JUNG HELPS BRING MIRRAGEN TO MARKET
This high-resolution image shows how different cooling rates in glass can create a visual phenomenon when the sample comes in contact with other surfaces, such as a metal plate. Stresses from cooling alter the bonds from their normal length, and that changes the local index of refraction. This causes the light to be bent at different angles.
DEAR ALUMNI, COLLEAGUES AND FRIENDS

On behalf of the students, staff and faculty of the Department of Materials Science and Engineering, welcome to the 2017 edition of our newsletter.

We are in the midst of another transitional year for the department, with former chair Matt O’Keefe leaving Missouri S&T for Ole Miss, where he will become the executive director of the Haley Barbour Center for Manufacturing Excellence in January. This leaves some big shoes to fill in MSE, and I want to thank Matt for his 18 years as a metallurgical engineering professor and for his time leading our department.

As interim department chair, I can assure you that nothing will change with regard to the success of our students being our top priority. Hopefully our great staff, Denise Eddings and Teneke Hill, will keep me in line.

We’re also saying goodbye to another friend and colleague, Len Rahaman, who officially retired on September 1 and has moved closer to his family in greater Chicago. We thank him for his amazing 31-year career and all that he did for ceramic engineering, biomaterials, and for the MSE department as a whole. We wish Len and his wife Vashy all the best in their new lives.

We also welcome back two new faculty members — and welcome back two faculty members.

Thanks to a strategic hiring initiative on campus for our new Enabling Materials for Extreme Environments signature area, we’ve added David Lipke and Haiming Wen to the department. Dave comes to us from Alfred University and works on high temperature ceramics and composites for extreme environment applications. Haiming comes to us from a joint appointment between Idaho State University and the Idaho National Laboratory and works in the area of nanostructure metals for nuclear and other extreme environment applications.

As for those who ventured away from the second floor of McNutt Hall, we first welcome back Dick Brow, who didn’t have to go far to see the light still shining from his old office. Dick did an amazing job as interim vice provost and dean of the College of Engineering and Computing, but is thankfully back in MSE where he can teach more students about the uber material — aka glass.

We also welcome back Bob Schwartz, who since 2007 has been vice provost for academic affairs at Missouri S&T, chief of staff to the president of the University of Missouri System and most recently interim vice president for academic affairs and research and economic development at the system. We look forward to Bob’s wisdom and getting him back in the classroom.

And let’s not forget the amazing students we have in our department: 222 undergraduate and 57 graduate students at the start of the new school year. In the lab, research and development in MSE is on a definite upward trend, with many exciting new research projects. The department accounted for more than $4 million in research expenditures this past fiscal year, and with the growth in faculty, I see this continuing to increase in the coming year.

Please continue reading for more about the exciting activities and accomplishments of our students, staff and faculty. We would not be where we are today without you, our alumni, colleagues and friends of MSE. And next time you’re in Rolla, please stop by so that we can thank you in person and show you around the department.

Warm Regards,

Greg Hilmas
Curators’ Distinguished Professor of ceramic engineering, interim chair of materials science and engineering
When it comes to materials science and engineering, there’s more than a bit of artistry involved. At any given time, its practitioners may tame glass, shape steel or push the boundaries of biomedicine.

And those rigid lines dividing creative spontaneity from analytical discipline? They’re often downright blurry, if not overlapping.

That recognition of the common ground found in venues as varied as Missouri S&T's hot glass shop and foundry and Winthrop University’s art galleries and sculpture gardens is driving an art-meets-engineering collaboration of S&T’s College of Engineering and Computing with kindred minds (and one set of actual kin) at the South Carolina liberal arts school.

The project began when Parker Freudenberger, a Missouri S&T doctoral student in materials science and engineering, was visiting her younger sister Chandlee at the public university in Rock Hill, S.C., near Charlotte.

Parker, a Graduate Assistance in Areas of National Need (GAANN) fellow whose research involves the study of phosphate glasses for optical applications, was asked to provide technical advice to a Winthrop art student.

