 2008, and 2009. Please help the department by taking the time to fill out the survey!
Alumni Spotlight is dedicated to distinguished Alumni who make an impact on our student education and on our department.

During this year’s ChBE Academy meeting, Dr. John Culter, the ChBE Academy President, took the lead to inspire our alumni in raising the needed funds for adding two GTA’s and maintaining the faculty development fund besides others. During our Academy meeting in April and while John was trying to raise the above mentioned funds, Bipin Doshi came up with his offer to Academy members that he will match in amount of $10,000 if the Academy raises $10,000. John and Trudy Pischer, our development officer, have since taken the lead to raise more than $10,000 from our Academy/Alumni members. Our students, faculty and staff very much appreciate the effort and generosity of both John and Bipin. Therefore, we are pleased to dedicate our Alumni Spotlight of this newsletter to both John and Bipin and we are looking forward to having new names for our Alumni Spotlight for next year who will make an impact on our student education.

John Culter

John's career began as a research engineer for Continental Oil Company in Ponca City, Oklahoma in 1960. He worked on well logging technology and rheology of oil well completion fluids. He developed a U.S. Patent for an oil drag reducer. In 1969, John came to the University of Missouri-Rolla to get a PhD in Chemical Engineering and completed his PhD in 1973. After completing his PhD at the University of Missouri-Rolla, Dr. Culter went to work at American Enka Company developing early polyester beverage bottle technology. In 1976, he went to work for St. Regis Corporation in West Nyack, New York as a manager of Polymer and Converting Technologies. From 1984-1997, John worked for General Mills, Inc. first as a principal scientist and in 1994 he was promoted to senior principal scientist. While working for General Mills, he headed a group of corporate technical resources in corrugated, advanced packaging design and materials technology. In 1997, John became an Adjunct Professor at The School of Packaging at Michigan State University. Also in 1997, John taught Introductory Packaging in Sao Paulo, Brazil and in 1998, he taught portions of Food Safety and Preservation at Michigan State University. In 1999, he taught Regulatory Issues in Packaging, in Buenos Aires. He co-authored a textbook "Plastics Packaging" which was published in 2000. John developed and taught "Polymer Science for Packaging Applications" over the Internet as a part of the online MS program. He has developed and is teaching a course "Polymer Processing Effects on Packaging Materials" online since 2004. In 1988, John became president of Advance Materials Engineering, Inc. which is a consulting corporation formed to consult in the area of packaging and converting technologies.

John has 15 technical publications and co-authored a textbook. He has 4 U.S. Patents. John and his wife Shirley reside in Naples, Florida. John was inducted into the Academy in 2002.

In his own words...

John Culter came to the Chemical Engineering Department at UMR-Rolla as a graduate student in the fall of 1969 after 10 years in industrial R&D. He held a BS and MS in Petroleum Engineering from the University of Tulsa, but he wanted to get a PhD in a field more recognized for the area of research he had been working on for several years – drag reduction. Both Dr. Jack Zakin and Dr. Gary Patterson were doing research in the field of drag reduction, and John had known them through this work.

The Department assisted John in getting his education through both GTA’s and Research Assistantships over the course of his studies. John finished his course work and research in 1973, and finally received his degree in 1976 – demonstrating the point that one should finish their dissertation before leaving campus.

His association with Zakin and Patterson continued his relationship with the Department for several years after leaving Rolla.

In 2002, John was elected to the Academy of Chemical Engineers. He was elected to the Board of Directors of the Academy in 2005, to Vice President in 2008, which leads to being President in 2010.

Over this time frame, the State funding of the University continued to decline, which impacted the Department’s ability to deliver on its role. The Academy tried to help out in various ways through monetary support for programs and scholarships. In 2010, the budget cuts caused the loss of two and a half of the GTA positions that had usually been funded by the Department. The Academy had been funding a GTA Fellowship, so the Board under John’s leadership decided to ask the Academy if they would fund another position for 2011. The concept was put before the Academy at the Annual Meeting in April 2010, and approved. It was then that Bipin Doshi offered to match up to $10,000 that the Academy might raise. Following the meeting, John worked with the Advancement Office and conducted an email campaign that was able to raise the needed $10,000 from the members. John said, “I was proud that the Academy took on this extra chore. All States are in financial trouble, and support of higher education continues to suffer. We, as Alumni, need to look at this as a new era when our financial support for the University will be even more critical. This means support for more than just bricks and mortar. Staff support will be necessary if the University is to grow”.

John Culter
Bipin N. Doshi

Upon completion of his master’s degree, Bipin went to work for U.S. Rubber Company, which later became Uniroyal, with the Naugatuck Chemical Division in Connecticut. He joined the company in 1963 as a Project Manager and worked his way up through the ranks to Vice-President and General Manager of Uniroyal Graphic Arts Division in Mishawaka, Indiana. In 1988, he left Uniroyal and purchased Schafer Gear Works, Inc. in South Bend, Indiana and is now President, CEO, and Chairman of the Board. Schafer Gear Works has two additional divisions located in Fort Wayne, Indiana; and Rockford, Illinois. While enrolled in MSM, Bipin was active with the India Association, the American Institute of Chemical Engineers, and also worked as a Student Assistant in Chemistry. He was Chairman of the Board of American Gear Manufacturers Association for the 1999-2000 term. Bipin is also actively involved with the Board of the Chamber of Commerce and the Board of the Business Development Corporation of St. Joseph County of Indiana. He is chairman of the Memorial Hospital Board in South Bend and also served on the Technical Advisory Program (TAP) Board at Purdue University. Bipin and his wife Linda, whom he met on the MSM campus, now reside in Mishawaka, Indiana. Bipin and Linda were inducted into OGS in 1998 and Linda also serves on the OGS Board. Bipin was inducted into the Academy in 1998.

In his own words...

I came to Rolla, then Missouri School of Miners and Metallurgy, in January of 1960. It was presumably one of those “record snow fall winter”. Coming from India I could have just turned around. Instead I found a new home and a new country. Soon I forgot about the cold and winter and was struck by the friendliness of the town’s people and openness of both the professors and the student community. There was a small community of students from India and helped me a great deal in transition. The new American friends, both students and families, I befriended gave me a true picture of America that I still believe in and practice.

