Peter Tessier joined the chemical engineering faculty in September 2017 as the Albert M. Mattocks Professor of Pharmaceutical Sciences and Chemical Engineering. He also has an appointment in the Department of Pharmaceutical Sciences in the College of Pharmacy. He was previously the Richard Baruch M.D. Career Development (Endowed) Professor in the Department of Chemical & Biological Engineering at Rensselaer Polytechnic Institute (RPI).

He was raised in Vermont in the “Northeast Kingdom.” He describes this northeast corner of Vermont as being especially beautiful, with lots of mountains and few people. His father was an electrician and worked in a specialty paper mill with several smart and creative chemical engineers. Peter, who had long been interested in science and technology, was soon drawn to the field as he learned how chemical engineers solve real world problems using principles from both math and chemistry—two of his favorite subjects in school.

He decided to stay in New England for college and attended the University of Maine to study chemical engineering, where he received his bachelor's degree in 1998 as the co-valedictorian. He completed his doctoral studies in chemical engineering at the University of Delaware, where he worked with Abraham Lenhoff and Stanley Sandler. During his doctoral studies, Peter studied the thermodynamic properties of protein solutions. The equilibrium solution properties of proteins (such as antibodies and enzymes) govern many of their important behaviors, including protein crystallization that is vital for solving protein structures at high resolution for structure-based drug design. These thermodynamic properties also control the stability of proteins that are now being widely used as therapeutics, such as Humira for treating rheumatoid arthritis and Remicade for treating Crohn’s disease.

After completing his PhD in 2003, he was an American Cancer Society Postdoctoral Fellow at the Whitehead Institute for Biomedical Research at MIT. Peter’s postdoctoral research involved understanding how the physiochemical properties of infectious (prion) proteins

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NOTE FROM
THE CHAIR

SHARON C. GLOTZER, ANTHONY C. LEMBKE
DEPARTMENT CHAIR

As the 15th Chair of Michigan ChE, I am honored and excited to lead such an active and outstanding department. With 29 core faculty members and growing, 140+ PhD students, and 400+ undergraduates, U-M Chemical Engineering is in the top 7% of all chemical engineering departments in the nation. After only a few months on the job, already I have a new appreciation for just how unique Michigan ChE is. Our students, faculty and staff are truly the Leaders & Best, ready to take on the biggest scientific and technological challenges of the 21st Century.

As examples, we are engineering new heart tissue that could restore heart function, and developing microfluidic technology that could revolutionize melanoma care and treatment. We’ve invented a hydrodynamic “maze-on-a-chip” that captures aggressive cancer cells that circulate in the bloodstream—a major step in the fight against breast cancer and lung cancer, where the chip performs a liquid biopsy to assess treatment strategies. Using the nation’s largest supercomputers, we’re learning how colloidal clathrate structures grow and how to engineer entropy to optimize quality and yield.

We’re making nanometer-sized particles that catalyze chemical reactions for fuel cells and other applications. We developed a new method for mass-assembling semiconductors that could one day be used to project moving holograms right from your smartphone. We’ve designed a pill that lights up cancerous tumors in breast tissue, and bio-functionalized particles for targeted drug delivery and imaging. We’re bringing machine learning to bear on nanomaterials discovery and design, and catalyst optimization.

In Gabon, Kazakhstan, and Michigan, we’re leading an international team of researchers to find fresh solutions to the energy/water/food challenge in resource-constrained environments. And, our faculty are active in science & technology policy, advising the nation on everything from alternative energy to technology warning to accelerating the pace of new materials to market.

As we enter our 120th year, we’re excited to work with our alumni and friends to propel Michigan Chemical Engineering to the next level. With your help, we’ll be investing in new infrastructure and facilities, more scholarships and fellowships, new partnerships with industry, bold new centers and institutes, a modernized curriculum, and faculty recruiting at all levels. James Burrill Angell, Michigan’s longest serving president, provided a vision for our university to provide “an uncommon education for the common man.” As the pre-eminent chemical engineering department in the nation serving the common good, we are committed to fulfilling that vision in uncommon ways.

Sharon is also the John Werner Cahn Distinguished University Professor of Engineering and the Stuart W. Churchill Collegiate Professor of Chemical Engineering.
The Goldsmith research group will use electronic-structure theory and molecular simulation, as well as data analytics tools, to understand catalysts and materials under realistic conditions, and to help generate a platform for their design and use in chemical synthesis and pollution reduction. Areas of focus include: (i) Disordered and amorphous materials used as catalysts or catalyst supports; (ii) Nanoclusters and atomically dispersed metal-complexes supported by metal oxides for natural gas conversion; and (iii) Homogeneous organometallic catalysis for specialty chemical production, especially for carbon-hydrogen activation reactions.

Bryan likes traveling abroad, trying new foods, and learning languages. He and his fiancée, Divina, are both excited to join the Michigan community. A fun fact about him is that he is an identical twin.

“I am enthusiastic to begin teaching courses in the department this fall and to build up my research team,” he says. “My teaching goals are to help students reflect on their own understanding of the course material and to equip them with the tools and mindset to address the pressing challenges facing our world.”

Nirala Singh obtained his bachelor’s degree in chemical engineering from the University of Michigan in 2009. He received his PhD in 2015 at the University of California Santa Barbara, working with Eric McFarland and Horia Metiu. He will join our department in January 2018.

After graduation in 2015, Nirala Singh did his postdoctoral research at the University of Washington and Pacific Northwest National Laboratory, working with Charlie Campbell and Johannes Lercher as a Washington Research Foundation Fellow in the Clean Energy Institute.

Nirala’s research focuses on developing electrochemical methods and catalysts to store and use renewable electricity. This includes flow batteries for energy storage, production of fuels and chemicals from renewable electricity or directly from sunlight, and electrochemical treatment of wastewater.

He grew up in Ann Arbor and completed his K-12 education in the Ann Arbor public school system. He says, “I am extremely excited to be returning to my hometown, and am looking forward to beginning my independent career at such a wonderful university. Go Blue!”

Bryan Goldsmith started in September 2017 as an assistant professor. He received his BS in chemical engineering at the University of California Riverside (2010) and his PhD in chemical engineering with Baron Peters at the University of California Santa Barbara (2015).

A native of the San Fernando Valley area near Los Angeles, Goldsmith most recently worked as a Humboldt Postdoctoral Fellow at the Fritz Haber Institute of the Max Planck Society in Berlin, Germany, working with Luca Ghiringhelli and Matthias Scheffler. During this time, he primarily developed and applied data analytics tools (e.g., machine learning and data mining) with the goal to extract materials insights and predict novel materials.
A member of the National Academy of Sciences and American Academy of Arts & Sciences, as well as a fellow of the American Association for the Advancement of Science and four discipline-specific societies, Sharon Glotzer is internationally recognized for her foundational research into the self-assembly of nanoparticles. She is also a first-generation scientist and former Valley Girl who never worried she wouldn’t be taken seriously in science and engineering.

Her remarkable insights into nanoparticle assembly have made her a top theorist — and a favorite collaborator of leading nano-engineering experimentalists seeking to understand their creations. Her ultimate goal is even more ambitious: She wants to understand the design rules for building new materials from the nanoscale up, enabling properties that were previously impossible.

Although Glotzer found her intellectual home in chemical engineering, her path to the field was hardly conventional. While finishing her physics degree at the University of California, Los Angeles, her career launched almost as soon as she set foot in a research laboratory at the aerospace company TRW.

Yet the start was inauspicious. After two weeks of searching through filing cabinets of data taken by the Voyager I satellite for the signature of a plasma phenomenon, she went to her supervisor. “I said, ‘This isn’t working for me. You’re not using my talents. I need something more challenging,’” Glotzer recounted.

He saw her point and reassigned her to the superconductivity group, where she re-derived the physics behind a phenomenon used for precise control of light. That first paper, recasting the theory into a simpler and more accessible formulation, lent a new clarity to the field and went on to be widely cited — including by the renowned string theorist Ed Witten.

When her TRW colleagues recommended her for a doctoral fellowship, she jumped at the chance, joining the group of their collaborator at Boston University. But even from grade school, Glotzer says she was never great at executing experiments, always more interested in planning them and analyzing the data.