From there, the exchange was born, with Chandlee Freudenberger coming to Rolla in December 2016 before Parker and Mary Reidmeyer, teaching professor of ceramic engineering, went to South Carolina in March.

In Rolla, the visiting artist worked in S&T’s hot glass shop and foundry, where she learned how to blow glass and refined her metal forging skills before joining a group of S&T students to design a sculpture — two halves of a metal tree, representing the two schools — that could be displayed either separately or together.

The metal work took place at Winthrop, with the S&T contingent in charge of the LED-lit fruits dangling from the tree limb and a pair of button mushrooms, all shaped from fluorescent glass.

Parker Freudenberger lectured at Winthrop on “Glass As An Art Material,” outlining its basic optical and thermal properties, from the refractive index, dispersion and color to ways to measure stress and viscosity. Her Missouri S&T doctoral adviser is Richard K. Brow, a Curators’ Distinguished Professor of ceramic engineering who at the time was interim vice provost and dean of S&T’s College of Engineering and Computing (CEC).

Beyond the sculpture (half of which resides at Winthrop, the other in the CEC offices), the exchange of ideas provided S&T’s engineers with an intimate look at the creative process. The artwork was on display at Curtis Laws Wilson Library as part of a special summer exhibit.

Parker Freudenberger, a Ph.D. student in ceramic engineering at Missouri S&T, works on glass artwork developed in collaboration with her sister, Chandlee Freudenberger, a student at Winthrop University.
“They look at things from a different perspective than Parker and I do,” says Reidmeyer, who is also outreach coordinator for the materials science and engineering department. “They’re not immediately constrained by what the material says they can do.”

Conversely, she says, “Some of the most successful artists I’ve ever met are the ones who do learn about the properties of the materials. Because then they know how far they can push.”

Reidmeyer’s own interests in art run deep. Before becoming an engineer, the northeast Missouri native attended what was then Hannibal-LaGrange College for two years as an art major. Reidmeyer then transferred to Rolla to finish her undergraduate studies. She also received her doctorate from S&T.

Parker — who before going to Winthrop was already known among her younger sibling’s friends as the “glass sister” — describes a sense of “fearlessness” inherent in the artist’s creative process.

“A lot engineers get caught up in the rules,” she says. “You can calculate all you want, but sometimes you just have to go do it.”

The trip east was a homecoming of sorts for Parker, who received her bachelor’s degree in ceramic and materials engineering from Clemson University in 2014 in the sisters’ hometown of Clemson, S.C.

Shaun Cassidy, a Winthrop professor of fine arts, is working with his S&T counterparts on ways to extend the partnership beyond the recent exchange. As an artistic consultant for The Innovation Institute, a program that provides creativity training to Charlotte corporate, business and scientific leaders, he’s a vocal advocate for what he calls “cross pollination.”

“As an artist, I’m always interested in collaborating with people with a different skill set than my own. It opens up the possibilities. You can’t get to innovation without going through creativity. But a lot of people have forgotten how to use the creative muscle.”

Chandlee Freudenberger hopes the nascent collaboration will mean fewer “missed opportunities” for scientists and engineers to team up with painters, sculptors and glassblowers.

“If you don’t have an understanding of how the natural word works, as an artist, you’re not going to get anywhere,” she says. “And if you’re a scientist and can’t think creatively, you’re also not going to get anywhere.”

NEW FACULTY JOIN SIGNATURE AREA

Two new faculty members are joining the department this fall as part of the university’s focus on Enabling Materials for Extreme Environments, one of four designated signature research areas.

David W. Lipke, an assistant professor, comes to Rolla after three years on the faculty at Alfred University. He earned his Ph.D. in materials science and engineering from the Georgia Institute of Technology in 2011 and a bachelor of science in engineering from Harvey Mudd College in 2005. Prior to his time at Alfred, he was a National Research Council research associate at the Air Force Research Laboratory at Edwards Air Force Base in California. His research focuses on novel processing to synthesize designer microstructures as means to probe fundamental structure-property relationships, especially in the areas of ultra-high temperature oxidation protection and composite mechanics. Lipke is funded by the Office of Naval Research to investigate the stability of materials in aggressive atmospheres and high-intensity radiation.