The very first positive experience was Dr. Conrad guiding me in selecting the right courses and the right classes for the first semester. Within a few short months, I adopted a slower speech, openness to ask questions in the class, giving presentations (sort of preparation for public speaking, a great tool for management preparation, I might add), and hard study and short nights. The first semester success led to heavier load in the following three semesters that got my Bachelor's degree and a graduate Assistance encouraged me to continue at Rolla for a Master’s Degree.

The education at Rolla prepared me as an engineer to think clearly, analyze quickly and thoroughly, and make decisions. Elective courses truly helped me in rounding out my education in liberal arts. Economics, labor relations, time and motion studies courses helped me move from engineering to management responsibility early in my career. In Rolla, I made a transition from a shy boy to a confident professional for the industry. I can pin point many successes in my career to specific professor or a specific experience I gained at Rolla.

I have come to believe that as a Chemical Engineer, especially from the Rolla campus, now Missouri University of Science and Technology (regardless of name Rolla has always been that!); one can be successful in any endeavor in life.

Lastly, In Rolla I met my future wife while assisting Dr. Bosch in a Summer Course, which has given me a good life and wonderful family. We are privileged to give back to Rolla with what we can and help the future generation of leaders that are studying there.

Bipin N. Doshi

2010 Phonathon Dates:
September 23, 26-30 and October 3
Ways of Contributions

Dr. Muthanna Al-Dahhan– Chairman of ChBE

Dear Alumni, Colleagues and Friends,

With the current situation of budget cut, the financial and non-financial contributions of our alumni, colleagues and friends are more needed than ever. There are short and long term needs for resources to maintain the high quality of undergraduate education, to support graduate research, to enhance faculty development, etc. The short term needs are related to graduate teaching assistants and fellowships, undergraduate teaching laboratories, endowed chairs and professorships, and strong ties with industry in the form of research contracts, consortium, collaborative work, etc. The following is a summary of the needs to be considered by our alumni and friends for their contributions:

- Graduate Teaching Assistants (GTAs) and individual and corporate fellowships to further enhance and sustain the quality of undergraduate education. Our goal is to have 9 GTAs and/or fellowships at a cost of $32,000 per GTA or fellowship to ensure one GTA/fellowship per faculty member. Individuals and corporate can establish graduate fellowships under their names to support our undergraduate education. We need to sustain recruiting excellent graduate students for GTAs, GRAs and fellowships. In order to ensure competing stipends, the tuition and fees need to be covered to attract and retain excellent PhD students who can provide both high quality of teaching assistance to our undergraduate students and produce high quality intellectual research work. This is one of the challenges facing our undergraduate and graduate programs.

- Improved undergraduate teaching laboratories that are equipped with new experiments and facilities. Our undergraduate laboratories need to be modernized and to add experiments related to emerging technologies and the issues facing our country and the world. We recently have initiated a fund with a number of Alumni contributions for this purpose. We plan to name the developed experiment after the names of the alumni and the corporates that fund and support such development. During this coming academic year, we will establish a development plan for our undergraduate laboratories to be shared with our academy, advisory council and alumni for their feedback and support.

- Endowed Chairs and professorships. Our department most likely is the only engineering department on campus without any one of these despite that we have great alumni and friends. These will help the department retaining our faculty and attract new ones.

- Strong ties with industry in a form of research contracts, consortium, collaborative effort, etc which bring opportunities to our students, faculty and department.

- Nowadays many requests for proposals require cost sharing for which 1/3 of it must come from the department as per our sponsor project office policy. This becomes additional challenge to our department and faculty members. Since no fund in this regard available for the department from the university, we could use $250,000 to cover the cost sharing for the current and anticipated proposals.

- Our institution has provided us with about $400,000 endowment to support our department. With this initial seeding endowment, there is an opportunity to our alumni and friends to help in growing it to a level that its annual return will make noticeable impacts on our undergraduate education, graduate research, faculty development, etc. In the current low yield economy, we cannot count on the old number of 5% per year without touching the principal. Therefore, the Endowment needs to be grown to about $3 million to provide funds without affecting the principal.

- Another opportunity is the $350K available to match $700K in gifts toward professorship which will be given to any department that can comes up with such gifts first. We would need a commitment of raising the $700,000 ahead of other S&T departments to make this happens.

- Funds are needed in the order of about $250,000 per year to enhance and sustain our faculty development, to provide seeding money on research topics related to national needs on energy and environment, to provide research fellowships for both graduate and undergraduate students and to sustain our department development, expansion and capacity building.

- A number of our alumni have been providing scholarships for undergraduate students which are very much appreciated and we are looking forward for the contribution and expansion of these scholarships.
Chemical and Biological Engineering Phonathon

September 23, 26, 27, 28, 29, 30 and October 3

The annual phonathon is vitally important to the department’s success. Many of the gifts received are designated for the area of greatest need, as priorities in the department can change from year to year. The funds raised during the ChBE phonathon ensure that resources are available as opportunities present themselves. For example, this year your gifts helped to add graduate teaching assistant, graders, buy materials and supplies for experimental labs, scholarships, equipment and software to teach courses. Your contribution to this effort and your confidence that your unrestricted gift will be used wisely and deeply appreciated. Many companies provide significant match to their employee donation, we urge all of you to explore and take this opportunity to maximize the impact of your donation on our students education and the department.

A ChBE student will be contacting you soon to ask for your support as part of our annual phonathon from September 23, 26, 27, 28, 29, 30 and October 3. Many of you will be invited to give for the first time. Please take a moment to talk with the student about his or her experience here, consider the value you place on your participation is as important as the amount you give. Others among you will be asked to increase your contribution from last year. We hope that seeing the results of your investment, some of which are reported in this newsletter, will inspire you to give at a higher level. We look forward to talking with you about MSM, UMR, S&T and Chemical and Biological Engineering!