“A vacuum pump blew up all over me one day, and I was taking a class in statistical mechanics,” said Glotzer. “My to-be-future-advisor saw me and said, ‘You look like a theorist. Come talk to me later.’”

By the end of her first year, she had transferred into the group of the world-renowned statistical physicist H. E. Stanley, where she was introduced to computational science. Then, when the university acquired a new-fangled supercomputer, she was among the first there to learn its programming language. “I wanted to program the biggest computers on the planet,” she said. “And then it turned out that I was actually really good at it — that was my thing.”

After her PhD, she won a fellowship with the National Institute of Standards and Technology (NIST). “NIST is a wonderful place. It’s a great environment for doing science, especially as a junior researcher,” said Glotzer. “Nobody’s teaching, nobody’s writing proposals – just doing research.”

As a post-doctoral research fellow, she had all the supercomputing power she needed at her fingertips while still having the freedom to pursue her own ideas. She and three other young scientists trained in computational science started a group specializing in simulation, with the aim of supporting projects throughout the Materials Science and Engineering Laboratory. That center is still running today.

Once she became research staff, the problems were more often handed down from above. She built a “baby group” of graduate students from nearby universities and post-doctoral fellows who could work outside the official agenda, but it wasn’t enough.

Observing her knack for growing and supervising her group, her own supervisor...
began preparing the way for Glotzer to move up in management at NIST. While the influence of the director's office, with its Congressional briefs and testimonies, held some appeal, Glotzer knew she had more to add to the research field.

“I just had so much fun working with really smart people, coming up with these great questions, answering them, and then changing the way people thought about stuff,” she said.

That’s when Northwestern University first approached her about becoming a chemical engineering professor. She was mulling over their offer at a conference when she ended up next to UM’s Ron Larson, an internationally recognized chemical engineer, in the cafeteria line.

She spilled the beans about the offer from Northwestern over lunch. Larson, about to begin his first year as chair of chemical engineering at U-M, saw an opportunity. “He said, ‘Don’t do anything! Give me three days,’” said Glotzer.

U-M matched the offer, bringing her in as an associate professor with tenure. U-M’s Department of Materials Science and Engineering hired her husband-to-be, John Kieffer, away from the University of Illinois Urbana-Champaign, and the couple moved to U-M together in 2001.

Glotzer’s expertise in the growing field of computational materials science led her to establish two new graduate courses at U-M: Computational Nanoscience of Soft Matter and Assembly Engineering.

She turned her leadership and management skills toward growing an exceptionally large research group: currently three full-time staff, six postdoctoral researchers, 25 PhD students and six undergraduate researchers.

Glotzer helped lead the College of Engineering and campus in building U-M’s computational research infrastructure, now Advanced Research Computing, and she also engaged in outreach among other universities in the Great Lakes region, helping them start local computer simulation cohorts.

“The idea was, how can we leverage critical mass in high performance computing at universities that have it to develop and teach curricula to students at schools everywhere?” said Glotzer.

The program was so successful at building up regional strength in scientific computing that it’s now obsolete. But as computing resources became faster, and simulation results began sending back terabytes of data at a time, Glotzer soon had to reckon with the fact that scientific computing skills were no longer enough: She needed to harness data science.

Her students were on top of the trend, studying data science online and forming a club to apply the new techniques to their simulation data.

“In our simulations, we went from studying a single nanoparticle shape to studying 145 different shapes in a single paper, to tens of thousands, to now hundreds of millions,” said Glotzer.

DATA SCIENCE AND PUBLIC POLICY: Enabling chemical engineers of the future

As Sharon Glotzer begins her first term as the Anthony C. Lembke Department Chair of Chemical Engineering at the University of Michigan, we asked her about what she thinks is missing in chemical engineering education.

What needs to change in chemical engineering education to prepare graduates for the future?

There are two things that our students are asking for but don’t currently fit neatly into the curriculum. One, and this could be said for literally any discipline now, is data science.

Data science now drives how we try to make new compounds. If I make my new material this way, it behaves like this. Or if I do something else, it behaves like that. But imagine that you can interrogate millions of trials — or hundreds of millions or billions of trials — and get huge amounts of data. You need data science to find the correlations that will turn those observations into design rules and eventually theories. Data science is the new Wild West.

When I talk to companies, they tell me they are desperate to hire not data scientists to whom they can teach chemical engineering, but chemical engineers who know data science. And that is an exciting opportunity for us. With resources like the MIDAS on campus, we are developing tomorrow’s “data science for chemical engineers” curriculum.

Another is policy. When you look at major scientific boards, advisory panels or people who testify before congress — it is not uncommon to find they are engineers. They are often chemical engineers, in part because chemical engineering covers everything from fundamental science to very practical implementations of the science — from molecules to manufacturing, we like to say.

And if ever there was a time when we needed more chemical engineers to become involved in science policy, it is now. Our students are excited — they want to get involved. We’re working across the campus to build a pathway for them to combine their chemical engineering studies with science policy.

How can you incorporate data science into an already demanding curriculum?

It may be time to step back and look at the entire chemical engineering curriculum and ask ourselves — are these still the topics that we need to be teaching our undergrads? And if so, are we teaching them the way we should be teaching them, in the most effective ways possible, looking forward? Or, are there ways of packaging our materials in ways that free up time for new topics?

One approach would be to offer data science courses as technical electives. But to me, a much more powerful approach is to integrate data science throughout the curriculum. If it is ubiquitous and important, then it should be possible to integrate data science approaches into core chemical engineering topics such as reaction engineering.

CONTINUED ON PAGE 6
You called the field of data science the new Wild West. How will a chemical engineering department stay current with a field experiencing such rapid growth?

At the University of Michigan, we have two institutes that advance computational approaches to science and engineering – one dedicated to data science itself and the other covering computational science more broadly. Together, they pool all the experts in data and computational science from across the university. Some are creating the tools and techniques of the trade, which are evolving rapidly, while others are more focused on applications – the kinds of questions that data science can answer. These range from climate to self-driving cars to the discovery of new drugs and materials – and everything in between.

Through the Michigan Institute for Computational Discovery and Engineering, Michigan faculty – including chemical engineering faculty – hold seminars and workshops, summer schools and tutorials, and provide other opportunities for our students to get into data science and computational science and stay current.

What about connecting students with opportunities in public policy?

As with data science – and this is one of the great things about Michigan – we don’t have to do this alone. The Ford School of Public Policy is a top ten school in public affairs, and through it we have access to experts in public policy and science policy in particular. With their help, we can identify or develop courses best suited to prepare our chemical engineering students to become leading voices for science, energy, the environment, public health, and the many other areas that intersect with chemical engineering.

At Michigan, we pride ourselves not just on being leaders in engineering, but leaders who serve the common good, and the students we attract feel the same way. By working across the campus, I am confident that we can provide not just the education, but also a network that helps our young chemical engineers bring more scientific expertise to the public sphere.

Both articles about Sharon Glotzer are by Kate McAlpine, Marketing and Communications, College of Engineering
FACULTY HONORS

MARK BURNS has been appointed Executive Director of MCubed and Research Innovation. In the new position, Mark will continue to lead the highly successful MCubed program that he co-founded. In addition, he will be developing other programs to provide additional mechanisms to fund collaborative faculty teams.

In 2017, MARK KUSHNER won the Plasma Chemistry Award from the International Society for Plasma Chemistry and Eindhoven University of Technology in The Netherlands awarded him a Doctor Honoris Causa in 2016.

He presented two lectures this year: The Distinguished Technical Lecture in the Department of Nuclear Engineering at North Carolina University and the Bikerman Lecture in the Department of Chemical and Biomolecular Engineering at Case Western Reserve University. He was also a Distinguished Lecturer for American Physical Society’s Division of Plasma Physics.

RON LARSON received the 2017 Department of Chemical Engineering Outstanding Faculty Achievement Award. A member of the National Academy of Engineering and a former department chair, he is a distinguished researcher, teacher, and leader and is well-known for his expertise in complex fluids and polymers.

LOLA ENIOLA-ADEFESO was elected to the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE).

SHARON GLOTZER was elected a Fellow of the Materials Research Society (MRS) in 2017. The title of Fellow honors MRS members for their accomplishments in the advancement of materials research.

