The Department of Chemical Engineering hosted a celebration in honor of Professor Scott Fogler on May 16. This was not a retirement party; Scott was back in the classroom this fall as usual. Rather, his colleagues, students, and 35 former students honored him with a 25/50/75 symposium and dinner, where they celebrated 25 years of Scott’s book as the dominant textbook in chemical reaction engineering, his 50 years at the University of Michigan, and his 75th birthday. Professor Ron Larson, Dr. Henry Browning, and Scott’s secretary, Laura Bracken, planned and organized the event. Guests came from all over the US and from Vietnam, Thailand, South Africa, Norway, and India to celebrate this milestone with Scott. He said he was honored and thrilled that so many people came back from great distances for the celebration. “I loved seeing everyone,” Scott said. “I just wish we had more time to spend with each one of them.”

On Friday night, Scott and his wife, Jan, hosted a gathering for more than 50 out of town guests. The weather cooperated and people were able to spend time visiting throughout the house and on the decks. Former students tended to gather in groups with their cohorts so they could catch up with each other after many years away from Ann Arbor.

Saturday began with a symposium in the Dow Building in the afternoon. Dr. Henry Browning (PhD ’96) was the master of ceremonies for both the symposium and the dinner that followed. He did a fantastic job and attendees were happy to see that he hasn’t lost his sense of humor in the nearly twenty years since he left Michigan.
Note from the chair

I hope you had a wonderful 2015! I know that the Chemical Engineering Department here at Michigan certainly did. I’m always amazed to read through the accomplishments each year and see all the wonderful things that our students, faculty, and staff have accomplished in just 12 short months.

There were, of course, many awards for the faculty, with one of the most notable being Sharon Glotzer’s new professorship. Sharon was named the John Werner Cahn Distinguished University Professor of Engineering. Only a handful of Distinguished University Professors are named each year, and Sharon was one of only two from the College of Engineering.

This year we had several personnel transitions. We hired Heather Mayes, an expert in using computational chemistry to discover reaction mechanisms that transform cellulose into biofuels. She completed her PhD at Northwestern and is currently doing a postdoc at the University of Chicago so we won’t see her on campus until 2017, but we are looking forward to her joining us.

Among the staff changes, Pablo LaValle and Linda Casto both retired this year, and they are missed, especially with our large lab enrollments. Chris Barr and Katherine Wood were hired as their replacements, respectively, and are doing fantastic jobs. In addition, Simone Cromer joined the staff as the chair’s assistant, and Mary Beth Westin and Jennifer Downey came on board as faculty support.

With all the changes in personnel each year, there is one constant: the department continues to grow and excel. Our undergraduate enrollment is hovering around 500 for the three classes (sophomore, junior, and senior) with further growth in the college expected in the coming years. And we now routinely bring in around 30 graduate students per year seeking their PhD degrees plus another dozen or more for the master’s program. While these large numbers can strain our resources, we continue to hire faculty and staff to support our top-notch program. In my view, the more the merrier! After all, our students are the brightest in the world—they realize that chemical engineering is the best major and Michigan is the best place to get their degrees!

I could continue to talk about the great things happening here—the new solids processing course that Karl Jacob from Dow is teaching or the wonderful 25/50/75 celebration we had for Scott Fogler (25 years for his book, 50 years at Michigan, and 75 years on this planet)—but that would spoil the fun of reading the newsletter.

I hope you enjoy reading this edition and that you will drop us a line from time to time. Best wishes for the coming year and Go Blue!

Mark A. Burns
New Faculty

Heather Mayes will join the department as an assistant professor in 2017. She is currently a postdoctoral scholar in the Voth Group at the University of Chicago, where she is modeling proton transport in transmembrane proteins. At the University of Michigan, she will elucidate protein-sugar interactions for applications in renewable energy and glycobiology.

Mayes studied humanities at Harvard University before realizing that she was a chemical engineer. She received her B.S. in Chemical Engineering from the University of Illinois at Chicago. She then worked for three years as a chemical engineering consultant on projects including new technology development, process safety, and meeting new EPA standards.

To deepen her knowledge, she returned to school and received her PhD in chemical engineering from Northwestern University in the summer of 2015. Dr. Linda J. Broadbelt at Northwestern and Dr. Gregg T. Beckham of the National Renewable Energy Laboratory co-advised her as she used computational chemical engineering to uncover the molecular mechanisms that underlie thermal and enzymatic cellulose decomposition toward advancing technologies that will produce sustainable chemical and fuels. She was a Department of Energy Computational Science Graduate Fellow and earned the AIChE Computational Molecular Science and Engineering Forum Graduate Student Award and ACS Chemical Computing Group Research Excellence Award.

Undergraduate program updates

The coverage of solids processing and particle technology has diminished over the years in many US Chemical Engineering programs, to the detriment of our student’s preparation for industrial practice. We are fortunate that Karl Jacob, with decades of experience in the area including as founder and now Fellow of Dow’s Solids Processing, Engineering & Process Science capability, offered to teach our students an elective course in those areas this Fall. The course has covered many of the essential areas of solids processing: hopper design, pneumatic conveying, fluidization, etc. Karl has tried to balance particle technology fundamentals with practical design and troubleshooting. Scott Johnston, a student in the class speaks for many of them when he notes that they have “gained an appreciation for solids processing equipment and the unique design challenges that they provide." Scott adds that he appreciates Karl’s strong fundamentals in chemical engineering and practical knowledge that comes from working with this technology every day.

On December 5, the students had a great chance to connect the classroom learning with industrial practice with a field trip to Dow Chemical’s Methocel plant. Thank you, Karl, for creating this opportunity for our students.

Thank you to Shell for their support of this year’s ChE 230 and 342 outreach sessions. Sophomores in Material and Energy Balances develop posters describing Chemical Engineering processes, and juniors in Mass and Heat Transfer set up demonstration of key ChE principles. Both sessions were attended by high school students to give them an understanding of what chemical engineering is, which made the experience that much more meaningful for our students. In addition Shell supported our newest student group, Michigan Process Engineering Design and Demonstration, MPEDD, and our Graduate Student Symposium.

A new ChE Undergraduate Study Room opened recently in the Dow building, providing a much needed additional location for ChE study groups as well as lab and design teams to meet on North Campus. Plans are underway for a larger room that will accommodate simultaneous office hours and study space for our students.
The first speakers were former and current students who talked about Scott’s lab most recent research areas. The group included Professor Michael Hoepfner (PhD ’13) from the University of Utah, Dr. Nasim Haji Akbari Balou (PhD ’14) from Phillips66, and PhD candidates Claudião Vilas Bôas Fávero and Mark Sheng Zhang. They were followed by colleagues and former students who gave technical talks: Alumni from Scott’s group, Professor Karsten Thompson (PhD ’96) from Louisiana State University and Dr. Ayuma Yokoyama (PhD ’89) from Axalta Coating Systems, and colleagues, Professor Joe Goddard from the University of California, San Diego, Professor Richard Braatz from MIT, and Dr. Bill Kline from ExxonMobil Upstream Research Company.

Some of the honored guests in attendance at the dinner, which took place at the Michigan Union, were University of Michigan President Emeritus James Duderstadt, and his wife, Anne; Professor Alec Gallimore, Associate Dean for Academic Affairs in the College of Engineering; Professor Phil Savage, Department Head at Penn State, and his wife, Elaine; Professor Robert Davis, Dean of Engineering at the University of Colorado-Boulder; and Professors Charles Petty and Carl Lira from Michigan State. Scott’s family in attendance in addition to his wife were his sister, Sally Ilyan, and Scott and Jan’s three children, Peter, Kristi Fogler Bellini, and Rob and his wife, Cathy, and their two children, Max and Joe.

Professor Tom Edgar, from the University of Texas and former president of the American Institute of Chemical Engineers (AIChE), opened the evening program by recounting some of the contributions Scott has made to AIChE. He talked about how as president Scott encouraged them to create “ChE on Demand,” now the “AIChE Academy,” where members can find lectures and educational material online to learn about special ChE topics. Edgar also mentioned Scott’s efforts to establish the Chem-E Car competition, a very successful annual event for AIChE student chapters.