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Phonathon Results
2004—2010

<table>
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<th>FY</th>
<th>Pledges &amp; M. G.</th>
<th>Total Gifts</th>
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<tr>
<td>2010</td>
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<td>$96,353</td>
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Missouri S&T Phonathon Results: Alumni Statistics

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<tr>
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<th>Pledge Participation</th>
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<td>Lapsed Donors</td>
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<tr>
<td>2007</td>
<td>548 483 1,661</td>
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<td>2008</td>
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<td>2009</td>
<td>484 448 1,350</td>
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<tr>
<td>2010</td>
<td>233 768 1,316</td>
<td>2,319 137 297 33</td>
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*Amount Pledged and Amount Received includes Matching Gifts
**Outright Gifts include credit card gifts and gifts from considering and unable to contact letters sent to Alumni
Message from our Development Officer

Trudy Pischer

As the new academic year begins, I am more excited than ever to be back at Missouri S&T! You may remember I took a 2 year “sabbatical” in 2007 to work for a nonprofit organization closer to my home near Springfield, MO. While there, I grew more convinced that the only real solution to the societal problems we face – poverty, illiteracy, hunger, drug abuse, and so much more – is education. Specifically, higher education, and getting students interested in science, engineering and math at an early age. We must strive to make higher education accessible and affordable for the students of today and tomorrow.

There are so many wonderful things happening in ChBE, and many opportunities for the department to partner with other departments and centers on campus. The new Safety and Reliability Center, which is housed in Engineering Management and under the direction of Dr. Susan Murray promises to bring the vital aspect of safety, a standard in Chemical Engineering, to all engineering disciplines. Dr. Dan Oerther, our new Mathes chair, conducts research that integrates concepts from ecological theory, engineering modeling processes and molecular biology to assess the metabolic activity of various microbial populations.

This past April, we celebrated the successful conclusion of S&T’s Advancing Excellence Campaign, which raised in excess of $200 million for the purpose of preparing students for a new world; enhancing Missouri S&T core strengths; enabling emerging technologies; and to increase private grants. Undoubtedly, our students will solve the problems and find solutions for our technological world.

S&T is such a special institution, whose alumni have and continue to make the world a better place for all of us. It is my privilege and honor to serve as the Development Department liaison to the Department of Chemical & Biological Engineering and to work with our Academy of Chemical Engineering, our Department Chair, Dr. Muthanna Al-Dahhan, and the faculty and staff of Chemical & Biological Engineering. I am also assigned to a geographic region which includes Houston, Texas, Oklahoma, Kansas, New Mexico and Arizona.

Please contact me if you have questions or ideas!

Trudy Pischer, CFRE
Senior Development Officer
pischert@mst.edu
573-201-6621

2010 Phonathon Dates:
September 23, 26-30 and October 3
“The economy has hit all of us, but as I am sure you also know, Missouri S&T has taken a hit as well. This year Missouri S&T received 5.2% cut. This action in the continuing decline of State support for schools.”

“Because of the continuing decline in State funding for the University, the Department of Chemical and Biological Engineering needs our support even more than ever.”

“We have a new Department Chair, Dr. Muthanna Al-Dahhan, who has lots of enthusiasm and a lot of ideas about how to move the Department forward. He and the faculty are working on grant requests in many areas - energy, biological engineering and safety are a few of the topics. While major dollars to drive the programs are expected to come from the grants, there are other requirements, such as matching funds, start-up funds and miscellaneous equipment - that require funding through help from organizations like ours. We are proposing that we add a line item of $20,000 per year to be used at the Chair’s discretion to support new initiatives. We would like to grow this into an Endowment eventually, but to start down that course would require the Department Chair to wait until the total amount had been raised before having the initial amount available.”

“The number of students is growing with the current budget cut, the Teaching Assistants it would be desirable to increase our support of Fellowships in next year’s budget.”

“For that reason, the Board of Directors of the Academy are writing you this letter to suggest a return to an old goal of the Academy to receive VOLUNTARY support from all members each year. In the inaugural academy membership, there was a goal of $1000 per member per year. Some of us never heard anything about this when we were inducted into the Academy, but there has been an annual appeal to keep the Academy giving flowing. What we are suggesting now is that we try to return to the $1000 level. If that amount is unsuitable for anyone, please pick a level at which you are comfortable giving and make it a personal commitment to participate in giving every year. If there are some parts of the budget that make you more excited than others, please specify to the Development Office where you want your gift targeted. You might even want to review any past instructions to make sure they are still your current preferences. Donations and questions may be directed to: Missouri S&T, Development Office, 410 W. 10th Street, 200 Castleman Hall, Rolla, MO 65409.”

“Some of you may be saying, there is a never-ending flow of requests for money from the University. That is true, because the needs do not go away, and the State support is decreasing. For those that may not remember, all donations that you give - no matter the recipient at the University - count toward the Advancing Excellence Campaign and your Order of Golden Shillelagh (OGS) commitment.”

“It is a new era in higher education in which Alumni will have to be bigger supporters than ever to nurture the Department of Chemical & Biological Engineering growth and success. Let’s make it happen! We would like to hear from you about whether you plan to donate to the Academy this year. An email, or snail mail, could be sent to Marlene Albrecht (marlene@mst.edu).”

John D. Culter, Ph.D.
President
Board of Directors
Academy of Chemical Engineers
Missouri S&T
Faculty News

- Dr. Daniel Forciniti authored a book titled “Industrial Bioseparations: Principles and Practice” that was published by Blackwell Publishing in 2008.

- Dr. David Henthorn was promoted to Associate Professor and was granted tenure at Missouri S&T in the spring semester of 2010. Dr. David Henthorn left Missouri S&T in August 2010 to join the Department of Biomedical Engineering of Saint Louis University.

- Dr. Kimberly Henthorn was promoted to Associate Professor and was granted tenure at Missouri S&T in the spring semester of 2010. She was also named the Missouri S&T Woman of the Year 2010. Dr. Kimberly Henthorn left Missouri S&T in August 2010 to join the Department of Chemical Engineering of Rose-Hulman Institute of Technology.

- Dr. Sunggyu “KB” Lee left Missouri S&T in September 2010 to join the Ohio Coal Research Center of Ohio University, Athens, OH.

- Dr. Douglas Ludlow was named 2010 Missouri S&T Outstanding Advisor.