Sharon presented several named or distinguished lectures in 2016-17, including the Closs Lecture at the University of Chicago, the Barnett F. Dodge Distinguished Lecture at Yale University, the Rachoff Lecture at University of Illinois at Urbana-Champaign, the Sackler Lecture at Tel Aviv University, and she was the Distinguished Seminar Speaker in the Department of Chemical Engineering at the University of Illinois at Chicago.

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SULJO LINIC was the recipient of the 2017 Paul H. Emmett Award in Fundamental Catalysis from the North American Catalysis Society (NACS). He received this award in recognition of his groundbreaking contributions at the interface of heterogeneous catalysis, surface chemistry, nanoscience, and computational catalysis.

NICHOLAS KOTOV received the 2017 ACS Award in Colloid Chemistry from the American Chemical Society (ACS). He also received the Alexander von Humboldt Research Award from the Humboldt Foundation.

In March, Nick gave the van ’t Hoff Lecture at the 2017 PAC Symposium in Utrecht University, which was organized by the students of Universities of Utrecht, Leiden, Amsterdam.

ANDREJ LENERT’S work on a new solar device that could create cheap and continuous power by converting heat to focused beams of light was cited as one of the “10 Breakthrough Technologies of 2017” in MIT Technology Review. He was part of a team with researchers from MIT and Purdue.

JENNIFER LINDERMAN won a Rackham Distinguished Graduate Mentor Award in 2017. The award is given annually to several faculty members from across the University to recognize mentors of doctoral students who "support their intellectual, creative, scholarly, and professional growth.

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NINA LIN’S start-up company, led by her former PhD student, Jeremy Minty, has made progress since they co-founded it in 2014. The company, Ecovia Renewables (http://www.ecoviarenewables.com/), is based on microbial co-culture technologies done in her lab and specializes in cost-effective biobased chemical production. Most recently, it was awarded a $750K NSF SBIR Phase II grant and won the grand prize of an Imagine Chemistry competition hosted by AkzoNobel.

FEI WEN won a National Science Foundation Faculty Early Career Development (CAREER) Award in 2017. Fei’s group aims to develop an immunobioengineering platform for rapid and scalable biomanufacturing of universal viral vaccines.

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JAMES O. WILKES won the College of Engineering Edward Law Emeritus Outstanding Service Award for 2016–2017. Jim sets a remarkable standard of service and has remained highly active in support of Chemical Engineering and the College since his retirement in May 2000.
Professor Ralph T. Yang was appointed the John B. Fenn Distinguished University Professor of Engineering. These professorships recognize Michigan faculty members for “exceptional achievement and reputation in their appointive fields of scholarly interest and for their superior teaching skills.” Ralph earned his BS in chemical engineering from National Taiwan University, and his MS and PhD in chemical engineering from Yale University in 1968 and 1971, respectively. After working at Brookhaven National Laboratory, he joined the State University of New York at Buffalo as an associate professor of chemical engineering in 1978. He was promoted to professor in 1982 and served as chair of the department from 1989-1995, where he was named Praxair Professor in 1993. In 1995, he joined the University of Michigan’s Department of Chemical Engineering as the department chair. He served as the department chair until 2000, and was named the Dwight F. Benton Professor of Chemical Engineering in 2002.

Ralph’s research interests are focused on solid surfaces and their new applications. He is widely known as a leading expert on gas adsorption. He has published two books: *Gas Separation by Adsorption Processes*, Butterworths, London, 1987 and its paperback edition, Imperial College Press, 1997; and *Adsorbents: Fundamentals and Applications*, Wiley, NJ, 2003. He and his students have published 420 journal papers in adsorption and related areas, and he holds 33 U.S. patents. His primary research area is separations, particularly separations by adsorption, and he is also interested in carbon materials and environmental catalysis.

“Ralph has mentored the next generation of students and junior colleagues, made substantial service contributions to U-M as well as the scientific community, and has earned significant national and international recognition for his exceptional scholarly and creative achievements,” says former ChE chair, Mark Burns.

In recognition of his research accomplishments, Ralph was elected to the National Academy of Engineering (2005), Academia Sinica (Taiwan, 2008), and as a foreign member of the Chinese Academy of Engineering (2015). He has received the highest awards in his fields, including three awards from the American Institute of Chemical Engineers (AIChE): William H. Walker Award for “Excellence in Contribution to Chemical Engineering Literature,” the Institute Award for Excellence in Industrial Gases Technology, and the AIChE Separations Division’s Gerhold Award.

He received the ACS Award in Separations Science and Technology from the American Chemical Society (ACS). For his work on carbon, he was awarded the triennial SGL Carbon Award, from the American Carbon Society, for the “Most Significant Overall Contributions to Science or Technology of Carbon Materials.” Finally, Ralph received the Distinguished Faculty Achievement Award (2007) from the University of Michigan for his research, teaching, and service.

Professor Yang is also an outstanding teacher and mentor of graduate/postgraduate students. He has advised over 40 doctoral students, mentored over 30 postdoctoral fellows and visiting scholars, and taught classes at both the undergraduate and graduate levels in chemical engineering.

As he assumes the Distinguished University Professorship, Ralph chose to remember his PhD advisor at Yale, John B. Fenn. Fenn (1917 – 2010) was a Nobel Laureate in chemistry who won the Nobel Prize in 2002 for his invention of electrospray ionization mass spectroscopy. He was on the faculty at Princeton from 1952 to 1967, and at Yale from 1967 until his retirement in 1987. Ralph says, “Professor Fenn was an inspiration to me and I am forever grateful for the kindness he showed me as his student.”

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– MARK BURNS
The College of Engineering has established the H. Scott Fogler Award for Professional Leadership and Service in recognition of Professor Scott Fogler’s decades of service to the College and the field of chemical engineering.

With over 50 years of service to the U-M, Professor Fogler has made outstanding contributions to the field of chemical engineering through his teaching, textbooks and research. He is currently the Vennema Professor of Chemical Engineering and Arthur F. Thurnau Professor. During his tenure with the College, Professor Fogler authored a textbook, *Elements of Chemical Reaction Engineering* (5th Edition), that has been the dominant text worldwide for the last 27 years. In addition, Professor Fogler has written 240 research publications, graduated 47 PhD students. In terms of national leadership, he has served as president of the American Institute of Chemical Engineers, and he has chaired the Chemical Engineering Division of the American Society of Engineering Education.

In honor of Professor Fogler’s global contributions and achievements, the H. Scott Fogler Award for Professional Leadership and Service will recognize engineering faculty members with similar attributes and demonstrated successes. The Award will be given to a distinguished faculty member who has exhibited the following: (1) significant national or international impact within the field of engineering through leadership or service external to the College; (2) leadership and service with professional societies and organizations, governments, or other public or private non-governmental organizations, and/or the authoring of definitive texts within the field of engineering; and (3) impact of this service and leadership through confirmed outcomes and/or external recognition of contributions.

Scott says, “The synergism of being at one of the top academic institutions in the world, where you are surrounded by outstanding faculty and staff, where you can cheer for one of the top college athletic programs in the U.S. and attend incredible events at the prodigious School of Music’s Musical Theatre Program, has made living in Ann Arbor so enjoyable. I have been blessed to work with so many talented and personable undergraduate and graduate students during my 53 years in Ann Arbor. It has been an extremely rewarding experience to be a part of the University of Michigan all these years.”

Colleagues, friends, and former students of Scott Fogler have established this endowment to honor his legacy and commitment to the education of students and the practice of chemical engineering. Scott, a past president of the institute, founded AIChE’s signature Chem-E-Car Competition in 1998, which has since been held throughout the world.

To recognize Scott Fogler’s transformative impact on chemical engineering education, the AIChE Foundation has renamed and permanently endowed AIChE’s Annual Chem-E-Car Competition First Place Prize in his honor.

The AIChE Foundation has developed a fundraising campaign to endow and rename the car competition first prize in honor of Scott. The renaming of the prize will be announced at the Annual AIChE Meeting and Student Conference in Minneapolis on October 29-November 3, 2017.

For more information and to donate to the fund, visit https://www.aiche.org/giving/impact/funds/h-scott-fogler-endowment.
Michael Solomon was selected to serve as Interim Dean of Rackham Graduate School and Interim Vice Provost of Academic Affairs – Graduate Studies. He was a Rackham Associate Dean from 2013 until June of this year.

Solomon joined the U-M faculty in 1997 and currently serves as a Professor of Chemical Engineering and a Professor of Macromolecular Science and Engineering.