Charles Shilowa, the inaugural intern from Witwatersrand University in South Africa, talked about how Scott’s “intern program,” which has brought in 20 students over 15 years from South Africa to work in Scott’s lab, has had a profound impact on many who suffered under years of apartheid. According to Shilowa, most interns come from disadvantaged backgrounds and through education often become the first engineers in their hometowns. Scott’s help has changed the course of their lives and today they are executive directors and technical executives and managers, and are able to help family members go to college. Shilowa added that they also “give back” to their communities and help make a difference in many other lives too.

Scott’s second PhD student, Dr. Simon Li (PhD ’77), now a pastor in Houston TX, after 25 years with Shell, gave the invocation.

The next speaker, Dr. Pomthong Malakul, who received a PhD in 1999 under the direction of Henry Wang, is the Dean of Petroleum and Petrochemical College at Chulalongkorn University in Bangkok, Thailand. Malakul talked about the program that was originally started in 1993, with the assistance of the University of Michigan, the University of Oklahoma, and Case Western University. He said that Scott has traveled to Bangkok at
at least once a year for the last 22 years to teach reaction engineering and/or problem solving, and has mentored and supervised some 50 master’s students.

Michael Cutlip, professor emeritus from the University of Connecticut and co-author and co-founder of POLYMATH, talked about Scott’s textbooks. Dr. Cutlip recounted that when he received a major grant in the 1970s to develop a computer-based program in reaction engineering, he used Scott’s 1973 textbook “The Elements of Chemical Kinetics and Reactor Calculations” as a resource text. He used PLATO, a computer-assisted instruction system, developed at the University of Illinois, for solving equations. Cutlip says that this work eventually led him and colleagues to develop POLYMATH, a data analysis program, and the program that Scott uses with his text “Elements of Chemical Reaction Engineering.”

Professor Warren Seider (PhD ‘66) spoke on behalf of CAChE (Computer Aids in Chemical Engineering), where Scott is a former president and a trustee for more than 30 years, and talked about Scott’s contribution through the development of interactive computer modules.

Professor Emeritus James Wilkes closed the main part of the program by addressing Scott’s many contributions to the department in his 50 years at the University. He said that Scott came to Ann Arbor, as the department was beginning to lose some of its status nationally—during the late 1960s and 1970s. He emphasized that Scott remained loyal to Michigan, and quickly brought his teaching, research, and service to a very high level.

Wilkes said, “In our department’s history, which goes back to 1898, three faculty names stand above all others: Alfred Holmes White, George Granger Brown, and Donald L. Katz were unique in our history in that they, and they alone, shared four characteristics—first, they were national and international leaders in their fields; second, they devoted their whole careers to the University of Michigan; third, they were chairmen of the department; and fourth, they were elected to the presidency of the American Institute of Chemical Engineers. And then, of course, Scott came along, and he can be added as the fourth of a great and unique Michigan quartet.”

When Scott came to the podium, he told the guests that being a professor at Michigan is a fantastic experience “because of the brilliant undergraduate students you get to teach that make it so much fun and the outstanding graduate students who we recruit.” He took time to thank a number of people who have helped him succeed in his career, including his wife, Jim Duderstadt, Dr. Susan Montgomery, Professor Emeritus Stuart Churchill from the University of Pennsylvania and the former U-M department chair who hired Scott, and Klaus Timmerhaus, his doctoral advisor at the University of Colorado. In closing, he told his students that he was proud of each and every one of them and reminded them “to continue to be proactive, to go to the extremes when analyzing variables, to look beyond the obvious, and to keep the end in mind.”

Jim Wilkes and Matt Miller

After dinner, several other people spoke including Professor Rob Davis from the University of Colorado, Scott’s wife, Jan, former PhD students Dr. Sunil Rege (PhD ’88), Dr. Ravi Narayan Vaidya (PhD ’91), Dr. Matt Miller (PhD ’94), Dr. Jason Huang (PhD ’11), and Carol Yager Calkins (BSE ’71), a former undergraduate student who was in one of Scott’s classes. Rob Fogler, Scott’s son, entertained the group with accounts of just how influential Scott’s textbook has been worldwide, and offered proof with photos of many people, and other beings, who have been spotted throughout the world reading the text.
Department Honors

FACULTY

Mark Barteau was named to the editorial board of the journal *Catalysis, Structure and Reactivity.*

Scott Fogler was the guest lecturer at the centennial celebration for the Department of Chemical Engineering at Lafayette College. In his talk, titled "It's a Wonderful Life," he spoke about the department’s first chair, Edward Hart.

Sharon Glotzer received the Department of Chemical Engineering Outstanding Achievement Award. Although there were many contributing factors to her selection this year, one of her most notable accomplishments was her election to the National Academy of Sciences.

Mark Kushner, was awarded the 2015 IEEE NPSS Charles K. Birdsall Award from the Nuclear & Plasma Sciences Society for his outstanding contributions in computational nuclear and plasma science. Kushner is an internationally renowned expert in the area of low-temperature plasma simulation.

Joerg Lahann has won the College of Engineering Service Excellence Award. The award was given to Joerg in recognition of his hard work leading the development of the Biointerfaces Institute concept and for turning that idea into an outstanding functioning unit.

Ron Larson was selected as the 2015 Wilhelm Lecturer at Princeton. He delivered two lectures at the event in September.

Johannes Schwank and Brenda Vyletel won best poster award at the IEEE Conference on Humanitarian Technologies for a poster describing the REFRESCH program.

Lonnie Shea was the recipient of the 2015 Clemson Award for Contributions to the Literature from the Society for Biomaterials. He was given this award in recognition of his significant contributions to the literature on the science and technology of biomaterials.

STUDENTS

Five of our graduate students and one of our undergraduate students received NSF Fellowships in 2015: William Kelley from Lola Eniola-Adefeso’s group, Lyclia Atangcho from Greg Thurber’s group, Sarah Paleg from Levi Thompson’s group, Jefferson Sanchez-Mayorga from Nina Lin’s group and Corine Jack-Sunitha Nagrath, along with Andrew Rhim, M.D., from gastroenterology, recently were named Lefkofsky Scholars and each will receive a $75,000 per year research grant for 2 to 3 years to develop an inexpensive blood test for early stage cancer that is available for clinical use as part of routine healthcare.

Dr. Nagrath’s lab has been developing state of the art microfluidic devices using fundamental fluidic principles and incorporating nanomaterials. According to the project summary, Dr. Nagrath has already developed microfluidic devices that “can rapidly identify circulating endothelia cells and cellular material called exosomes (shed by tumor cells) from the blood stream with unprecedented specificity and efficiency.”

Senior scientists, Dr. Diane Simone, a leader in pancreatic cancer research and director of the Translational Oncology Program at North Campus Research Complex (NCRC), and nanotechnology expert, Joerg Lahann, professor of chemical engineering and the director of the Biointerfaces Program, also located at NCRC, will serve as mentors for Nagrath and Rhim.

The team of Simeone, Lahann, Nagrath, and Rhim also received $1.5 million from the Lustgarten Foundation in January to continue their work to develop “a microfluidic system to isolate circulating tumor cells in patients with pancreatic cancer for personalized therapy.” They have had success with a new technique that will help doctors diagnose pancreatic cancer in the early stages, before it has spread through the body, and that will also assist them in finding effective treatments, even tailor-made ones, to battle the disease.

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Sharon C. Glotzer has been named the John Werner Cahn Distinguished University Professor of Engineering and she gave an inaugural lecture on Thursday, November 5, 2015. Glotzer joined the faculty at Michigan in 2001 after working at the National Institute of Standards and Technology (NIST). She is a member of the National Academy of Sciences (NAS) and the American Academy of Arts and Sciences (AAAS), a Fellow of both the American Association for the Advancement of Science and the American Physical Society, and a Simons Investigator. Her work spans chemical engineering, materials science, soft condensed matter physics, physical chemistry, mathematics, computational science, and data science.