Chemical and Biological Engineering Faculty and Research Interests

Dr. Muthanna Al-Dahhan, Department (Professor and Chair)
PhD, Washington University, St. Louis
Reactor Engineering; Transport-Kinetic Integration; Advanced Measurement and Computational Techniques

Dr. Daniel Forciniti (Professor)
PhD, North Carolina State
Bioseparations; Thermodynamics; Statistical Mechanics

Dr. Athanasios I. Liapis (Professor)
PhD, ETH-Zurich
Transport Phenomena; Adsorption; Bioseparations; Chromatography and Electrochromatography; Chemical Reaction Engineering; Bioengineering; Multiscale Modeling

Dr. Douglas K. Ludlow (Professor)
PhD, Arizona State
Surface Characterization of Adsorbents and Catalysts; Applications of Fractal Geometry to Surface Morphology

Dr. Parthasakha Neogi (Professor)
PhD, Carnegie-Mellon
Interfacial and Transport Phenomena

Dr. Neil L. Book (Associate Professor)
PhD, Colorado
Computer Aided Process Design; Chemical Process Safety; Engineering Data Management

Dr. Oliver C. Sitton (Associate Professor)
PhD, Missouri S&T
Bioengineering

Dr. Jee-Ching Wang (Associate Professor)
PhD, Penn State
Molecular Simulations of Transport in Confined Systems; Molecular Properties of Materials; Multiscale Modeling

Dr. David J. Westenberg* (Associate Professor) Joint appointment with Biological Sciences
PhD, University of California-Los Angeles
Molecular Microbiology, Microbial Diversity, Microbial Physiology

Dr. Yangchuan Xing (Associate Professor)
PhD, Yale
Synthesis, Processing and Characterization of Nanomaterials
Faculty Publications


Zhang, Pu; Henthorn, David B. *Comparison of different functionalization routes for the fabrication of enzyme-single wall carbon nanotube conjugates*. Journal of Nanoscience and Nanotechnology (2009), 9(8), 4747-4752.

Dasani, Devang; Cyrus, Charay; Scanlon, Katherine; Du, Rui; Rupp, Kyle; Henthorn, Kimberly H. *Effect of particle and fluid properties on the pickup velocity of fine particles*. Powder Technology (2009), 196(2), 237-240.


Shukla, Nimisha; Henthorn, Kimberly H. *Effect of relative particle size on large particle detachment from a microchannel*. Microfluidics and Nanofluidics (2009), 6(4), 521-527.


Neogi, P. *Inhomogeneity of adsorbed proteins on a solid surface*. Colloids and Surfaces, B: Biointerfaces (2009), 71(1), 119-123.


The following papers were presented by our faculty and graduate students at the AIChE annual meeting in Nashville, TN on November 8-13, 2009.

An Integrated Enzyme Based Optical Glucose Sensor with Chemically Anchored in-Device Sensing Elements: Zhan Gao, Chang-Soo Kim, David B. Henthorn

Post-Script Fabrication of Bioseparation Membranes within Sealed, Completed Microfluidic Devices: Lucas D. McIntosh, Chang-Soo Kim, David B. Henthorn


pH-Responsive Copolymer Functionalized single Wall Carbon Nanotubes for Switchable Aqueous Dispersibility: Pu Zhang, David B. Henthorn

Continuous Monitoring of Tissue Regrowth Using Embedded and Integrated Optical Biosensors: Prajakta Bhagwat, Chang-Soo Kim, David B. Henthorn

Effect of Particle and Fluid Properties on the Pickup Velocity of Fine Particles: Kimberly H. Henthorn

Characterization of Bubble Breakup in a Rectangular Microchannel: Gautham C. Unni, Kimberly H. Henthorn

Effects and Roles of Air Feed on the Noncatalytic Gasification of Jet Fuel in Supercritical Water: Jason W. Picou, Jonathan E. Wenzel, Michael S. Stever, Jared Bouquet, Sunggyu Lee

Effect of Organically Modified, Nano-Size Silicate Layers on Biodegradable Polymer Blend of Poly (Butylene Adipate-co-Terephthalate) and Poly (Lactic Acid): Mahin Shahlari, April Elizabeth Sloan, Sunggyu Lee

Effects of Varying Water to Glycerin Molar Ratio on Hydrogen Production During Supercritical Water Reformation of Glycerol: Michael S. Stever, Jason W. Picou, Jared S. Bouquet, Sunggyu Lee, Tae-Hoon Lim, Byung Gwon Lee

Free-Radical Maleation of Extruded Polylactide films in Supercritical Carbon Dioxide: Alexandria Niemoeller, Sunggyu Lee

Synthesis Gas Production by Noncatalytic Reforming of Glycerin in Supercritical Water: Effect of Temperature: Jason W. Picou, Jonathan E. Wenzel, Michael S. Stever, Jared Bouquet, Sunggyu Lee

The Effects of Space Time upon the Supercritical Water Reformation of Glycerol: Jared Bouquet, Jason W. Picou, Michael S. Stever, Jonathan E. Wenzel, Sunggyu Lee, Tae-Hoon Lim, Byyoung Gwon Lee

Control of C2-Hydrocarbon Formation in the Supercritical Water Reformation of Jet Fuel: Jonathan E. Wenzel, Jason W. Picou, H. Bryan Lanterman, Sunggyu Lee

Biomolecular Transport and Adsorption in Porous Polymeric Adsorbent Media: Enrico Riccardi, Jee-Ching Wang, Athanasios I. Liapis

A Multi-Scale Modeling Study of Protein Adsorption in Porous Polymeric Adsorbent Particles: Enrico Riccardi, Jee-Ching Wang, Athanasios I. Liapis

Labyrinthine Instability of Thin Liquid Films: Parthasakha Neogi

A Brownian Dynamics Study of Protein Deposition on a Solid Surface: Jee-Ching Wang, Parthasakha Neogi

Computer Simulation of Nanoparticle Solutions in Confinement: Chen Wang, Ramesh Chembeti, Jee-Ching Wang

A Brownian Dynamics Study of Protein Deposition on a Solid Surface: Jee-Ching Wang, Parthasakha Neogi

Nanoparticle Aerosol Gels from Counterflow Diffusion Flames: Yangchuan Xing

SESSION CHAIRS:

Fluid-Particle Interactions and Processing
Kimberly H. Henthorn

ABET Accreditation Updates and Insights
Douglas K. Ludlow

Self and Directed Assembly at the Nanoscale I
Jee-Ching Wang

Self and Directed Assembly at the Nanoscale II
Jee-Ching Wang

Portable Power Systems
Yangchuan Xing
Visiting Assistant Professor

Dr. Stoyan Nedeltchev joined our department as a Visiting Assistant Professor from Europe in February 2010. His research stay (24 months) at our Department is sponsored by the Seventh Framework Programme (Marie Curie Outgoing International Fellowship) of the European Commission. Dr. Nedeltchev’s research is focused on the flow regime identification in various multiphase reactors (bubble columns, spouted beds, fluidized beds, etc.). The delineation of the different flow regime boundaries is important for better understanding and prediction of mass and heat transfer as well as mixing in multiphase systems. Both nonlinear chaos analysis and information entropy theory as well as statistical methods will be applied to various experimental data obtained by various techniques—pressure transducers, optical probe and non-intrusive radioactive techniques (Computed Tomography (CT), Radioactive Particle Tracking (RPT) and Nuclear Gauge Densitometry (NGD). In the course of his research, Dr. Nedeltchev will be co-advising several PhD students.