In 2003, he received the prestigious Henry Russel Award, given to the most promising junior faculty at the University. He has received several other awards, both internal and external, including a Faculty Recognition Award, and the College of Engineering’s Educational Excellence Award.

In December 2016, Solomon was elected fellow of the American Association for the Advancement of Science (AAAS). AAAS is the world’s largest general scientific society, and publisher of the journal *Science*. AAAS fellows are recognized for their “efforts toward advancing science applications that are deemed scientifically or socially distinguished,” according to a AAAS statement.

The AAAS cited Solomon’s work making colloids with new structures and functions. Colloids have properties intermediate between solids and liquids. They’re common in everyday life, in forms such as milk, shampoo and hair gel.

The University of Michigan is joining the American Institute of Chemical Engineering (AIChE) in a manufacturing institute dedicated to improving the efficiency of the chemical industry. The institute is charged with reducing the energy required and the waste generated in making chemical products – from fuels to paper to toothpaste.

The institute, called the Rapid Advancement in Process Intensification Deployment (RAPID) Manufacturing Institute, brings together 75 companies, 34 academic institutions, seven national laboratories, two other government laboratories and seven non-governmental organizations. The Department of Energy will provide $70 million over the next five years, with contributions from the partners bringing the total above $140 million. By the end of five years, the AlChE intends to make the institute self-sustaining.

Funding for U-M projects could total nearly $13 million: $6.3 million from DoE with matching funds from the University. One of the projects aims to improve the production of hydrogen, an important element for refining oil and fertilizer production. Another will enhance the efficiency of cement manufacturing, which is a big source of carbon emissions.

Levi Thompson will lead the effort at Michigan. Other investigators from the department include: Mark Barteau, Erdogan Gulati, Suljo Linic, Heather Mayes, Ralph Yang, and Robert Ziff.

The book abounds with examples and end-of-chapter problems, and the typography and clarity of the illustrations are excellent. Although Jim was the major author, he greatly appreciates the help of four other contributors: Stacy Birmingham, Chi-Yang Cheng, Kevin Ellwood, and Brian Kirby.
The 6th Annual Chemical Engineering Graduate Symposium was held on May 11, 2017 in the Gerald R. Ford Library. The event featured 13 oral and 18 poster presentations by graduate students who will soon graduate from the doctoral program.

The keynote address on “Engineering in the Valley of Death” was given by CTO and co-founder of Akadeum Life Sciences, Professor John Younger. He discussed his experiences as an emergency medicine physician of taking an engineering idea out of his lab and marketing it to the public through his new start-up company.

Industry representatives included Se Ryeon Lee, Darin Laird, Betsy Brown-Tseng, and Crystal Morrison from PPG, and Michael Molnar, Alan Stottlemyer, Aaron Shinkle from Dow Chemical. Julia Faeth and Shu Situ-Loewenstein attended on behalf of Owens Corning, and Exponent was represented by Ryan Hart and Doug Calhoun.

Congratulations to all the graduate student award winners:

Best Oral Presentation
(Award Sponsored by Peter Valianatos & Tricia Kelly-Valianatos)
1st Place: Umar Aslam
2nd Place: Liam Casey
3rd Place: Megan Szakasits

Outstanding Service
(Award Sponsored by Andrew & Tiffany Ross and Yiping Lim & Edith Yates)
Winners: Shannon Moran and Vyas Ramasubramani.

Excellence in Research Award
(Award Sponsored by Diane & Warren Seider)
Winner: Ali Salehi

Best Poster Presentations
(Award Sponsored by Joseph Roberts)
1st Place: Lydia Atangcho
2nd Place: Saman Moniri
3rd Place: Valentina Omoze Igenegbai

Excellence in Teaching
(Award Sponsored by Rishi & Alison Narayan)
Winner: Saman Moniri (ChE 343)

WALTER J. WEBER JR. LECTURE
Marc Edwards, the Charles P. Lunsford Professor of Civil Engineering at Virginia Tech, presented the 2016 Walter J. Weber Jr. Distinguished Lecture in Environmental and Energy Sustainability on October 25, 2016 at the Gerald Ford Presidential Library.

Edwards’ lecture, “The Flint and Washington D.C. Drinking Water Lead Crises: How Scientists and Engineers Betrayed the Public Trust,” focused on Edwards’ role in exposing water contamination in Washington D.C. between 2001 and 2004 and the current water crisis in Flint. His research group aspires to pursue science as a public good, through laboratory work on practically important but underfunded topics such as corrosion in buildings and opportunistic premise-plumbing pathogens. That work laid the groundwork for investigative science uncovering the D.C. lead crisis and the Flint water disaster.

DONALD L. KATZ LECTURE
Paula Hammond presented the 47th Annual Donald L. Katz Lectureship in Chemical Engineering on March 15 and 16. Her first talk was on “Nanolayered Drug Release Systems for Regenerative Medicine and Targeted Nanoatherapies” and her final talk was on “Functionalizable Polypeptides and Polymeric siRNA Smart Delivery.”

Paula Hammond is the David H. Koch Professor of Engineering and the head of the Department of Chemical Engineering at the Massachusetts Institute of Technology. Her research in nanotechnology encompasses the development of new biomaterials to enable drug delivery from surfaces with spatial and temporal control. She investigates novel responsive polymers for targeted nanoparticle drug and gene delivery. She was elected into the American Academy of Arts and Sciences in 2013, the National Academy of Medicine in 2016, and the National Academy of Engineers in 2017.
An exotic interaction between light and metal can be harnessed to make chemical reactions more sustainable, but the physics behind it has been widely debated in the field. Now, a study from the University of Michigan has shown how a light-harvesting metal transfers energy to a catalytic metal, opening the way for better catalyst designs.

Catalysts are mediators of chemical reactions: They can make reactions happen at lower temperatures, reducing the energy needed, and they can also give an edge to a desired reaction pathway, producing more of the target chemical and less waste.

A new kind of catalyst can be made from so-called plasmonic metals that are good at capturing the light, but aren’t terrific at guiding reactions. To improve their effectiveness, researchers have been peppering them with materials that are better catalysts, improving reactions related to fuel production and common household products like toothpaste, for example.

“The difficulty with earlier experiments was that there were many different exposed surfaces, so it gets very difficult to interpret your results because of the complexity of the nanoparticles,” said Umar Aslam, doctoral student in chemical engineering.

Now, Aslam and his colleagues in the research group of Suljo Linic, a professor of chemical engineering and a pioneer in plasmonic catalysis, have shown how the energy moves. Rather than energetic electrons hopping from the light-capturer to the catalyst, the plasmonic metal is acting more like a radio antenna, with the catalyst as the receiver, Aslam said.

Their experiment, published in the journal *Nature Nanotechnology*, was the first to convincingly show that this mechanism is at work.

“We described how plasmonic nanostructures move the energy of light to the catalytically active sites,” Linic said. “We then demonstrated how this mechanism can be exploited to design very efficient and selective catalysts.” Selectivity is prized because it reduces the unwanted “side” reactions that produce waste.

Copper, silver and gold are known for their plasmonic properties, or their ability to capture the energy of visible light in the form of waves in their surface electrons, called surface plasmons.

In the experiment, Aslam and Steven Chavez, also a doctoral student in chemical engineering, produced silver nanocubes, about 75 nanometers (millionths of a centimeter) to a side. They then coated these with platinum just one nanometer thick.

Metal that thin is essentially transparent to light, so the coated silver continued to turn the light into surface plasmons. The silver then funneled the energy to the platinum coating through the sea of electrons shared between them. The platinum produced energetic electrons and positively charged holes—charge carriers that could then go on to cause chemical reactions on its surface.

Platinum is widely considered to be “the emperor of all catalysts,” which makes this material an obvious choice for researchers interested in plasmonic catalysis, Aslam said. Yet no one had been able to do it before because it is very difficult to coax a thin film of platinum onto silver. Under most conditions, the silver tends to tarnish, Aslam said. So, he and Chavez tweaked the reaction conditions so that the platinum coating happened much faster than the tarnishing.

The group demonstrated that the catalyst nearly doubled the rate at which carbon monoxide contaminants in hydrogen turned into carbon dioxide when the light was on—compared to the reaction in the dark, which relies on platinum alone. This conversion is important in the production of hydrogen from methane, as leftover carbon monoxide gunges up the catalysts in hydrogen fuel cells.