Glotzer’s research group showed that entropy maximization principles applied to nanoparticles and colloids could result in spectacularly complex, ordered structures that rival those seen in atomic and molecular crystals. As described a few years ago in the New York Times, her group discovered a quasicrystal phase formed by tetrahedrons, an arrangement similar to two-dimensional tilings studied by leading mathematical physicists of the 1960s, among them Roger Penrose. In the 1980s, quasicrystals were discovered to exist in certain metal alloys. Although the quasicrystal option is rarely chosen in nature, Glotzer’s work has opened an entirely new window into the very basic question of how materials organize themselves.

Her work is much broader than the subject of quasicrystals, however, and she and her students have recently extended this research to the development of a general “shape space” diagram, showing how matter self-organizes based on the shapes of the constituent elements—a counterpart to the periodic table of chemistry. In this way, it becomes possible to predict what kind of material structure—a glass, a crystal, a liquid crystal, a plastic crystal, or a quasicrystal—will emerge. Her group has recently proposed a new approach to materials design, which she terms digital alchemy, that will allow rapid searching of shape space to find optimized building blocks for target crystalline and other structures.

Among Glotzer’s early successes was her 1997 computational discovery of correlated “string-like” motion of particles or molecules in glassy liquids, which was subsequently confirmed experimentally. Soon after arriving at Michigan, she conceived a novel way of thinking about self-assembly of nanoparticles and colloids through the controlled tailoring of particle shape and anisotropic interactions.

John W. Cahn was a mentor of Glotzer’s at NIST and his early work in thermodynamics inspired much of her early and most recent work. Cahn, who received a BS in chemistry from U-M in 1949, is a prominent materials scientist, with strong ties to chemical engineering. A leading authority on thermodynamics, Cahn is also known for his discovery in the 1980s, along with Dan Shechtman, Ilan Blech, and Denis Gratias, of quasicrystals. He was a recipient in 1998 of the National Medal of Science and is a member of NAS, the American Academy of Arts and Sciences, and the National Academy of Engineering. He was the Lawrence H. Van Vlack Lecturer in the Department of Materials Science and Engineering in 2005.

Glotzer is also an extraordinary teacher and leader. Most notable is her contribution, through leadership of reports solicited by the National Science Foundation and U.S. Department of Energy, to the Materials Genome Initiative and to new federal initiatives in computational science and engineering. She is a long-time advisor to the National Academies, DOD, DOE, NSF and the Defense Intelligence Agency.

Kudos

Alex Golinski, a junior in chemical engineering, won a 2015 Goldwater Scholarship and an Astronaut Scholarship.

Margaret Fish received an American Heart Association predoctoral fellowship. She is a member of Lola Eniola-Adefeso’s group.

Jihyeon Yeom from the Kotov lab received the MRS Gold Award from the Materials Research Society (MRS). She also was selected to receive the Richard F. and Eleanor A. Towner Prize for Distinguished Academic Achievement from the College of Engineering.

Wen-Chi Lin, from Mark Burns’ group, was awarded Rackham’s Barbour Scholarship.

man, also from Nina Lin’s group. Congratulations also to Ki-Joo Sung, who graduated last spring from the department’s undergraduate program and began graduate school this fall.

Jason Lupescu, from the Schwank group, received a Kokes Travel Award to attend the North American Catalysis Society meeting in Pittsburgh.
The art of paper cutting may slice through a roadblock on the way to flexible, stretchable electronics, a team of engineers and an artist at Michigan has found.

In the future, a little bend in your smartphone might be considered a feature rather than a defect. An important component of future electronics that can be rolled up, folded or embedded in flexible objects is the stretchable conductor, which would make up components like wires and electrodes.

Conductors that stretch are difficult to design, and among those that are known, they either don’t expand by much or the conductivity takes a nosedive when they do. By developing a conductor inspired by kirigami, the Japanese art of paper cutting, conductivity is sacrificed up front. The cuts become barriers to electrical conductivity, but when stretched, the conductors are steady performers.

“The kirigami method allows us to design the deformability of the conductive sheets, whereas before it was very Edisonian process with a lot of misses and not a lot of hits,” said Nicholas Kotov, referring to Thomas Edison’s trial-and-error approach to invention.

This is because when materials are stretched to the max, it’s difficult to predict when and where rips will occur. However, if the tears are designed in a thoughtful way, the material’s ability to stretch and recover becomes reliable.

It sounds simple, but until art and engineering came together with this project, no one had reported using kirigami to tackle the challenge of stretchable conductors. The results are presented in the latest edition of Nature Materials.

Sharon Glotzer, the Stuart W. Churchill Professor of Chemical Engineering, and her research group, performed computer simulations.

“At first, computer simulation gave us intuition on what kinds of behaviors were to be expected from different cut patterns,” said Pablo Damasceno, who recently earned his doctorate in applied physics. Then, the simulation team explored how details such as the length and curvature of the cuts, and the separation between them, related to the stretchiness of the material.

To produce the microscopic kirigami, Terry Shyu, a doctoral student in materials science and engineering, made special “paper” out of graphene oxide, a material composed of carbon and oxygen just one atom thick. She layered it with a flexible plastic, up to 30 layers of each. The difficult part, she explained, was making the cuts just a few tenths of a millimeter long.

In the Lurie Nanofabrication Facility, she first coated the high-tech paper with a material that can be removed with laser light. She burned the dashes out of that material, which turned it into a mask for the etching process.

A plasma of oxygen ions and electrons broke down the “paper” that wasn’t hidden under the mask, creating the neat rows of microscopic dashes. This material behaved as predicted by the simulations, stretching with no additional cost in conductivity.

The study was funded by the National Science Foundation.
Intercultural solutions bring change to Gabon

In May 2015, Mohit Nahata, a doctoral student of Johannes Schwank’s and a member of the REFRESCH team, spent two weeks in the village of Massenguelani in the rainforests of Gabon. Though Gabon, as a major oil-producer, boasts a relatively high GDP, much of the country’s population still lacks access to electrical power, clean water, and secure food sources. In looking for ways to improve quality of life and livelihoods of the villagers, the REFRESCH team’s mission was to explore and experiment with approaches to energy, crop protection, bee keeping, clean cookstoves, and water treatment.

REFRESCH, an acronym for Researching Fresh Solutions to the Energy/ Water/ Food Challenge in Resource-Constrained Environments, is a Third Century Initiative project funded by the Office of the Provost and led by Dr. Johannes Schwank. The REFRESCH project draws upon the resources and expertise of the University to field a strong team of faculty investigators and students from eight schools and departments across campus. REFRESCH is working in Gabon and Kazakhstan.

When Nahata volunteered to be part of the REFRESCH team traveling to Gabon to bring technology and education to help facilitate change, he didn’t think much about the rugged conditions or any culture shock he might experience. Even though he had seen many photos of Gabon and had heard many stories about the people and the land, he discovered he wasn’t as prepared as he thought was. The heat was terrible, it rained every other day, and the bugs were unrelenting in their attacks on him and his colleagues. They had to walk a mile down a steep incline in soggy clay to wash up in a dirty river. Wandering outside at night was risky because he had to stay clear of scorpions and snakes. As for bathroom facilities—well, there weren’t any.

He soon realized how important it was to adjust to the inconveniences, so he and his team could begin to build trust with the local villagers, and then later return to the village to show that they were not there to run a few experiments and then disappear. Yes, they were bringing “science” to improve the lives of people but he realized that it was important in the short time he was there to learn to appreciate and understand the ways of their culture that have remained unchanged for so many years.

Nahata worked with a group that provided an overview of water quality and identified concerns. They tested and quantified water samples for various parameters (pH, dissolved oxygen, chlorine, phosphates, nitrates, metals, turbidity, E.Coli and other bacterial coliforms). Broadly speaking, rainwater from roof runoff proved far cleaner than river water. E.Coli and other coliforms were the primary concern with the river water, though samples also demonstrated relatively high phosphate and chlorine concentrations. These findings are concerning, given that E.Coli contamination in drinking water is a leading cause of premature deaths around the world, and especially on the African continent. Additionally, metals analysis found that iron concentrations significantly exceeded drinking water standards.