Dr. Nedeltchev is an author or coauthor of 30 scientific papers published in international journals such as “Chemical Engineering Science”, “The Canadian Journal of Chemical Engineering”, “Journal of Chemical Engineering of Japan” and “Chemical Engineering and Technology”. He has published together with Prof. A. Schumpe (Germany) a chapter on slurry reactors in a “Handbook of Heterogeneous Catalysis” published by Wiley-VCH. The publications of Dr. Nedeltchev have been cited about 35 times.

In September, 1999 Dr. Stoyan Nedeltchev obtained his D.Eng. degree from Tokyo Institute of Technology (Japan). During his postgraduate research work, he has been sponsored by Takase Foundation and AIEJ (Japan) and NUFFIC (the Netherlands). Dr. Nedeltchev has received numerous post doctorate fellowships from some very prestigious foundations: Fulbright Comission (USA), DAAD and Alexander von Humboldt Foundation (Germany) as well as Japan Society for the Promotion of Science (JSPS).

Visiting Scholars

Dr. Eman M. Abdullah holds a PhD in accounting from Baghdad University–Ministry of Higher education. Dr. Abdullah came to Missouri S&T as a post doctorate visiting scholar in the Chemical and Biological engineering and the Department of Economics in January 2010. Her research has been focused mainly on economical analysis of the production of biodiesel from algae.

Dr. Fadha S Ahmed, holds a PhD in Physics (2005) from Nanjing University, Nanjing-China. He is a visiting scholar in the department of Chemical and Biological Engineering and Nuclear Engineering at Missouri University of Science and Technology. His research to cases on the applications of advanced diagnostic techniques such as Dual source computer tomography, Radioactive particle tracking, Densitometry, Gas dynamics, Optical probe and Heat transfer probe on various multiphase flow systems.

Dr. Abbas A. Karwi holds a PhD in Nuclear Engineering from Baghdad University– Ministry of Higher Education. He came to Missouri S&T as a Post-Doctorate Visiting Scholar in the Chemical and Biological Engineering Department in January 2010. His research has been focused mainly on radioisotopes based measurement techniques and assisted in handling the radiation safety.

Dr. Xingying Lan holds a PhD in Chemical Engineering from China. She is an associate professor from State Key Laboratory of Heavy Oil Processing, China University of Petroleum, Beijing. She came to Missouri S&T in February 2010 as a visiting scholar. Her research focuses on simulations of multiphase flows with chemical reactions, and applications in petroleum processing industry. She is currently carrying out the research on the hydrodynamics and scale-up methodology of spouted beds.

Dr. Rahman S. Abdulmohsin (BSc ChE’ 96, MSc ChE’ 01, PhD ChE’ 08), came to Missouri S&T in January 2009 from Washington University in Saint Louis. He has been working as a visiting research scholar on the project of pebble bed reactor for 4th generation nuclear energy funded by the department of energy (DOE). He has been instrumental in establishing some of the facilities of Professor Al-Dahhan. He has been working on design and implementation of continuous solids cold flow and gas dynamics pebble bed experimental setups. He helped many PhD students to design their experimental setups. Currently he is focusing on the preparation of a large-scale/pilot-plant short length bubble column with and without internals.
The Missouri S&T ChemE Car team has just completed its most successful academic season in the team’s history. After a successful showing at the Fall 2009 National Competition (Nashville, TN), the team went on to win the Spring 2010 regional competition and received numerous secondary awards as well. The team is looking forward to representing Missouri S&T at the upcoming Fall 2010 National Competition in Salt Lake City, Utah.

The ChemE Car competition requires students to build a small autonomous vehicle that fits into a shoe box. At competition, teams are given a distance between 50 and 100 feet from the starting point. The goal of the competition is to make the car stop as close to this distance as possible using only chemical means. Teams can develop separate power sources and stopping mechanisms or combine them into a single one. Cars need to be built by the students and cannot be purchased in a kit.

The Missouri S&T car, called the Think Tank, uses a lead-acid battery as a power source. The car is stopped using an Iodine-clock reaction, which is a reaction between sodium iodate and sodium sulfite with citric acid (citric acid is not a buffer but I do not know what they used) and starch as a buffer and indicator, respectively. At the starting line the sodium iodate is injected into a beaker containing the other chemicals. Iodide is produced as a result of the reaction and when a high enough concentration is reached, the solution changes color from clear to dark brown. This color change is detected by a photosensor which sends an interruption signal to the circuit on the car to kill power to the motor.

The 2009 National ChemE Car Competition was held at the AIChE National Conference in Nashville, Tennessee. The S&T Think Tank placed 8th out of 31 teams, the team’s best national placing yet, and won the Best Safety Inherent in Design Award as well. The team followed up with an impressive showing at the 2010 Regional AIChE Conference, where the S&T team placed 1st in the competition and won the Best Poster and Most Creative Design awards. Coming off two very successful performances, the team is currently reworking the car’s chemistry for the 2010 National ChemE Car Competition to be held this November.