Haiming Wen, assistant professor, most recently worked as a research assistant professor at Idaho State University with a joint appointment at the Idaho National Laboratory. He earned his Ph.D. in 2012 in materials science and engineering from the University of California, Davis, and had postdoctoral appointments at Northwestern University and the Idaho National Laboratory. Wen has extensive experience in research and development of advanced materials, including fabrication, microstructural characterization and investigation of mechanical behavior. He also has significant experience in irradiation behavior and fission-product transport in high-temperature reactor fuels and cladding materials. Wen is leading multiple externally-funded research projects related to materials for energy applications.
Minutes from the Missouri S&T campus, a global center of specialty glass manufacturing sits in a nondescript industrial park just past an Interstate 44 truck stop. Mo-Sci Corp. got its start in 1985, when then-S&T professor Delbert Day formed a spinoff company to manufacture TheraSphere, irradiated glass beads used to treat inoperable liver cancer. Day, CerE’58, the co-inventor of TheraSphere, is long retired from Mo-Sci, having sold the company to his son, Ted, a decade ago. But thanks to a late-career encounter with a determined freshman in an introductory ceramic engineering class, Day’s legacy persists at a company that has grown into a worldwide manufacturer that now reaches into the health-care, automotive, energy and aerospace industries.

That freshman, Steven Jung, parlayed his first-year encounter with Day into a summer job at the decorated professor’s lab. It would be the beginning of a 10-year academic alliance for Jung, CerE’05, MS CerE’07, PhD MSE’10. Forget about any other destinations. Immediately after graduation, it was next stop, Mo-Sci.

“I did my dissertation defense on a Thursday,” says Jung, who joined the company as a senior research and development engineer and is now chief technology officer. “And I started here on the following Monday.” Jung came to Rolla in 2000 from Freeburg, Ill., a town 30 miles southeast of St. Louis. He spent two years as a varsity Miner swimmer before deciding to more fully focus on academics.

By Jung’s first year, Day had mostly stepped aside from teaching undergraduates and mentoring graduate students, though he maintained an active glass research lab. But savvy talent scout that he is, Day insisted on continuing to teach what was then known as Ceramics 90.

“That allowed me to see the undergraduates at an early level,” Day recalls. “Otherwise I wouldn’t see them until their junior or senior years, when those interested in graduate school would be tied up with another faculty member.”

Though he would become a Day protégé with 15 U.S. and foreign patents to his name before even leaving campus, graduate school didn’t initially interest Jung. He changed his stance after an eight-month co-op with Kohler Co., realizing that the path to management often involves an advanced degree or two.

Once in grad school, a one-year internship at the Savannah River National Laboratory in South Carolina led him to the next obvious step in pursuit of a doctorate. Jung and Day decided to collaborate on research into the effect of borate-based glasses on soft tissue, the next frontier for a technology that began with the use of silicate-based bioactive glasses to repair bones, bolster orthopedic hardware and enhance dental care.

Turning to his mentor’s one-time company to take his ideas to market was an obvious step, according to Jung. “I didn’t interview anywhere else,” he says. “I knew that we were going to commercialize the majority of my research.”

Seven years later, a dissertation that took root at Missouri S&T’s Graduate Center for Materials Research and the Center for Bone and Tissue Repair and Regeneration has developed into Mirragen, a “biore Absorbable” bandage made from glass that simultaneously promotes soft tissue growth. Mo-Sci licensed the technology from S&T in 2011.

It’s a medical products innovation that Jung, Ted Day and the Mo-Sci spinoff
Engineered Tissue Solutions are betting could transform an advanced wound care market that by some estimates could soar to a $15 billion industry by 2020.

In August 2016, the U.S. Food and Drug Administration approved Mirragen (previously known as DermaFuse) for human use to treat several types of persistent wounds, including bed sores, pressure ulcers and chronic, non-healing diabetic wounds.