“The most pressing concern is thus the high levels of bacterial contamination,” says Nahata. “In addition to leading short lessons on general hygiene and installing hand-washing stations, my team created a small-scale demonstration filter, which housed different layers of locally obtained gravel, sand, and cotton cloth. REFRESCH also intends to draw upon student research on solar disinfection and activated carbon from locally available biomass, which could prove a vital part of filtration systems for the removal of pathogenic bacteria such as E.Coli.”

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Other projects completed this year in the village included improved cookstoves made of local sand, clay, and cement with stacks driving off harmful vapors. A low-cost brick press and earthen brick-making, for use in stoves and/or general construction; a demonstration electric fence to protect crops from smaller primates and rodents; a simple solar photovoltaic DC battery lighting and battery recharge system; and demonstration bee hives, also made from local salvaged materials. The bees will not only provide honey for nourishment but market income, a mild antiseptic for minor cuts and burns, and the potential of keeping animals away from the crops.

There was some resistance to the new cookstoves because the smoke that billowed out on their old stoves kept the bugs away. Sure the food cooked quicker and often tasted better on the new stoves but fending off the bugs is important too. Others inhabitants were reluctant to keep farm animals such as cows and chickens as a dependable source for food. They are used to the wild meat, or bush meat, an option they think makes them stronger because they think wild animals are better than the “weak” farm animals. In the end, community members did initiate some of their own design alterations to better fit their preferences and led the final construction stages themselves. Two village chiefs and few community members, who contributed labor and knowledge of local materials, assisted them with the work.

Since his trip to Massenguelani, Nahata has been working to find ways to synthesize activated carbon from wood-based biomass using locally available materials as catalysts so that the villagers can purify their river and ground water prior to consumption. When he goes to Gabon again in March 2016, he will assist with workshops at the Albert Schweitzer Hospital in Lambaréné that they hope will expedite technology transfer to a larger population.

Annual Graduate Symposium

The Fourth Annual Chemical Engineering Graduate Symposium returned to the Gerald R. Ford Library on May 19. The event brought graduate students, faculty, and industry representatives from BASF, Dow Chemical, Dow Corning, DuPont, Marathon Petroleum, Procter and Gamble, and Shell together to discuss the innovative research being done by Michigan graduate students. The day’s activities included oral presentations, poster presentations, and networking breaks, as well as a keynote presentation given by department alumnus, Dr. Kalyan Handique, co-founder of HandyLab Inc. The company, based on his doctoral research, was later acquired by Becton, Dickinson and Co. He also spoke about his new cancer diagnostics company, DeNovo Sciences, and his collaborations with faculty in the department.

Awards were given to the top three presentations and posters as chosen by a panel of faculty and industry representatives. The top presenter was Abdoulaye Djire from the Thompson group. The second place award went to Joseph Ferrar from the Solomon lab, and third place was awarded to Tiffany Mo, who is advised by Phil Savage. First place for the poster session was awarded to Ray Seo from the Schwank group; second place went to Stacy Ramcharan from the Lahann group; and there was a tie between Cornelius Cilliers from the Thurber group and Margaret Fish from the Eniola-Adefeso group for third place.

Students were also acknowledged for the exceptional work they do in research, teaching, and service. The research award was awarded to Mark Zheng from the Fogler group, with Tiffany Mo from the Savage group receiving honorable mention. The service award was given to Julia Faeth from the Savage group, with Stacy Ramcharan from the Lahann group receiving honorable mention. The teaching award was awarded to Abdoulaye Djire from the Thompson group for his work as a graduate student instructor for CHE 342. Overall the symposium was a successful event showcasing and celebrating the exciting work being done in the department to industry partners.

Photos, clockwise from top left: Aaron Shinkle from Dow Chemical and Joel McDonald from Dow Corning, with Wen-Chi Lin from the Burns group; Rhonda Jack giving her talk; Jing Liu from Dow talking to Claudio Vilas Bôas Fávero about his research; Graduate students Corine Jackman, Megan Dunn, and Sarah Paleg.
World-class battery research lab opens

The recent opening on October 2, 2015 of the University of Michigan Energy Institute’s Battery Fabrication and Characterization User Facility, or Battery Lab, further expands the Midwest’s rapidly growing battery research and manufacturing capabilities.

The open-access lab will provide space to build and test battery concepts while fully protecting the intellectual property of its users. The lab’s capabilities have already attracted global user interest from startups, established corporations and academics.

The facility is funded with a $2 million investment from U-M, with $5 million in additional financial support from the Michigan Economic Development Corp. and $2.1 million from Ford Motor Co. Sourcing, constructing and installing the lab’s customized research environment—including a low-humidity “dry room”—took 18 months.

During the past two decades, battery technology has progressed slowly while the devices they power—from cell phones to cars to medical implants—have changed wildly. Researchers have been exploring ways to make batteries lighter, more efficient, safer and more cost-effective but, so far, commercialization of new battery technologies has proven elusive.

“We feel confident that we’ve built the nation’s most complete, customized battery research open-user facility. This infrastructure investment is key to achieving the breakthroughs needed to make both electric vehicles and grid storage viable at all scales needed for the future,” said Mark Barteau, director of the U-M Energy Institute, and professor of chemical engineering.

From an article by Amy Mast, U-M Energy Institute

Donald L. Katz Lecture

Babatunde A. Ogunnaike, the William L. Friend Chaired Professor of Chemical Engineering and the Dean of the College of Engineering at the University of Delaware, was the Donald L. Katz Lecturer in April. Ogunnaike’s topics for the lectures were “Optimizing in-vitro Fertilization Treatment” and “Biological Control Systems: Systems Biology of Diseases and the Design of Effective Treatments.”

He is the author or co-author of four books including a widely used textbook, Process Dynamics, Modeling and Control, and Random Phenomena: Fundamentals of Probability and Statistics for Engineers. He is also an associate editor of the journal Industrial and Engineering Chemistry Research.

Ogunnaike was named a fellow of the American Institute of Chemical Engineers in 2009, and elected to the fellowship of the US National Academy of Inventors in 2014. He was elected to the US National Academy of Engineering in 2012.

Blue-Green Seminar

The speaker at the Joint Chemical Engineering Seminar with the Department of Chemical Engineering at Michigan State University was Alexis T. Bell, the Dow Professor of Sustainable Chemistry in the Department of Chemical and Biomolecular Engineering at the University of California, Berkeley and a Faculty Senior Scientist at the Lawrence Berkeley National Laboratory.

Bell’s talk in September at the Gerald R. Ford Presidential Library was titled “What Do Fundamental Studies in the Field of Catalysis Teach Us About What Governs Catalyst Activity, Selectivity, and Stability?”

His research focuses on catalysis and chemical reaction engineering, and his primary goal is to understand the fundamental relationships between the structure and composition of heterogeneous catalysts and their performance.

Bell is a member of the National Academy of Engineering, the National Academy of Sciences, and the American Academy of Arts and Sciences. He has also been honored by the AIChE as one of the “One Hundred Engineers of the Modern Era.” In 1984, he was the Donald L. Katz Lecturer.
What it means to be
A Michigan Athlete

For some alumni, chemical engineering and athletics brings back memories of football player Dick Balzhiser (BSE Che ’55, MSE Nuclear ’56, PhD Che ’61), the consummate student athlete, who earned a near 4.0 GPA as a chemical engineer and was named to the first Academic All-American Team, all while being married, having two of his children as an undergraduate student, and working to support them in an era before athletic scholarships. In addition to serving as a faculty member in our department from 1961 to 1973, he served as Assistant Director for Energy, Environment and National Resource in the Office of Science and Technology, followed by a second career at EPRI, the Electric Power Research Institute. He was named to the National Academy of Engineering in 1994 and in 2002 was inducted into the Verizon Academic All-American Hall of Fame.