On top of preparing for future competitions, the S&T ChemE Car team is also actively recruiting underclassmen to increase the size of the current team. “Becoming a member of the ChemE Car team is a great way for younger students to get involved within the Chemical Engineering Department,” team Solutions Vice President Kristen Mills said. “It also gives underclassmen a fun way to apply their knowledge and learn more about engineering in the process”. Although the team is predominantly made up of chemical engineering majors, students from all majors are encouraged to join. With more involvement from younger members, the ChemE Car team hopes the organization will continue to be successful for the foreseeable future.
AICheE Chapter Update
Wendy Salabay, AICheE President—SP 2010

This has been another excellent semester for the Missouri University of Science and Technology AICheE Chapter. We were fortunate to have speakers from various back ground generously come and share their experiences as well as meetings that focused on professional development, which featured webinars from the National AICheE organization. Presenters included representatives from Halliburton and Domtar and had three professors who shared stories on their various experiences and research. The semester kicked off with Dr. Daniel Forciniti, a professor in Chemical Engineering and our AICheE chapter advisor, who presented about going to graduate school for academia and the pros and cons of that career path. Stephen Ingram presented on the interesting topic of shale gas production. His presentation gave the chapter a brief glimpse at the theory and technology of shale gas production today. Domtar sent Kelley Crouch and Jeff Harke who gave an informative presentation about Domtar and the paper industry as a whole. Dr. Kelvin Erickson, a professor in the electrical engineering department, presented about the discipline of automation engineering and the career opportunities offered along the path of automation engineering. The last speaker of the semester was the chemical engineering department chair, Dr. Muthanna Al-Dahhan. He gave a presentation over the applications of radioisotopes in advancing industrial processes.

Aside from presenters this AICheE chapter had various social actives throughout the semester. After each meeting we had successful member receptions where students who attended the meetings could come and enjoy provided food and socialize with peers and presenters. We also had the privilege of taking a plant tour of the St. Louis Anhesur Bushe Brewery plant. Fundraising activities included T-shirt and shot glass sales as well as having a highly profitable finals week BBQ. The chapter also had its opportunities to help out the department and community by putting together new chairs for a department computer lab and participating in the Missouri Highway Cleanup program. Member participation was high at all meetings and activities, partly due to chapter incentives such as door prizes at meetings and a point system for participating in chapter activities where members who acquired the most points got a gift certificate.

The chapter not only stood out on campus but across the Midwest. The Chemical Engineering Car Team took first place at the regional conference in Ames, Iowa. The team was also given awards for Best Poster and Most Creative Design. This conference was a very rewarding experience for all who were able to attend; not only did our department have the chance to spotlight its students and all of their hard work, but also it gave the students opportunities to learn more about what it means to be in chemical engineering.

The chapter would like to thank everyone who made this semester such a great one, including our Advisor Dr. Daniel Forciniti, as well as all presenters and the department. It was a great experience serving as President this semester and I look forward to seeing what the future holds for this chapter.


AICheE Academic Advisor: Dr. Daniel Forciniti

AXE Chapter Update
April Sloan

Alpha Chi Sigma (AXΣ) is the nation’s only professional chemistry fraternity and consists of both collegiate and professional branches. The fraternity initiates new members each semester from any degree containing a strong chemistry background, such as: chemistry, chemical engineering, biological sciences, and material sciences. The fraternity is based upon a foundation that creates a true and lasting friendship among its members, strives to advance chemistry both as a science and as a profession, and helps its members obtain their ambitions in the chemical sciences. The chapter of AXE at Missouri S&T, Beta Delta (ΒΔ), has a long-standing role in the history of the fraternity and continues to build upon the proud traditions of the chapter’s past.

Each semester a pledge class of students from chemistry related degrees is initiated into the chapter. The path the pledges take towards initiation into the fraternity leads them through a semester long journey in which they learn the traditions of the fraternity as
At Missouri University of Science and Technology there are many summer camps that are available for almost every age group. Rising juniors and seniors in high school can attend the jackling intro to engineering program. This program is a one-week summer camp that allows the students to gain insight into different engineering disciplines. The camp is designed to allow the students to gain practical engineering experience by visiting different departments, being involved in hands on activities and through interaction with students and faculty members. The team for Chemical and Biological engineering this year included Dr. Muthanna Al-Dahhan, Marlene Albrecht, Devang Dasani, Derek Troutman, Blythe Ferriere, and William Schaiff.

Devang Dasani, Derek Troutman, Blythe Ferriere, and William Schaiff determined the
format for this year’s camp. The students took part in basic Chemical engineering trivia, a fluidized bed experiment involving polymer coating of metal washers, making bouncy balls/slime, touring labs to see what types of research opportunities are available in the chemical and biological engineering departments and lastly, time permitting, learnt about the chemical engineering behind the functioning of a coffee pot.

Monday, Tuesday, and Wednesday were reserved for professor-student interactions, lab tours, experiments and trivia. Thursday, on the other hand was more of a fun-day, when a lot of students came a second time in addition to all the new students. Typical camp days started with a tour to Dr. Muthanna Al-Dahhan’s lab, where the students got to see and learn about different types of reactors, and were introduced to concept of fluid mechanics. This was followed by another tour to Dr. Kimberly Henthorn’s lab, where the students had a chance to view various high quality instruments, including an optical microscope, all while gaining knowledge about the bio-related drug delivery applications of her research. After the two lab tours, the students were given a chance to interact with Dr. Douglas Ludlow, who gave them an overview of the undergraduate curriculum and explained to them their career options as a chemical engineer. Following was a fun conversation with Dr. Cynthia Bolon, who told the students various stories from her freshman chemistry lab and cleared students’ doubts about college credits, especially for college-level chemistry.

Once the interactions were over, the students moved on to hands on activities starting with making bouncy balls. They were given glue, borax, water, and food color of their choice. Following the student counselors’ directions, the kids made the bouncy balls, and eventually competed to see whose ball bounced the most. Next in line was polymer coating of washers using a fluidized bed. The students also got to learn about the functioning of a manometer while coating the washers. Lastly, all the kids participated in a general trivia, that included questions related to basic mathematics, biology, chemistry, and physics. The top five students were presented with candies each day.

On Thursday, which was the designated fun-day, the students were served pizza, ice cream made by the way of liquid nitrogen and liquid nitrogen frozen marshmallows.

The high school students that visited the department at least twice, were offered a $250 scholarship upon declaring chemical or biochemical engineering as their major at Missouri S&T. The students were able to increase this offer to $1000 with a letter of recommendation from their chemistry teacher.

Overall, this year’s jackling camp was a huge success, with well over 200 students choosing to visit the chemical engineering department out of the 400 overall students.