They showed that neither the silver nanocubes alone—nor the cubic platinum shells left over when the silver was removed by acid—could perform like the platinum-coated cubes. Still, Linic and Aslam caution that these new catalysts aren’t yet harbingers of a revolution in industrial chemistry.

“Right now, plasmonic catalysis is a nascent field,” Aslam said. “It costs more to prepare a catalyst like this compared to conventional catalysts.” But with continuing advances in nanoparticle synthesis and ideas to further improve the efficiency gains offered by plasmonic catalysts, they may make the chemical industry greener in the future.
Cancer cells obtained from a blood test may be able to predict how early-stage lung cancer patients will fare, a team from the University of Michigan has shown.

This information could be used to determine which patients are most likely to benefit from additional therapies to head off the spread of the cancer to other areas of the body. With a new single-cell analysis service in Michigan’s Comprehensive Cancer Center, the researchers are making the necessary technology more widely available in the university system. They hope these “liquid biopsies” will be offered to patients within the next five years.

Circulating tumor cells, representing only about one in a billion cells in the bloodstream, are largely untapped sources of information about tumors, but new methods are bringing their diagnostic value ever closer to patient care. Sunitha Nagrath, a professor of chemical engineering who designs devices that can capture these rare cells, led a team including oncologists and surgeons to explore how cancer cells escape tumors and travel through the body in the bloodstream. This is how metastases, or satellite tumors elsewhere in the body, are thought to form.

“The tumors were constantly shedding cells even when they were small — that’s one thing we learned,” said Nagrath. “Although we define the tumors as early stage, already they are disseminating cells in the body.”

Early-stage lung cancer patients, whose tumors may only measure a few millimeters in diameter, are typically treated with surgical removal of the tumor, but the study results suggest that this may not be enough. A handful of patients had tumors that were shedding hundreds or thousands of tumor cells into the lung.

“Even though you removed the tumor, you left behind these hundreds and hundreds of cells,” said Nagrath. “If you know this patient walking out of the clinic is going to relapse after less than a year because of these cells, why don’t we treat them now?”

With a relatively small sample of 36 patients, the team can’t definitively say that an actively shedding tumor will lead to metastasis within a year, but Nagrath is exploring the predictive power of cancer cells drawn from the blood.

In particular, the study showed that clusters of two or more tumor cells indicated shorter survival times. Six of the nine patients whose cancer returned during the two to 26 months of follow-up had circulating tumor cells appearing in clusters.

“Ultimately, this method will help us look for and find potential markers for either metastatic spread or cancer detection,” said Rishindra Reddy, an associate professor of surgery who coordinated the blood samples and designed the study with Nagrath and Nithya Ramnath, an associate professor of medical oncology at the U-M Medical School.

“With a simple blood draw, we can tell the dynamic state of the disease during the treatment and after the treatment, monitoring it closely. If something has to show up on a CT scan, it may already be too late,” said Nagrath.

By Kate McAlpine, Marketing and Communications, College of Engineering
COOKIES, COFFEE, CHOCOLATE AND…GIN?

Chemical engineering students are getting a chance to apply their chemical engineering fundamentals to many food and drink related projects thanks to lecturer and research fellow Dr. Laura Hirshfield (BSE ’07).

Dr. Hirshfield previously taught our product design class for two years, and many projects involved the food and beverage industry, such as a straw with a coating that helps detect the presence of date rape drug. She also helped give our first-year students a better sense of the role of ChEs in the food industry through a Food Science and Engineering section of Engr 100, Introduction to Engineering. Students were introduced to chemistry and chemical engineering principles within the context of food: For example, they learned how heat transfer alters food properties or how to perform material balances to scale up food recipes for production. They investigated processes to make coffee and cookies and temper chocolate, recreated a popular food product with a constraint (such as nut-free Snickers bar or gluten-free Pizza Rolls), and worked on industrial projects with national and local food companies like Zingerman’s and General Mills.

This summer she led five teams of students in developing a blue gin as part of the University’s Bicentennial celebration, in collaboration with Ann Arbor Distilling Company. “We were very excited to see this project come off so well. This type of partnership with the University of Michigan opens up a whole new world to ChE students; a high-tech business in distillation where they can leverage their skills and advanced education,” says Rob Cleveland, Managing Director of Ann Arbor Distilling Co.

“Laura did an excellent job transforming a concept from a quick conversation into a wonderful experience for our students,” adds former chair, Mark Burns.

Faculty and staff had a great time during the taste testing event in August, and the team of Troy Khames, Thomas Hadlock, Margaret Braunreuther, and Heather Fairbairn was selected as the winners. (Heather and Troy are pictured in main photo.) Based on this experience, a distilling class will be offered as a special topics class in Winter term.

Thank you to our judges: Lola Eniola Adefeso, Mark Burns, Bryan Goldsmith, Johannes Schwank, Scott Fogler, Andy Tadd, Saadet Albayrak-Guralp, Brandon Johns, and Rob Cleveland.

CHRISTINE MOELLERING LEAVES THE DEPARTMENT

After almost 19 years in the ChE Undergraduate Office, Christine Moellering (left) left her position in early January to pursue a master’s in Occupational Therapy at Eastern Michigan University.

Barbara Mintz joined Laurel Neff and Susan Montgomery in the office at the end of January. Barbara is a graduate of our BSE in IOE program, so this is somewhat of a homecoming for her. She has jumped right into the position and has already proven to be a tremendous asset to the office.
Many of us in the chemical engineering community have been inspired by the life of Professor John J. McKetta, Jr. of the University of Texas. Some of us have heard snippets about his start as a first-generation American coal miner who decided to pursue chemical engineering, regardless of having no money to pay for college, writing to every department in the country until Tri-State University, now Trine, offered him a job he could pay tuition with; of how he earned his PhD from our department with Professor Don Katz, then went on to a successful 40+ year career at the University of Texas and advised presidents on energy policies; and of his deep love for his dear wife Pinky. We were impressed when we learned of his decision to donate back to the ChE department at Texas all his earnings through the years, rounded to $1 million, which was easily matched by his students. Some of us have had the privilege of meeting “Johnny” himself, and been charmed by his manner and energized by his enthusiasm.

How lucky for us that his granddaughter, Elizabeth Sharp McKetta, has written Energy: The Life of John J. McKetta, Jr. (https://utpress.utexas.edu/books/mcketta-energy). If you are a McKetta fan already, you’ll delight in learning more of the details behind the stories, and be regaled by new insights into the man, and the deeply personal stories in this loving tribute. If you have not yet met him, you’ll be fascinated, as the rising sophomore I recently loaned the book to was, by his story, which is not only the story of a strong, generous man but also the story of our profession, as McKetta shaped modern chemical engineering. All readers will be inspired by his path from humble beginnings to global impact, and by his dedication to his students, whom he still calls on their birthdays. The book is a quick read at about 200 pages, and it’s a book I’ll be rereading through the years to be reminded of what is possible with a strong work ethic, a passion for people, and a positive attitude.

We were excited to learn that Elaine Wisniewski, long-time Technical Communications instructor in our lab and design courses, completed her PhD in Technical Communication and Rhetoric at Texas Tech this summer. Her project, titled “Workplace communication practices and perceptions of novice engineers,” aimed to identify strengths and areas of improvement in the curriculum regarding communication instruction. Dr. Wisniewski particularly appreciated the contributions of ChE alumni, who volunteered to participate in surveys and interviews regarding their perceptions of novice engineers’ communication skills, and even allowed her to shadow their engineers to better understand their communication needs. Elaine adds, “Because of our generous U-M ChE alumni, I was able to see the facilities where our graduates work and observe how important communication skills are in their daily activities. Our engineers are more than excellent technical problem solvers. Our engineers are also excellent communicators. I am excited to bring my research findings into practical applications and classroom instruction to continue to prepare future Michigan ChE graduates.”

As Andy Tadd, design instructor states, “Elaine has been a critical part of our design course for many years. She brings industry experience and academic expertise to her role instructing and mentoring our senior students on how best to communicate their results and findings to a variety of audiences. More than just an instructor, she is an innovator in the classroom, willing to create and try new approaches to teach and illustrate applications of communications in the real world. She is a full partner in the instruction of the course, and I am grateful that she continues to work with our department so closely.”