We asked more recent student-athlete alumni to reflect on their experiences. With Che already being considered one of the hardest majors at U-M, how do our student-athletes manage to add athletic pursuits to the challenge? And why would they do that?

Chris Douville (BSE Che ’11), who was captain of the swim team his senior year and a two-time recipient of the Athletic Academic Achievement award, recalls that to succeed as a student athlete “time management was critical. Balancing all these obligations forced me to have better study habits. I also learned the importance of perseverance. It would have been easy to stop being an athlete or switch to a less demanding major but by sticking with both I saw how rewarding it was once I graduated.”

Women’s cross-country co-captain and three-time USTFCCCA Academic All-American Honoree Brook Handler (BSE ’15), below, recalls the initial challenges in managing her time, adding that “being able to put things together as I got older was extremely rewarding.”

Chris adds “I was also fortunate that Alon was a year older than me so the coaches knew what classes I would be taking each year.” Alon is Alon Mandel, (BSE Che ’10), shown at left, who represented Israel in the 2008 Olympic games, between his sophomore and junior years at Michigan. This meant participating in the Olympic Trials and NCAA tournament championship the same semester he took Thermodynamics and Fluid Mechanics, arguably the toughest semester for any chemical engineer. Alon recalls the support he got from his Che classmates “who helped me all the time and let me be part of their study group. They were willing to...”
meet near South Campus (the athletic campus).” He recalls a great friend who sent him class notes for two weeks while he was competing.

Why work this hard? For Brook, who recently started the Masters of Management program at the Stephen M. Ross School of Business, “being a student athlete is a huge honor. It is amazing to see the work people are doing, especially seeing research in the College of Engineering and knowing that by wearing the block M on my chest I am doing something small to represent Michigan and the excellence that the letter stands for.”

Wrestler Ben Apland (BSE ’13) concurs and adds, “Another benefit was being able to learn to become a well rounded ChE by learning the technical side through the ChE curriculum and from wrestling learning some of the more non-technical skills important in the workplace such as leadership skills, that team mentality, coachability, and continual self-improvement.”

Chris uses the lessons from swimming to succeed as a biomedical engineering graduate student at Johns Hopkins, where he is working on computational methods to interpret genetic variation. He reflects that “swimming at Michigan taught me the importance of surrounding yourself with people who constantly challenge you to better yourself. In the pool, you surround yourself with swimmers who are faster so you can continue to drop time but this message translates into your career and personal life. It is important to work with people who are consistently challenging you to become a better engineer and a better person.”

The work ethic and drive that Ben, in photo below, now a process engineer at Resintech, developed as a ChE student athlete, serve him well. “I’ve set the bar high for what I can handle in terms of difficulty and amount and there is no reason to think that I can’t do that still after college as well,” he reflects.

For Alon, who went on to earn an MA in political science and MSc in environmental engineering from Tel Aviv University and now serves as an Environmental and Risk Engineer at Noble Energy, “the long term impacts of being a student athlete and also pursuing an engineering degree are second to none. First of all, it gives you a perspective of life. Life is hard—get over it and do a better job next time. Train (work) harder, be the best in your industry.”

Looking back on her time at Michigan, Brook appreciates the greater connection she has with the school compared to the typical alumnus: “I think the community of people I have come in contact with through athletics at the University of Michigan will have the greatest impact on the rest of my life.”

Ben adds “There will always be a place to come back and visit and reminisce about past experiences with former teammates and other alumni and celebrate the accomplishments of current and future wrestlers.”

Alon adds that “using the great fundamentals I acquired while being through the most difficult four years of my life at Michigan, I feel that I know the definition of excellence—‘the gradual result of always striving to do better.’”
Pablo LaValle retired after 28 years

Pablo LaValle retired from the University last spring after 28 years as senior engineer and undergraduate lab manager for the department. Hired when Scott Fogler was chair, Pablo joined staff of the department in 1987. Pablo had received his BSE from the department in December of 1982.

Pablo kept the undergraduate laboratories running smoothly during his time with the department. In the senior laboratory alone Pablo helped design and build the equipment for five new experiments and then added computer-based data acquisition and control to all of them.

He was also in charge of training the Graduate Student Instructors (GSIs) prior to each semester, making sure that the GSIs knew the how to run each experiment. He also made rounds to the labs daily to see that everything was working properly, and to answer questions from the students and GSIs.

The department hosted a retirement party for LaValle in April, organized by his many ChE friends. His wife, Wendy, and his daughter, Liliana, and her boyfriend, Chris, were special guests at the April 29 event in the Lurie Engineering Center. His daughter, Alicia, joined in on the celebration via Skype. The afternoon began with a program where staff and faculty celebrated the many contributions he made during his time in the department.

Dr. Susan Montgomery talked about Pablo’s ability “to work with so many different types of faculty with different personalities and priorities, while keeping foremost your responsibility to our ChE students.” She also commented on his “calm demeanor and his ability to focus on what needed to be done.”

Emeritus Professor James Wilkes, who worked with Pablo on a major renovation and revitalization of CHE 360 laboratory soon after Pablo joined the department, said of LaValle, “We shall always remember you as being unfailingly cheerful, courteous, friendly, and knowledgeable. You will go down in our department history with great reverence and awe.”

Department chair Mark Burns, Johannes Schwank, Henry Wang, Rane Curl, and Sandy Swisher also spoke that afternoon.

The department presented him with several gifts including a scrapbook with many photos and notes of congratulations including comments from professors Erdogan Gulari and Ralph Yang, who both worked with Pablo in the undergraduate labs.

Gulari said that he always introduced Pablo to his 460 classes as “Pablo the Super Engineer, who has put in more effort into the 460 lab design than all the faculty teaching 460 combined.” He added, “It is because we have had Pablo that the 460 lab functions and is like a well-oiled machine. I know the labs before Pablo and after Pablo and there is absolutely no comparison.”

Ralph Yang thanked Pablo for “doing a first class job in building, maintaining and constantly improving the junior and senior labs, and doing so while continually accepting more jobs in the department, such as lab safety for research and teaching labs, building maintenance, and facilities coordinator. Pablo was popular with the undergraduate students and they knew he would find an answer for any question they asked him. They also sent thank you notes to Pablo to congratulate him on his retirement. A sample of student comments follow:

“I will always remember how resourceful, knowledgeable, courteous and patient you were—you are a class act and honorable professional.

Generations of Michigan engineers owe you thanks for your contributions to the quality of chemical engineering.

You are a big part of our U-M Chemical Engineering tradition and you will be missed by all of us.

The ChE program at Michigan will never be the same! I remember you always being available for every lab class and helping us through the crazy times.”

Pablo has settled into retirement and is enjoying biking around Ann Arbor, helping his wife keep bees, and traveling the world.
Linda Casto retires and hits the road in style

Linda Casto retired in July after 13 years of service to the University. Casto joined the department in 2005 as a research process coordinator after working a few years in the School of Education. She managed research grant submission processing for many of the ChE faculty and also handled temporary employment and timekeeping.

"Linda always went the extra mile for our faculty," says Department Chair Mark Burns. "She worked evenings and weekends to make sure that proposals were complete and submitted on time. The research proposal process has become increasingly complex and Linda was an expert! We will miss her incredible work ethic and her enthusiasm for her job."

Before leaving Ann Arbor in September, she bought a new RV and is currently traveling around the country. After several stops in the Midwest, she headed down to Texas to visit with friends. In early December she headed out West, starting with New Mexico and Arizona. Good luck and bon voyage, Linda!

Chris Barr joins staff as undergraduate lab supervisor

Christopher Barr joined the department in April as the new undergraduate laboratory supervisor, replacing the retiring Pablo LaValle. He is managing the junior and senior labs and works with department faculty to keep the equipment and the experiments up to date. He is also responsible for maintaining the lab for the product design course.