ChBE Advisory Council Meeting

The Department’s Advisory Council met in Rolla on Thursday, April 22, 2010. Twelve of the seventeen Advisory Council members were in attendance for the day-long meeting. The Advisory Council was established in 1991 with their goal being to provide an industrial perspective to the Chemical and Biological Engineering Department. The objectives of the Advisory Council are to assist and advise the department so we are able to set and refine our vision, keep our curriculum pertinent and current, provide assessment and feedback, to serve as liaisons with their companies and industrial segment, and to help us see over the horizon to the curricular needs of the future.

During the meeting Dr. Muthanna Al-Dahhan, gave a presentation outlining the “state of the department” and reviewed the development plan for ABET program outcomes and program educational objectives assessment.

Wendy Salaby, Alex Pearson and Matt Dahl gave a brief overview of the AIChe Student Chapter and Chem E Car’s most current activities; highway clean up service, various social activities to foster more interaction and growth of the chapter as well as reaching out to more students and improving communication via facebook, the mandatory changes to the Chem E car and the success of taking first place at the recent regional competition.

Drs. Oliver Sitton and Neil Book also presented and discussed the newly developed ABET assessment Advisory Council members gave feedback regarding communication and upcoming alumni surveys.

Nichole Hurd, Meghan Ray and Daniel Roush of the International Genetically Engineered Machines (iGEM) team updated the council on their current activities and their goal to attend the 7th Jamboree Experience at MIT in 2010 with a new project.

The department would like to express our appreciation to the council members for their time, effort, and hard work. Their experience and willingness to give back to their Alma Mater not only helps us update and improve our program but, gives our current chemical engineering students a better, real world understanding of who chemical engineers are and what they are able to accomplish with a degree from Missouri S&T.

We are currently looking for alums willing to volunteer to serve on the ChBE Advisory Council for a three year commitment. If you are interested please contact the department at amorris@mst.edu.
The Chemical and Biological Engineering Department continues to enjoy hosting the graduation banquets on Friday evening before commencement to honor all of our graduates. Professor Kimberly Henthorn was the master of ceremony for the December banquet and Professor Jee-Ching Wang was the master of ceremony for the May banquet. Banquet attendees enjoyed a family style buffet with an opportunity afterwards for each student to introduce their guests and announce their future plans. Students were presented with gifts by their academic advisors.

The CBE graduation banquets allow the graduating students to celebrate with their student colleagues, department faculty and staff. The department would like to commend the December 2009 and May 2010 graduates on their accomplishments and thank all of the families for attending our celebration.
Academy Lectureship

Professor Carol K. Hall is the Camille Dreyfus Distinguished University Professor of Chemical and Biomolecular Engineering at North Carolina State University. She received her B.A. in physics from Cornell University and her Ph.D. in physics from the State University of New York at Stony Brook. After postdoctoral training in the Chemistry Department at Cornell and a brief period as an economic modeler at Bell Laboratories, she joined the Chemical Engineering Department at Princeton University in 1977 as one of the first women to be appointed to a chemical engineering faculty in the U.S. In 1985 she joined the Chemical Engineering Department at North Carolina State University.

Hall’s research focuses on applying statistical thermodynamics and molecular-level computer simulation to topics of chemical, biological or engineering interest involving macromolecules or complex fluids. Current research activities include self assembly of dipolar colloidal particles, nanoparticles for the delivery of cancer drugs, heteropolymers with adjustable monomer sequences, hybridization of DNA, and the formation of fibrils and other molecular aggregates of peptides and proteins. She is the author of over 190 publications, is a Fellow of the American Institute of Chemical Engineers and of the American Physical Society and was elected to the National Academy of Engineering in 2005. She is a member of the AIChE Board of Directors.

Inducted ChBE Academy Members

Edward P. Schneider (BS ChE ’42) began his career with Monsanto Company where he was a chemical engineer and worked on the Chemical Warfare Service. In 1946, he moved to the Foreign Sales Division in Springfield, Massachusetts. In 2004, he acquired a job with the Wagner Electric Corporation where he was plant manager for the Brake Fluid Plant. From 1964 through 2009, Edward was the President of the Lark Engineering Corporation. Edward is president of Alpha Chi Sigma Education Foundation, a member of the Masonic Order 32nd degree, a trustee of the Bopp Lane Subdivision Town & Country, President of the St. Louis Air Pollution Control Association, and a member of an Amateur Radio Club. Edward and his wife Virginia reside in St. Louis, Missouri.

A. Kent Peccola (BS ChE ’82) began his career with Shell Oil Company in 1982 as a unit process engineer at the Wood River Refinery near St. Louis. After several engineering assignments, Kent accepted roles in business planning, technical management and operations management. He volunteered with Junior Achievement and served on the University of Missouri-Rolla Corporate Development Council. Kent transferred to Shell’s Deer Park Refinery in Houston in 1996 for a business management position and then to Shell’s Westhollow Technology Center in Houston for a corporate distillation specialist assignment.

He returned to the Wood River Refinery as a refinery distillation specialist in 2000. Ownership of the Wood River Refinery passed from Shell Oil to Tosco to ConocoPhillips, and Kent assumed the position of Process Design Director. In that role, Kent directed the process engineering department in support of capital projects ranging from the addition of low sulfur gasoline and diesel units to the evaluation, purchase and integration of a nearby competitor’s refinery. In 2006, Kent accepted his current position as Process Engineering Manager and Lead Architect of the multibillion dollar expansion of the Wood River Refinery scheduled for completion in 2011.

Kent is a member of the American Institute of Chemical Engineers, a ConocoPhillips corporate recruiter, a member of the Missouri S&T Corporate Development Council and a new member of the Missouri S&T Chemical and Biological Engineering Advisory Council. Kent and his family reside in Webster Groves, Missouri.

Christopher R. Isom, (BS ChE ’85), began his career with the Stone Container Company where he would oversee adhesive formulations, production, quality control, suppliers and troubleshooting for 14 flexible packaging facilities. In 1989, he accepted a position with Koch Engineering in Wichita, Kansas where he progressed from sales engineer up to vice president in Mixing & Reaction Technology Division. From 2003-2006, Christopher was Director of the Mixing & Reaction Technology (MRT), North & South America where he led integration of newly acquired Koch Glitsch Mixing Group into Sulzer Chemtech USA. From 2007 to 2010, he has been the President of Sulzer Chemtech USA in Tulsa, Oklahoma. Chris recently accepted the role of Vice President of Thermal Oxidizer Systems for John Zink Company based in Tulsa Oklahoma.