We appreciate the contributions that Elaine and her colleagues in the Program in Technical Communication make to prepare our students for the workforce, and Elaine’s dedication in continuing her education while working full time for the benefit of our students.
PALENCIA MOBLEY (BSE ’01)
HELPING OTHERS IN THE CITY SHE LOVES

Who knew that the final design project for ChE 487 would chart the trajectory for what has been an amazing career for Palencia Mobley? The year she graduated, the design course studied the treatment process for pulp and papermill effluent for discharge to the public sewer system. At the time, Palencia had not decided exactly what she wanted to do, but consulting sounded like a good option.

In 2001, after interviewing with a variety of companies, she landed at Malcolm Pirnie (now Arcadis), a privately held environmental consulting firm ranked in the Top 25 firms by Engineering News Record. About a month into the job, she realized she would have to get her professional engineering license to succeed. Nervous about taking the Fundamentals of Engineering (FE) exam, she called Dr. Montgomery, who gave her a study guide and encouraged her to take it. “You have nothing to worry about,” she assured me. She was right, in the fall of 2001, Palencia passed her first high school commencement address exploring panels at local schools and gave her participation in numerous career development programs. In addition, she co-leads the STEM activities for the Ascend (Achievement, Self-Awareness, Communication, Engagement, Networking and Developmental Skills) Program with her Alpha Rho Omega Chapter. In addition, she also participates in numerous career exploration panels at local schools and gave her first high school commencement address this past June.

In 2001, she decided to pursue an MBA. But he told her she didn’t need an MBA to do the work she was doing, a master’s degree in engineering would take her much further in the business. She took on the challenge and began a master’s program at Wayne State University, graduating in 2004 with a degree in civil and environmental engineering. Thanks to the wise advice she received from her boss, her new degree opened every single door to get her where she is today in her career.

“Growing up in Detroit, there’s just something about this place that imbues you with hustle, determination, and the sheer will to just make it happen,” Palencia says. “In 2006, I became one of the youngest minority women to ever obtain a professional engineering license in Michigan.” For more than a decade, she continued to serve the public as a consultant, but in 2014, she had the opportunity to work for the city she so dearly loves. At the time, the city was at the beginning of the largest municipal bankruptcy in the history of the United States.

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In September of 2014, under the guidance of the city’s emergency manager, Kevyn Orr, most of the city’s creditors had agreed to the terms of the bankruptcy, but there was still one major enterprise of the city for which a resolution had yet to be reached. The fate of the Detroit Water and Sewerage Department (DWSD), which serves more than a third of Michigan’s population, was still unknown. In the spirit of regional collaboration, an agreement was reached to create a new regional public authority, the Great Lakes Water Authority (GLWA), to lease the regional DWSD facilities from the city of Detroit for $50 million per year for 40 years. So, Palencia spent the next year breaking up a billion-dollar public enterprise agency.

Appointed by Mayor Mike Duggan in fall of 2015, she serves as the deputy director and chief engineer for DWSD. The new DWSD is responsible for distributing treated water and collecting sewage and stormwater but no longer operates any treatment facilities. With the lease payment provided by GLWA, DWSD is rebuilding the city’s water and sewer infrastructure for current residents and future generations. “We’re engineering systems that are sustainable, resilient, and transform communities,” Palencia says. “We’re providing opportunities for Detroiters to be a part of the rebuilding of their hometown.” Everyday, she has the opportunity to be of service to people that live, work, and play in the 139 square miles she calls home. This is mission- and purpose-driven work and she loves every minute of it.

“Over the course of my career, I’ve realized the importance of mirrors and the concept of reflections. I did not know what a chemical engineer was or what they did but I decided that I was going to be one. Now that I am, another little girl does not have something to wonder, but she can see her reflection in me.”

Though work keeps her busy, Palencia stays committed to helping the Detroit Area Pre-College Engineering Program (DAPCEP) whenever they call on her. She also co-leads the STEM activities for the Ascend (Achievement, Self-Awareness, Communication, Engagement, Networking and Developmental Skills) Program with her sorority, Alpha Kappa Alpha Sorority Inc., Alpha Rho Omega Chapter. In addition, she also participates in numerous career exploration panels at local schools and gave her first high school commencement address this past June. ✨
For Eric Bernath, his last day in the office still resonates. “One of the leaders of my company stopped me as I walked through the headquarters building saying: ‘Young man, I hear you are leaving us to go live the dream’—which was not at all my frame of reference, but I could understand the perspective.”

After graduating from Michigan, earning a masters’ degree, and working 14 years in the biomedical industry, Eric made the rare decision to walk away from his career, donate everything to charity, and ride a motorcycle around the world. He set out from California to travel across all seven continents, 70 countries, and 100,000 miles on a motorcycle he had only recently learned to ride.

Starting out from Los Angeles, Eric rode 30,000 miles from Alaska to the tip of South America. He is now riding from the tip of South Africa to the northern-most road in Norway, exploring and photographing the world along the way. He takes a short break in his travels to share some thoughts and images with us.

**What was your motivation to take this trek?**

The routine can be the enemy—of creativity, of invention, of growth. Challenge is a necessity for growth and many of us reach a familiar place in our personal or professional life where our brain figures out a pattern, goes on autopilot, and stops stretching its muscle. I began to consider what might challenge me so much that it would frighten me if I ran towards it. And this is where I landed—to spend a couple years crossing the planet overland to discover it in astonishing ways. Travel by motorcycle allows me to meet fascinating people and cultures living in places beyond. And with that break in my old routine, I find that every minute the mind is learning something new, waking up, feeling alive.

**How did you research / prepare for the trip?**

All of life’s necessities had to fit on the back of my bike, and with that forcing function I realized a joyous simplicity in paring down my lifestyle to the essentials. And when you step away from that cycle of planning which so dominates the short work vacations we are used to, the mind stops worrying about what that day or that week might have in store.

**How has the experience changed your outlook on life?**

For me, I recognize I will return to a professional life. Until then, this trip is rewiring my mind and outlook to fully appreciate that the way one lives may not be the only way to live. That the world from your lens looks very different from someone else’s. That the lives we touch during our travels will be valued more than the things we buy or the years we worked at the office.

The adage goes that life feels really long when young, but becomes this strange quick blip. It goes by fast. But we can slow that down. Spend time creating something. Fill days with good family and friends. Touch people from other cultures and learn from their perspectives. Volunteer. I realize not everyone can undertake a grand journey in their lifetimes, but I hope my journey inspires a few others to grab hold of little opportunities to experience the most from their days.

Read more about Eric’s trip at [www.twowheelsonejourney.com](http://www.twowheelsonejourney.com).
Warren D. Seider was the 2016 recipient of the ChE Alumni Merit Award. He is Professor of Chemical and Biomolecular Engineering at the University of Pennsylvania. He received a BS degree from the Polytechnic Institute of Brooklyn and MS and PhD degrees from the University of Michigan.

For many years, he has contributed to the fields of process analysis, simulation, design, and control. In process design, he coauthored *FLOWTRAN Simulation - An Introduction* (with J.D. Seader and A.C. Pauls) and *Product and Process Design Principles: Synthesis, Analysis, and Evaluation*, 4th Ed. (with J. D. Seader, D. R. Lewin, S. Widagdo, Rafiqul Gani, and Ka Ming Ng).

He has coordinated the Penn design project course for over 35 years involving projects provided by many practicing engineers in the Philadelphia area. He is recognized for research contributions in phase and chemical equilibria, azeotropic distillation, heat and power integration, Czochralski crystallization, algae growth to biofuels, nonlinear control, and safety and risk analysis. He has authored or coauthored over 120 journal articles and authored or edited seven books.

Professor Seider was the co-recipient (with Professor J. D. Seader) of the AIChE Warren K. Lewis Award in 2004, and the recipient of the AIChE Computing in Chemical Engineering Award in 1992. In 2011, he received the AIChE F. J. Van Antwerpen Award, and in 2008, he was recognized by the AIChE Centennial Committee as one of “Thirty Authors of Groundbreaking Chemical Engineering Books.” He was elected as a Fellow of AIChE in 2005 and as a Director of AIChE in 1983, and has served as chairman of the CAST Division and the Publication Committee.