Barr says he was attracted to the position because of the focus the department puts on undergraduate education. He also liked the way Michigan Engineering incorporates their technical communications training directly into engineering courses so it is focused on the needs of that particular group of students.

He first began working with undergraduate labs when he was a laboratory technician at Trine University immediately following the completion of his bachelor's degree. He maintained the labs and had his first opportunity to work with students. During his employment at Trine, he presented a paper at the AIChE National Meeting about the upgrades in their undergraduate labs that were based around the food industry and qualitative outcomes.

He started teaching part time in the undergraduate labs at University of Toledo after he completed his doctoral degree. He says he enjoyed working with students in a laboratory setting and helping them use hands-on experiments. While working on his degree at U-T, he was an NSF GK-12 Fellow and team-taught advanced high school chemistry labs in Toledo. As a part of this fellowship, he developed experiments with his mentor and was primary author of a STEM education poster presented at an AIChE National Meeting.

He is also a board member for the Chemistry and Chemical Engineering Professional Advisory Board at Trine. In this position, he enjoys working with the faculty and students to help improve the chemical engineering curriculum so that graduating students are better prepared for either a job in industry or graduate school.

A big priority for Barr as he began his first term at Michigan, was ensuring safety in the labs. Last summer he completed a comprehensive inventory of the chemicals and other supplies in the product design lab.

The ChE 460 lab was renovated last summer, due to the larger reconstruction project going on in the G.G. Brown Building. Barr says the increased space allowed him to move all of the algae experiment, now in three different rooms, to just one area. This change has made lab work a little easier for both students and instructors.

Chris received his BS in chemical engineering in 2006 from Tri-State University, now Trine University. In 2013, he completed a PhD in chemical engineering at the University of Toledo. For his research project, he examined how ionic liquid pre-treatment conditions (i.e., temperature, time, etc.) affect the composition and structure of biomass, and the resulting breakdown into sugars using enzymes. He also determined which enzymes are required to break down biomass after being pretreated with ionic liquids, and whether the required enzymes change based on the type of biomass.
Kristen Fichthorn recalls student friendships

When Kristen Fichthorn (PhD ’89) was an undergraduate studying chemical engineering at the University of Pennsylvania, two of her professors who graduated from Michigan, Warren Seider (MSE ’63, PhD ’66) and Stuart Churchill (BSE ’42, MSE ’48, PhD ’52), encouraged her to consider Michigan for her doctoral studies. She knew Michigan was a world-class school and, after living in Philadelphia for four years, going to the Midwest would be a change. Life would probably move at a slower pace and people might be a little friendlier in a smaller town. So she chose to come to Ann Arbor for grad school. She admits that when she arrived in town, she wondered whether she would be able to find much to do in the evenings; certainly the choice of good restaurants would pale in comparison to Philadelphia.

Although Fichthorn says she was a serious student and spent many evenings in the Dow Building, she was quickly able to find a number of extracurricular activities available to her in Ann Arbor and soon found the town a pleasant place in which to live. She enjoyed biking and playing volleyball and softball with other ChE grad students. She recalls watching many foreign films in campus lecture halls sponsored by the various film societies. She says a regular outing for grad students was to go over to Windsor to get dim sum at Chinese restaurants.

Most of her work while she was at Michigan was in the computational area (simulation of surface reaction processes) and Bob Ziff served as her advisor. Her work with Erdogan Gulari focused on the practical and experimental aspects of the problems. According to Ziff, even though her education was entirely in chemical engineering, she was unafraid to venture into new areas like the physics of surface processes (surface science) and became an expert in that field; this culminated in her dual appointments in chemical engineering and physics at Penn State. At Michigan she worked on several different processes, including a time-series analysis of the chaotic behavior of a reaction model, which led to a publication in Physical Review Letters, the top journal in the physical sciences world. “Kristen was a determined and hard-working graduate student,” Ziff says. “Her success as a chaired professor at Penn State makes her advisors and her department proud.”

Fichthorn remembers the camaraderie between grad students in the department; they encouraged each other to work harder and pursue interesting research ideas. In fact, there were quite a number of other students when she was here who went on to work in academia, including Fichthorn’s husband, Themis Matsoukas at Penn State, Jay Keasling at the University of California, Berkeley, Prodromos Daoutidis at the University of Minnesota, Dennis Vigil at Iowa State, and Alexander Couzis at City College of New York.

After graduation, she did postdoctoral research at the University of California, Santa Barbara, before becoming an assistant professor at Penn State. Matsoukas and Fichthorn started dating while at Michigan so they decided to both find post-doctoral positions in California. Themis did a post-doc at UCLA so they lived in Oxnard CA, about halfway between Santa Barbara and Los Angeles. Fichthorn joined the faculty of Penn State after she completed her post doc. However, before Themis could begin his career, he had to serve in the Greek military to keep his citizenship there. His first position after returning from Greece was at Penn State and was supported by soft money. He taught and did some research using other researchers’ labs during that time. Then, after a few tense years, they were able to settle down when Themis was offered a tenured position in State College.

Through the years, she says it has been great to be married to a fellow professor because they understand each other’s stresses well. Fichthorn and Matsoukas have a daughter, Melina, who will be a senior in high school this year. Rather than following her parents into engineering, she has decided to pursue a degree in music.

Today, Kristen is the Merrell R. Fenske Professor of Chemical Engineering and a professor of physics at Penn State. Her research focuses on multiscale materials simulation and she employs theoretical methods such as density functional theory, molecular-dynamics simulation, and Monte Carlo methods to understand the growth and assembly of colloidal nanomaterials, wetting phenomena at solid-liquid surfaces, and developing theoretical techniques for multi-scale modelling.

“I just love the idea of having perfectly seamless models that go all the way from quantum mechanics to the continuum,” she says. “With advances in computing and theoretical techniques, the possibilities of designing materials and predicting their optimal function comes ever closer. In some areas, like molecular-beam epitaxy in the ultra-high vacuum environment, we’re almost there; while in liquid-solid interfaces and the colloidal environment, we’re still far from the target in many respects. That challenge keeps me going!”
Christopher Jones made career choices early

As a junior at Troy High School, with a love of chemistry inspired by an amazing teacher named Ross Graham, Chris Jones (BSE ’95) was encouraged to become a chemical engineer. Given his strong interest in the University of Michigan, sparked by countless Saturdays in front of the TV watching the maize and blue play football with his father, he says it made sense that he would enroll at Michigan and pursue a degree in chemical engineering. He matriculated in the fall of 1991, not knowing then that his four years in Ann Arbor and at Michigan would cement who he was as a scholar and a person.

While he lived on central campus for his four years in Ann Arbor (Couzens Hall and Lincoln Ave.), most of his strongest memories of U-M come from his time on north campus, football games at the Big House, or hockey games at Yost. During Jones’ junior and senior years, 1993–1995, he spent all day, every day on north campus working with a small group of friends on various ChE assignments. He had the good fortune to work with some incredibly smart people, including Paul Graham (BSE ’94) (Ross’ son—what were the chances of that happening?) and several other amazingly successful folks who are now MDs, ChE professors and professionals in industry. The hundreds of hours spent working together led to life-long friendships, and he remains in close contact with a half-dozen fellow ChE alums 20 years after graduation.

“Every ChE course remains embedded in my mind in some way, whether it be through memories of specific assignments and OEPs completed with friends or funny quirks of the lecturers,” Jones says. “I remember specific details of all my classes, in numerical order, by instructor: Johannes Schwank and Henry Wang (230); Phil Savage (330); Kartic Khilar and Jim Wilkes (341); Jennifer Linderman (342); Mark Burns (343); Scott Fogler (344); Doc Srinivasan (360); Rane Curl (460); Costas Kravaris (466); Levi Thompson (486); and Dale Briggs (487).”

Academically, he was drawn to catalysis and reaction engineering and was greatly impacted by Fogler’s ChE 344 course and Thompson’s mentoring him as an undergraduate research student in his laboratory. By his senior year, he had learned three things about himself: (1) He knew he wanted to make chemical engineering his life’s work, (2) he knew he wanted it to be through research on catalysis, and (3) he knew he wanted to do it as a professor in an academic institution where he could mentor students.