Christopher is a senior member of the American Institute of Chemical Engineers, a member of the North American Mixing Forum, Society of Plastic Engineers, Manufacturers’ Agents National Association, American Water Works Association, and a member of the Beta Alpha chapter of the Kappa Alpha Order. Christopher and his wife Melody reside in Bixby, Oklahoma with his three sons Nicholas (19), Grant (15) and Evan (9).
Professional Degrees

At the Fall 2009 commencement, the Department of Chemical and Biological Engineering honored the alumnus, Linda Wright, (BS ChE ’88), with a professional degree.

Linda is responsible for global supply, marketing and sales of adhesion industry products for ExxonMobil Chemical. Headquartered in Houston, Texas, the business is a leading supplier of hydrocarbon resins and polymers to the adhesion industry with sales in over 50 countries.

Linda has held a wide range of positions during her 20 years with ExxonMobil including business planning, supply, technology, marketing, business development and operations. Prior to her appointment as Adhesion Industry Global Business Vice President in 2009, Linda was the Global Director of the Marine Fuels business in Leatherhead, U.K. Prior to that assignment, she served as a Senior Advisor supporting two of the Corporation's Senior Vice Presidents in Dallas, Texas.

Linda received a Bachelor of Science in Chemical Engineering from the University of Missouri-Rolla in 1988. She began her career as a research engineer at the Linden Technology Center in New Jersey and held various technical and operations assignments before moving to Chemical Headquarters in Houston in 1996.

At the Spring 2010 commencement, the Department of Chemical and Biological Engineering honored the alumnus Harry Hershey, (BS ChE ’60, MS ChE ’63, PhD ChE ’65), with a professional degree.

Harry received his BS degree from Rolla School of Mines in 1960. He worked two years for Union Carbide in Paducah, Kentucky. Harry taught one year for the University of Missouri-Rolla Department of Chemical Engineering. Then in 1966, he accepted a position at The Ohio State University in Columbus, Ohio where he progressed through the Academic ranks. Harry also worked on an industry sabbatical in 1992-1993 for Eli Lilly as an Environmental Engineer, and a summer for Amoco.

While at OSU, Harry won the MacQuigg Award for Outstanding Teaching in 1980 and the Stanley E. Harrison Faculty Award for Excellence in engineering in 1985. He co-authored a publication with Professor Brodkey in 1987 entitled "Transport Phenomena: A Unified Approach" published by McGraw-Hill. He has done some consulting, took an active role in departmental and college affairs and committees. Harry started up, funded and managed for years the first PC laboratory in the department, advised hundreds of students, and was the AIChE student chapter advisor for many years. Harry retired on June 30, 1995 but he continued to teach in the ChE department at Ohio State University until the spring of 1997. Presently, he reviews proposals and advises the Ohio Coal Development Office. Also, he owns and manages farms in the states of North Dakota, Illinois, and Missouri, plus a ranch in El Paso County, Colorado. Harry resides in Worthington, Ohio. Harry was inducted into the Academy in 2002.

Staff News

Audrey “AJ” Morris celebrated her 10 year anniversary at Missouri S&T in the Chemical and Biological Engineering Department on September 13, 2009! On behalf of the faculty, staff, and students we would like to thank AJ for her many years of loyalty and dedication of service to the department.
Alumni News

H. William Flood (ChE ’43) - I just celebrated my 87th birthday. Still putting one foot in front of the other—just a bit slower and cautiously. We have a granddaughter at Shaw Group and a grandson sophomore at UMASS Lowell in Chemical Engineering.

Bhalchandra T. Dave (ChE ’62) - Enjoying the retirement with extensive travels. Watching four grand kids growing up and their school activities.

Warwick Doll (ChE ’65) - As of December 4th I will retire for the second and final time. My wife, Carole, and I plan to enjoy our six grandchildren and continue our world travels.

Jerrey D. Finnegan (ChE ’70) - After being laid off I have opted to retire...again! This gives me lots of time to work in my yard, on my house, travel to see grandkids, and to enjoy our neighborhood. And I also still work part-time if and when my former employer has something that is mutually agreeable. The best part is my wife still works part-time which works for both of us!

James D. Wood (ChE ’76) - Retired from Federal Service after 34 years on February 2009. At the time of his retirement, Jim was Program Manager of the Air Quality Surveillance Program at the US Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, Maryland. Jim and Mary Ann still reside at 3345 Deep Well Court, Abington, Maryland 21009.

Ellen Y. Hoerle (ChE ’85) - I graduated in May 2009 with a masters degree in public policy from the Humphrey Institute of Public Affairs, University of Minnesota.

Daniel M. Wilbers (ChE ‘86) - I am now Engineering Manager for Power OTS with Invensys. My wife and I just had our second child in October 2009.

Craig S. Prevallet (ChE ‘88) - Life is good in Houston. The boys are growing up fast.

Michael J. Kausch (ChE ‘99) - On March 28, 2009, I married Ann Englehorn (ChE ‘98). We are expecting our first child April 18, 2010.

Katherine M. Scanlon (ChE ‘08) - I married Missouri S&T alumni, Robbie Beane, May 2010!

Mike Schmidt (ChE ‘80) Was featured at stltoday.com on May 7, 2010, discussing his development of his company Bluefield Process Safety. Bluefield Process Safety facilitates HazOps and LOPAs, assisting with risk assessment and aiding companies with development and specification of their safety instrumental systems.

2010 Homecoming Dates: October 1–October 2
We want your news!

*We enjoy hearing from you! Drop us a line, via the form below or by email at tealokr@mst.edu, and let us know how things are going. We are happy to announce weddings, births and promotions. Send us an up-to-date address, newsworthy items, special memories of faculty or Rolla that you might want passed along. If you would like your address, phone, etc. published with the newsletter (so your classmates can contact you) please indicate. Photos are also welcome and can be emailed to tealokr@mst.edu. If you would like to donate to a scholarship in the name of your favorite faculty member please indicate below.*

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