Professor Seider helped to organize the CACHE (Computer Aids for Chemical Engineering Education) Corporation in 1969 and served as its chairman. He is a member of the Editorial Advisory Board of Computers and Chemical Engineering.

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**2016 ALUMNI AWARD WINNER**

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Thank You!

Thomas G. DeJonghe (BSEChem 1962, JD 1966 University of San Francisco, MSChem 1973 University of California-Berkeley) recently made a gift to establish an expendable fund named the Thomas G. DeJonghe Scholarship Fund. The Fund will support one or two undergraduate students in the Chemical Engineering Department this calendar year. DeJonghe had a long and successful career at Chevron Texaco, where he served as patent attorney. He resides in Orinda, CA.
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Service Corps of Chicago, which provides management consulting services for nonprofits in the greater Chicago area. He also writes poetry, takes classes at Northwestern, and enjoys family (wife, 2 kids, and 4 grandkids, who are growing up too fast). He would love to hear from his old (you can take that 2 ways) friends—for phone or e-mail, 847-328-8859, ifmiller@sbcglobal.net.

**PETE LEDERMAN** (BSE ‘53, PhD ’61) and his wife Sue (BS ’58 LSA) celebrated their 60th wedding anniversary with their three miles west of his younger son, Leonard, and his wife, Leticia.

**NOEL DE NEVERS** (PhD ’59) spent most of his working life as a professor of chemical engineering at the University of Utah. He is best known for his engineering textbooks, the first Fluid Mechanics for Chemical Engineers, 3rd ed., McGraw Hill, 2005, has been in print since 1970. It was the first fluids textbook to work primarily with mass and energy (not vectors) instead of the mass and momentum (a vector) used by previous fluids books written by civil and mechanical engineers. Others joined him in this field, including his U-M friend and classmate Jim Wilkes.

Since retiring in 2002, he has published revised editions of his three textbooks, and, after 14 years of effort, published The Kolob Tragedy: The Lost Tale of a Canyoneering Calamity, Canyoneering USA, 2016, http://www.norwatters.com/KolobTragedy.html. He is no longer a vigorous outdoor person, but in his middle age he stood on the top of Kilimanjaro, Whitney, Rainier and Kala Pater, and was the official discoverer of Private Arch in Arches National Park.

**ROBERT LARKINS** (PhD ’59) is still in Houston but is downsizing to a retirement community. He enjoys following Men’s Glee Club activities as an alumnus of the group. Best wishes for continued ChE success.

**GLEN SMITH** (BSE ’59, MSE ’60, PhD ’65) retired from the Mead Corporation several years ago and recently moved to a continuing care retirement community called Bristol Village, where the members all live in individual homes.

**IRVING MILLER** (BSE ’60), and his wife are retired and enjoying life in Evanston, IL. He says, with the exception of the lakefront here, Evanston is a lot like Ann Arbor—one of the reasons they live there. He volunteers as an engagement manager for the Executive

**DON RAY** (BSE ’65) and Kay Ray (BSN ’67) celebrated their 50th wedding anniversary with their family on Mackinac Island.

**IN MEMORIAM**

Bruce Edward Banyai (BSE ’73) passed away on September 6, 2017. Bruce, a native of Michigan, worked for 28 years at Hercules before spending eight years at Novozyymes Biologicals and three years at Radford Army Ammunition Plant. He is survived by his wife of 42 years, Lois, and their 3 sons and 8 grandchildren.

The 4th Edition of **WARREN SEIDER’S** textbook (PhD ’60) has been published by John Wiley: Seider, W.D., D.R. Lewin, J.D. Seader, S. Widagdo, R. Gani, K.M. Ng, Product and Process Design Principles, 2017. He also delivered the keynote address in a memorial session to remember the contributions of Professor Stuart W. Churchill at the ASME-AIChe Summer Heat Transfer Conference in Bellevue, WA. He says that two memorial sessions are planned for the Minneapolis AICHE Meeting in October. Pete Lederman will be co-chairing the sessions with Seider, and Sharon Glotzer and Ron Larson will participate in the sessions.

**RHONDA GERMANY-BALLINTYN** (BSE ’79, MBA ’88 Finance) retired on March 31, 2017, from Honeywell where she served as chief strategy officer and chief marketing officer reporting to CEO for 15 years. She says she is now in the “give back” years of her career and has relocated to Old Mission Peninsula in Traverse City. Go Blue!!

**RICHARD SCHWARTZ** (BSE ’81, MSE ’88, PhD ’91) is the senior vice president of Process Development and Manufacturing at Syngeneic in Cambridge, MA. He was formerly at the National Institutes for Health.

**BOB RANGER** (BSE ’83) is working at Dow in Innovation, where he helps all Dow businesses to accelerate their growth and develop, and commercialize new technology. He recently served on the U-M ChE Alumni Board for 6 years, 3 years as chairman, and is currently on the U-M College of Engineering Alumni Board as vice chairman. He and his wife recently moved to Ann Arbor.

**MARK A. SMITH** (BSE ’83) has retired from Eli Lilly and Company after 31 years of service. His final position was as Director Technical Services, Vaccine Network. He says it was a privilege to work in the biotechnology field for his entire career, beginning as a chemical engineer from Michigan and Missouri, and through multiple opportunities to bring new medical treatments for people and animals to market.

He retired February 2017 and will continue to live in Indianapolis with his wife, Alice Martina Smith. He credits his Michigan education, and particularly Dr. Henry Wang’s biochemical option in chemical engineering in the early 80’s, for providing him a start in an incredible career. He looks forward to more time devoted to travel with his wife and family, pursuit of hobbies (music and sports car restoration), and service. He also expects to continue to provide consulting and project management services to the biopharmaceutical industry. He wishes the best to his Michigan colleagues!

**BRUCE VAUGHEN** (BSE ’84, 89 PhD, Vanderbilt) co-authored a book this year with James A. Klein titled Process Safety: Key Concepts and Practical Approaches. The text was published by CRC Press.
MARGARET GILLIGAN (BSE ’89) is the principal engineer for Coca-Cola’s Niles, IL facility. The Corporate Engineering Group has been decentralized as Coke sells off all of their bottlers to independent franchises. This September will be her five year anniversary with the company. Her entire 28-year career has been in the food and beverage industry.

DEBBIE SINGER’S (PhD ’91) oldest daughter, Jessica Singer (BS ’13), is engaged to be married to her fiancé, Tom Brady. No jokes here! Tom is a Michigan Dearborn EE. It’s nice to have another engineer in the family. Stephanie, her middle daughter (BSE ’14, MSE ’15), is currently in Louisville with Ford working on the launch of the Navigator 2018. Her youngest, Maxwell, will be a junior at Michigan and is working towards an economics degree. She says that although her family all bleeds blue, not all are engineers.

JEFF GRAY (BSE ’94), Professor of Chemical and Biomolecular Engineering at Johns Hopkins, was this year’s recipient of the AIChE’s David Himmelblau Award for Innovations in Computer-Based Chemical Engineering Education. Jeff was recognized for creating the PyRosetta biomolecular modeling and design platform and its teaching materials, including interactive workshops, videos and support material. (2017)

In 2017, PETE VALIANTOS (BSE ’94) was promoted to senior director of product development at E Ink. He recently celebrated 19 years at E Ink and 16 years of marriage to his wife, Tricia. Pete went to Taiwan and mainland China for the first time for E Ink Global Leadership Summits. He attained a Stanford GSBE LEAD certificate in Corporate Innovation, an awesome curriculum for those interested in making a change in their organization.

DOMENIC DE CARIA (BSE ’97) is living in the Cleveland area (Beat Ohio!) and has been with Lubrizol Advanced Materials for 13 years, most recently in a global business development role. He has a strong interest in finding new and challenging separations applications, and would invite anyone who shares that interest to contact him or connect with him on social media. After all, separations can truly bring us together…. He says his wife and daughters (7 and 14) would cringe if they saw that in print. Go Blue!!

ELLEN SCHWAB (BSE ’97) married John Respierski on November 7, 2015. Ellen is a patent attorney with Quinn IP Law and John is a residential homebuilder and owner of Edwin Anthony Homes. John and Ellen honeymooned in Hawaii and make their home in Royal Oak, Michigan.