After completing an MS and PhD in ChE at Caltech, where he studied under Mark E. Davis, he took a position as an Assistant Professor of Chemical Engineering at Georgia Tech (GT) in 2000. While Caltech was very different from Michigan, being intimately small, Georgia Tech felt in many ways like the U-M. As a renowned public university with great academics and outstanding athletics, it has been a wonderful place to grow Jones’ career on the strong foundation that was created in Ann Arbor.

Today, Jones is the New-Vision Professor of Chemical & Biomolecular Engineering and Associate Vice President for Research at the Georgia Institute of Technology. He is also the founding editor-in-chief of ACS Catalysis, published by the American Chemical Society, which is the highest impact journal in catalysis. He has been recognized for his research contributions with awards from the North American Catalysis Society, the American Chemical Society, and the American Society of Engineering Education. He and his wife, Shanye Lokken (BA ’96), live in Mableton, GA.

When students arrive in the ChE department, Jones says he is always excited to meet the other Michigan chemical engineering alums that come to GT, as they are invariably incredible talents. He watched Benita Kuo (BSE ’99) earn her PhD and is currently following Nicholas Burtch (BSE ’11) as he finishes his doctorate. He had the great privilege of advising the PhD of Weiyin Xu (BSE ’08), and is currently supervising the post-doctoral research of Adam Holewinski (BSE ’07, PhD ’13) before he starts his position as an Assistant Professor of Chemical and Biological Engineering at the University of Colorado. There is always an instant connection amongst U-M alums when meeting, but he feels an especially strong connection when he meets another Michigan chemical engineer.

Last year, Jones was invited to join the department’s alumni board. “I eagerly accepted,” says Jones, “as serving on the board is an ideal way to give back to the department by drawing on my experience as an educator and scholar. It also provides an opportunity to meet ChE alums from other eras, reconnect with faculty whom I first met as an undergraduate student, meet new faculty who have joined the department in recent years, and meet current ChE students. So far it has been great fun, and I look forward to the adventure ahead.”

Jones says he is passionate about chemistry and chemical engineering, Red Wings and Michigan Hockey, and cars and sports car racing. In photo to the left, he is driving his Audi TTRS.
Recent ChE Alumni Award Winners

William A. Wulfsohn (BSE ’84) was the recipient of the 2014 ChE Alumni Merit Award. He spoke at the ChE homecoming luncheon on October 31, 2014, where he was the guest of honor.

Wulfsohn is chairman & CEO of Ashland Inc. in Covington, KY, a distributor of chemicals and plastics, and a manufacturer of chemical specialty and performance products.

From 2010 to 2014, he was president and CEO of Carpenter Technology. Before joining Carpenter, Bill was senior vice president, Industrial Coatings Segment, and previously European managing director, for PPG Industries. Prior to

PPG, Bill served as vice president and general manager for Honeywell’s Nylon System Unit. He previously worked for a decade at Morton International/Rohm & Haas, beginning as director of marketing and culminating as vice president, Officer and Business Director. He began his career with stints at McKinsey & Company and Parker Chemical.

Wulfsohn also received a Master of Business Administration from Harvard University.

He is currently on the board of Poly-One. He has been active in the community and has served on the Boards of the Pittsburgh Food Bank, the Pittsburgh Symphony and the Caron Treatment Centers.

Wulfsohn has been on the Chemical Engineering Advisory Board since 2010 and is currently serving as the chair of the board.

Both articles are from Marketing and Communications, College of Engineering

Laurie Altman (BSE ’80) was the 2015 ChE Alumni Merit Award winner and was guest of honor at the homecoming alumni luncheon on October 8, 2015. Altman has 34 years of experience with 3M and has held a variety of laboratory, manufacturing and international assignments since joining the company in 1981. She started with the company in Corporate Research Process Technologies Laboratory as a chemical process development engineer and then moved to positions in manufacturing management in Abrasives Systems Division at the Ames, Iowa and Alexandria, Minnesota operations. From 2003-2007, she was located in the ANZ region, first as managing director for 3M New Zealand and then as managing director for 3M in Australia.

She is presently the vice president and general manager for the Automotive Aftermarket Division in 3M’s Industrial Business Group. Prior to this appointment, Laurie was the vice president and general manager for the Construction and Home Improvement Markets Division at 3M. Laurie completed an MS in chemical engineering at Notre Dame prior to joining 3M.

Laurie recently served on the Chemical Engineering Advisory Alumni Board.

The 2015-2016 Chemical Engineering Alumni Board

Patrick Gipson, BSE ’97
Christopher Jones, BSE ’95
Deborah Mielewski, BSE ’87, MSE ’93, PhD ’98
Tahmid Mizan, PhD ’96
Tony Orlando, BSE ’87
Gregory Rorrer, BSE ’83 *
Anshuman Roy, MSE ’02, PhD ’06 *
Sid Sapakie, BSE ’67

Scott Siegmund, BSE ’79
Rosemarie D. Wesson, MSE ’85, PhD ’88
William Wulfsohn, Chair, BSE ’84
Joel Young, BSE ’98 *

* new members (Only U-M degrees listed)
News from Alumni

Paul H. Schwan (BSE ’43) married in 1945 and had one son, born in 1956. After graduation he went to work for Standard Oil Co. (Ind.) /Amoco Oil Co and retired in 1981 after 38 years. Paul’s wife died in 2000.

Starting in 2002, he and his son have traveled extensively, visiting twelve European countries in five trips, also Alaska and the Yukon, did a seven day trek in Peru ending at Machu Picchu, and they just completed a trip to Hawaii. In Hawaii they spent a very emotional day at Pearl Harbor visiting the Arizona Memorial, the Battleship Missouri, on which the Japanese signed the surrender agreement, and the Bowfin, a WWII submarine. With the visit to Hawaii, he has now visited all fifty States.

At age 93, he is enjoying good health and stays active in church and community.

Dave Stanton (BSE ’59) says it’s hard to believe but in June he’ll celebrate 22 years of retirement from a 34-year ChE career with Union Carbide. He and his wife, Pat, remain in their adopted hometown, Charleston WV.

Irv Miller (PhD ’60) retired from academia & the biotech industry and lives in Evanston, IL (he can’t stay away from an academic setting). He volunteers for the Executive Service Corps of Chicago, where he does management consulting for nonprofits, and writes poetry. He even gets his work published!

Jim Wilkess (PhD ’60) has edited and published his grandfather Alfred Oscoft’s manuscript, Place-Names of Hampshire and the Isle of Wight. The book, 624 pages, 200 illustrations (many in color), hardcover, traces the names of all the villages and towns in Jim’s native county to their origins, mainly Anglo-Saxon. Jim has been named an Honorary Life Member of the English Place-Name Society. He and his wife, Mary Ann, are Joint Patrons of the English Place-Name Society. He and his wife, Mary Ann, are Joint Patrons of the English Place-Name Society. He and his wife, Mary Ann, are Joint Patrons of the English Place-Name Society.

John Garmus (BSE ’66) retired from DuPont and relocated to Las Vegas. His wife of 40 years passed away five years ago. You can contact John at johngarmus@yahoo.com.

Since retiring from Kodak in 2001, James Patton (BSE ’66, BS Chemistry ’66) has been busy with travel photography (www.jamespatton.com), volunteering with urban youth education, and club management at The Tennis Club of Rochester. He and Liz VanDyke (BS Chemistry ’66) will celebrate their 48th anniversary this year in Pittsford NY. Classmates can contact James at jpatton@rochester.rr.com.

Mike Downs (BSE ’67) recently finished a new app for iPhone and Android devices. It is a comprehensive guide to the animals and exhibits at the Florida Aquarium in Tampa. You can download it for free at www.ks7d.com.

Bruce Banyai (BSE ’74) is continuing to enjoy consulting for multiple clients in the chemical and biotech field. His five grand-children keep life exciting!

George Martin (BSE ’76) retired in July 2015 after nearly 38 years of employment with Exxon and ExxonMobil. George and his wife, Jennifer, will remain in Northern Virginia for the time being.

Brian Mills (BSE ’76) retired after over 38 years with Union Carbide Corporation/The Dow Chemical Company. His career highlights include the design, construction and operation of many new chemical plants in Louisiana, Michigan, Texas, West Virginia and Montreal/Canada; leading a team to startup/operate the only chewing gum base resin facility in North America and having the pleasure to work with great people over the years, many of whom also graduated from the University of Michigan. He says he enjoys being back in Michigan with its four seasons and attending athletic events after spending most of his career out of state.

Gary Graves (BSE ’81) was named a board member at Caribou Coffee and Einstein Noah Restaurant Group. He also serves on the board of Fusion Education Group.

James Anderson (BSE ’83) is in his 22nd year as president of A.J. Boggs & Company (19 employees), providing engineering consulting, IT systems, and hosted data services to customers across North America.

Ramona Ying (PhD ’85) is celebrating her 30th year at General Motors R&D working on batteries for electrified vehicles. She is proud all her children (Bryan, Derek, and Shaina Kwiatkowski) have graduated with their BS degrees from the University of Michigan, and are off to a great start in their careers.

David Erfert (BSE ’90) is still working with Phillips66 and recently relocated to Houston, TX as manager in Refining Services. His family is good but the hardest thing he’s had to do was sending his daughter to Penn State for her first year! At least Professor Savage is there.

Cynthia (Robertson) Essenmacher (BSE ’90) is working happily in West Virginia with her husband, Phil, and their two school aged children. She has achieved a milestone with DuPont of 25 years of service.

Scott Schneider (BSE ’92) and Lori (Barnard) Schneider (BSE ’93) both work for SABIC Innovative Plastics in Charlotte, North Carolina. Scott is a senior supply planning analyst and Lori is a senior project manager. They have two children, ages 16 and 12, and enjoy watching them play their respective sports. They are also both black belts in Tae Kwon Do and enjoy training.

Doug Olds (BSE ’93) joined EPay Systems, Inc. in July 2015 as CFO. Based in Chicago, EPay Systems is a growing SaaS provider of human capital management solutions.

Jim Cleland (BSE ’94) moved back to Ann Arbor several years ago from Chicago and is practicing intellectual property law as a partner in the firm of Brinks Gilson &

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Lione. He and his wife of 17 years have three kids; sons ages 12 and 10, and a daughter who is 6. They love Ann Arbor and are actively involved in the community.

Manos Mavrikakis (PhD ‘94) was appointed the Vilas Distinguished Achievement Professor of Chemical Engineering at University of Wisconsin and was also elected chair of the Chemical & Biological Engineering Department.

Matt Liening (BSE ‘99) is employed by Caterpillar as an engineering supervisor with the Application Fluid Lines Design Team. He and his wife, Lisa, and kids, Grace and Tommy, live in Peoria, IL.

Johanna E. Rovira (MS ’99) is working for Eli Lilly (Lilly del Caribe) in sunny Puerto Rico. Drop her a line at johan-nar@umich.edu or on LinkedIn.

Megan (Taack) Raines (BSE ’99, MS BME ’99) was recently promoted to global director - safety and training for Dresser-Rand, and was also named one of the Rising Stars of Safety by the National Safety Council. She has been published in Professional Safety and will be a presenter at the National Safety Council Congress and Expo later this year. Megan, along with her husband Jonathan and 11-year-old son, Austin, just relocated to northwestern Georgia.

Dan Merenda (BSE ’00) has recently become a program manager for Orbital ATK’s Orion product line of solid rocket motors, which are used to launch commercial payloads. Previously, Dan was the Safety & Mission Assurance Chief Engineer for Orbital ATK’s Space Launch System (SLS) Solid Rocket Boosters program. Dan has been with Orbital ATK since 2003.

Brandon (BT) Cesul (BSE ‘01, MEng-SpSys ‘02) has separated from the USAF’s National Air & Space Intelligence Center after 13 years to come back to Ann Arbor.

Dr. Cesul started working in September for Integrity Applications, Inc., a national defense consulting firm, in their Ann Arbor satellite office.

Anne (Ehrenberger) Ballard (BSE ‘02) recently became a technical sales representative for HunterLab in the Great Lakes Region. She lives between Cincinnati and Dayton with her husband and three step-boys. Despite living in the Buckeye state, she is still a true Wolverine!

Jessica (Motyl) Gilliam (BSE ‘02) is celebrating her 5-year anniversary as a supply chain program manager at HP. She and her husband, Troy, welcomed daughter, Maeve, on January 30, 2014. The family spends their free time enjoying the La Jolla, CA coast.

Adam Wilson’s (BSE ’02, MSE PharmEng ’06) website, BioPharmGuy.com, received its one-millionth unique visitor in April 2015. In October 2014, he and his wife, Kelly, who has a 2002 bachelor’s degree from U-M in psychology and communications, welcomed their third daughter, Arbor Wilson.

Tamika L. (Young) Banks (BSE ‘02) completed her MS in engineering management from Eastern Michigan University in April 2015. She is currently employed at Toyota Technical Center in York Township (Saline) as a project engineer. She and her husband, Terrence, are raising their four very active future Wolverines, Takima (11), Terrence, Jr. (6), Tania (5) and Tiana (3) in Ypsilanti. In her spare time, Tamika serves as a baseball/softball mom, football mom, cheer coach and Girl Scout troop leader.

Seth W. Kahle (PhD ‘06) launched CGK Consulting Group, Inc., a technical consulting and engineering group based in San Diego, CA with satellite offices in Phoenix, and Chicago. CGK focuses on chemical process engineering, process control automation systems, and custom software solutions for engineering and manufacturing. July marked the second anniversary of incorporation, and they are excited to see what the next year brings.

Jeff Baxter (BSE ‘04, MSE ‘04) moved to Los Angeles in December to start a new position as vice president of engineering and business development with World Oil Marketing Corporation. He and his wife will celebrate their 5-year anniversary in October and their son also turned two years old that month.

Nicole (Arnold) Bartlett (BSE ‘05) and her husband Joshua (BSE CE, EE ‘04) proudly announce the birth of their second son, Colin Paul, on January 6, 2015. He was welcomed home by big brother Cameron. Nikki resides in Essexville, Michigan with her family and continues to work for SC Johnson, where she is a production manager for a film and Ziploc plant in Bay City.

Nikki Little (BSE ’05) is an intellectual property attorney at the Chicago IP boutique of Fitch Even Tabin and Flannery, focusing on patent litigation and advertising, branding and marketing law, among other areas. She and her husband, Matthew (BS ’03), welcomed a daughter, Kenzie Irene Burns, on July 12, 2014. Nikki was also recently appointed to be a board member on the U of M Club of Greater Chicago.

Sara (Rickson) Haas (BSE ‘03) was made partner at McGarry Bair, a law firm specializing in intellectual property law. She and her husband, Brian, welcomed daughter Ella on January 24, 2014, and second daughter in July of 2015. Go Blue!

Send your news updates to Sandy Swisher at cheme@umich.edu
Ashley (Phillips) Walton (BSE ’06) recently started as a manufacturing engineer with JAC Products in Saline Michigan in January of this year. She works in the assembly unit assembling roof racks for SUVs.

Evan Kostishak (BSE ’06) has been working at Dow Chemical for four years as a process engineer. Two years ago, he married his lovely wife, Claire. They live in Midland, MI.

Andrew (Mac) MacMillan (BSE ’07) is celebrating his 5th year anniversary at Rogers Corporation as a senior process engineer. He is living in suburban Chicago with his wife of five years, Karri, with whom he recently welcomed daughter, Mia, on April 14, 2015.

Irene Brockman (’08) and fiancé, Brandon Reizman, both recently completed their PhDs in chemical engineering at MIT and were married in June.

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