SARAH (CUNNINGHAM) KUSISTO (BSE ’98) accepted a new position this year within Pfizer, moving from an API production engineering role to a combination engineering and management role in environmental operations. This new role offers new challenges, learning a new set of regulations and a new aspect of doing business in pharmaceutical manufacturing.

After 18 years in IT product development, LISA INGALL (BSE ’98), has launched the next chapter of her career with Couragecopia, a leadership coaching practice focused on helping managers and executives become more effective in the new world of work while truly enjoying their leadership roles. Contact her at lisa@couragecopia.com or check out https://couragecopia.com for more information!

MATT LIENING (BSE ’99) and his wife, Lisa, are living in Washington, IL. ‘They have a daughter, Grace, and a son, Tommy. Matt has been working as the engineering supervisor for the Large Engine design team at Caterpillar Inc., since 2015.

JENNIFER (CHEN) MORIKAWA (’00) gave birth in October 2016 to her second child, a baby boy, Dawson. Life has been very busy with dad, Robert, and big brother, Jason, in Livonia, MI.

KATIE GILHOOL (BSE ’00) got married to Matthew Dolliver on June 25, 2016. He attended the University of Florida.

NICK ORTIZ (BSE ’00) and his wife, Heather Stern, recently welcomed new baby, Elena, to join her two older brothers. The whole family is having a wonderful time!

DARREN N. GOETZ (BSE ’01) recently transitioned from his role as global manufacturing operations manager (MOM) for 3M’s Automotive and Aerospace Solutions Division (AASD) to the Lean Six Sigma Master Black Belt (MBB) role for 3M’s Advanced Materials Division (AdMD). He will be helping lead the company’s efforts in specialty chemical and materials (body armor, etc.) manufacturing. He is still in the Twin Cities of Minnesota, and is finally utilizing his chemical engineering degree!

KENNETH (K.C.) CHOMISTEK (BSE ’02, MSE ’06) and his wife, Andrea, celebrated the birth of their third daughter on August 30, 2016. Her name is Eva Marie Chomistek. She and everyone else at home seems to be doing well despite a significant increase in entropy. K.C. was recently promoted to the director of quality control and development at Singota Solutions in Bloomington, IN.

JOSEPH K. CHENG (BSE ’06) completed his PhD in chemical engineering at the end of 2016 at UT-Austin and currently is a postdoctoral fellow with Seattle Children’s Research Institute at the Ben Towne Center for Childhood Cancer Research.

KARIS (WHITE) FAUST (BSE ’05) and Randy Faust (BS ’04) had their fourth child, Penelope Joy, in December 2016. Karis works part time as a project manager for Applied Safety and Ergonomics, Inc. in Ann Arbor.

In 2017, KEVIN KERN (BSE ’06) completed his PhD in chemical engineering at the end of 2016 at UT-Austin and currently is a postdoctoral fellow with Seattle Children’s Research Institute at the Ben Towne Center for Childhood Cancer Research.

NAVIN BORA (BSE ’07) relocated to the San Francisco Bay Area, from Chicago, to join Weaver, Austin, Villeneuve & Sampson, LLP, a boutique intellectual property law firm based in Oakland, CA. He would be very happy to hear from ChE alumni in the Bay Area and looks forward to developing a professional network there.

HALLEY CRAST (BSE ’07) recently joined a startup called Sila Nanotechnologies located in Alameda, CA as a development operations manager. She was recruited for the job by a U–M alum! Sila focuses on making materials that will dramatically improve energy storage.

LAURA (BA ’08, MPH ’10) and STEPHEN KERNS (BSE ’08 & MSE ’09) welcomed a future little Wolverine Benjamin to their family on February 6, 2017!
FALL 2017

DANIELLE (KAPALA) WILLIAMS (BSE ’09) and Matt Williams (BSE ME ’09) welcomed their second son, Asher Josiah Williams, on January 18, 2017.

KATIE (LIBICH) TRONGO (BSE ’09), currently living in Houston, TX, is celebrating 7 years of marriage to her high school sweetheart. They have a one-year-old daughter and a three-year-old son, and two dogs. She is celebrating one year in her new role as lab supervisor at Shell Oil Company. Shell has been a great place to work the past eight years and hopefully many more to come!

STEPHANIE SNOBLEN (BSE ’09) married Jacob Paloszari on May 27, 2017 during a Michigan “destination” wedding in Lake Leelanau & Traverse City.

CHRISTINE (CURRAN) MAHER (BSE ’10) has changed positions at ExxonMobil, and is now a planning advisor in Upstream Business Analysis & Reporting.

MICHAEL D’HONDT (DDS Dentistry ’13) is now a dentist.

ALEX DOWLING (BSE ’10) started a new position in Fall 2017 as an assistant professor of chemical and biomolecular engineering at the University of Notre Dame.

JOSEPH JANIAK (BSE ’10) started a new job as a manufacturing engineer with Medplast in Grand Rapids, MI.

KEVIN KASUNIC (BSE ’10) was married to Maggie Wurzer on June 10, 2017 in Houston, Texas. Kevin graduated with his MBA from Rice University in 2016 and works as a product marketing manager in the chemicals industry.

MAX RUTZ (BSE ’10) and his wife had a baby girl, Marta, in February 2017. He has recently moved into a new position at Delta Air Lines as a safety director.

BERNIE LU (BSE ’11) just started his MBA for professionals at Rice University in Houston, TX.

BRIAN WEEDEN (BSE ’11) and Cassie Cooke (BSE ’11) got married in August 2017! They are living in the San Francisco Bay Area, where Brian works at Chevron and Cassie works at The Clorox Company.

After 5 years of teaching Pre-AP Chemistry, AP Chemistry, and AP Environmental Science along the Texas-Mexican border, JOSH LUMLEY (BSE ’12), returned to the wonderful state of Michigan. In July 2017, he started as an HVAC (Heating, Ventilation, and Air Conditioning) Product Development Engineer at Hanon Systems.

ALEX WONG (BSE ’12) had been in grad school at UC Berkeley since he received his bachelor’s degree and now has graduated with a PhD in chemical engineering! He and his wife, a fellow Wolverine, will travel this fall to Iceland, France, Poland, Italy, Croatia, Spain, Hong Kong, Japan, Vietnam, and Thailand. After that, in December, they will return to Michigan and hopefully find work near their families in Southeast Michigan—Ann Arbor would be nice!.

ERIC RAYNAL (BSE ’12) graduated from medical school at Oakland University William Beaumont School of Medicine in 2017, and started his residency at Indiana University/Riley Hospital for Children in pediatrics, in Indianapolis.

MOLLY ADOLPH (BSE ’14) is excited to announce that she got engaged on vacation in San Diego in December and will be getting married in October 2018!

CASSANDRA BOSTON (BSE ’14) has been working for Black & Veatch in Kansas City. She was engaged in December 2016 to a firefighter in Lenexa, KS and the couple is busy enjoying every minute of planning their wedding and fixing up their new house. She recently resigned from her position as a chemical engineer to pursue a Doctor of Dental Surgery degree at the University of Missouri-Kansas City. She and her husband are excited about this career change and look forward to the adventures that lie ahead.

ISABEL COSNAHAN (BSE ’14) was recently engaged to Craig Brissman. He is a 2012 Purdue graduate and they both work for P&G in the Cincinnati area.

DAVID FILLINICH (BSE ’14) has been working as a technology consultant to the Federal government in Washington, D.C., for Accenture ever since graduation.

JACK POBEREZNYY (BSE ’14) and ERICA (TIEDEMANN) POBEREZNYY (BSE ’14) were married on September 4, 2016 in Michigan. They currently live in Reston, VA and both work at Bechtel.

JACKIE REIMANN (BSE ‘14) got married in September 2017 to William Snyder.

MARIA (LIGESKI) BEST (BSE ’16) completed her degree in December 2016 and took a sales engineer position with Johnson Controls Inc., in January at their Ann Arbor office. She married Michael Best in May, her college sweetheart and a ChE from Michigan Tech.

D’ARCY COOK (BSE ’17) got a job at GHD Inc. in Farmington Hills, MI as an air quality engineer. She still lives in the Ann Arbor area.

HANNAH ETTENBERG (BSE ’17) lives in Houston, TX and is working at Plug Power.

ANDREW LONG (BSE ’17) lives in Houston, TX and is working at the NASA Johnson Space Center as a project engineer. He is also a part-time University of Houston Law School student.