The governmental approval follows a clinical trial at Phelps County Regional Medical Center (PCRMC) in Rolla in which dozens of patients with diabetic and venous stasis ulcers and bed sores showed more rapid healing, with the improvement at times apparent within days of treatment.

“People who were looking at having amputations didn’t have to lose their limbs. Wounds that wouldn’t heal or would otherwise take months to heal were doing so in relatively short periods of time,” says Jung.

“Not only will (the bioactive glass fibers) heal wounds, it will stop bleeding,” he adds. “It’s a fantastic hemostatic material.”

A similar product, Rediheal, also stemming from Jung’s research at S&T, has been successfully used by veterinarians for the past three years to heal major wounds in animals.

In early April, Jung and the ETS team traveled to a wound-care industry event in San Diego to unveil their new technology. That was followed by a trip to promote the technology in South Korea before rounding out the month at the annual Ceramics Expo, a manufacturing trade show for ceramic materials and technologies in Cleveland.

While starting out with a soft product launch, the Mo-Sci team hopes that Mirragen will one day be used by battlefield medics, or even move from a specialized medical device to an over-the-counter product suitable for household medicine cabinets.

Yet despite its immediate and long-term promise, the wound care product is far from Jung’s only workplace project. As CTO and in his former role as Mo-Sci’s director of new product development, Jung has his hand in dozens of different to-do lists at any given time.

“We’re always trying to come up with new types of glass products to offer,” he says. “Part of what we do in R&D is on the research side, come up with something nobody is doing, and on the development side, make it profitable to offer that service.”

Jung is teaching on campus this fall as an adjunct professor in MSE, where he lectures on his specialty: biomaterials and tissue engineering.

For Delbert Day, the continued success of perhaps his most accomplished graduate student is an accomplishment the 80-year-old Curators’ Distinguished Professor emeritus calls a career highlight. That’s no small feat for someone who is the university’s only member of the National Academy of Engineering, a recent inductee into the National Academy of Inventors and a civic leader whose name graces the new Delbert Day Cancer Institute at PCRMC, where his son, Ted, chairs the charitable foundation.

“People encounter my former students — my output — a whole lot more often than they might read a technical article on glass research,” Day says. “Steve’s accomplishments, and those of many other of my students, teach me that I made the right choice.”

PSMRC UPDATE

The Peaselee Steel Manufacturing Research Center is now in its fifth year of operation, having grown to 14 industrial members: ArcelorMittal, AK Steel, Gerdau, Imerys, MetalTek, Morco, North American Stainless, Nucor Steel, SSAB, US Steel, Vesuvius, Magnesita, CBMM and our newest member, Timken, which joins us in January. This brings the center’s budget to just over $800,000 in annual support of steel-related research at the PSMRC.

In faculty news over the past year, Dr. Von Richards officially moved to emeritus status and Dr. Laura Bartlett has joined us as a PSMRC investigator to assume Von’s responsibilities. Also, Elizabeth Peterson, completed her master’s degree with a focus on continuous casting mold fluxes this year and joined SSAB as a process engineer at their steelmaking facility in Mobile, Alabama. Richards, Andrew Russo, Jeffrey Smith, and center director Dr. Ronald O’Malley won an Association for Iron & Steel Technology best paper award for “Mechanism for Carbon Transfer from Magnesia-Graphite Ladle Refractories to Ultralow-Carbon Steel” at AISTech 2017 in Nashville in May.

The center’s active research projects currently include: grain refinement during solidification of austenitic steel; hot working material property measurement; modeling and simulation of steel-forming processes; non-metallic inclusion engineering and clean steel research; third-generation advanced high-strength steel development for automotive and defense; and next generation slag-line refractory development.

To facilitate ideas for new projects as some of the existing projects reach completion next year, we recently conducted an off-site brainstorming session with our membership at ArcelorMittal’s facilities in Burns Harbor, Indiana. The meeting was a great source of inspiration and new ideas industry research. The PSMRC faculty team at Missouri S&T will use this input to develop formal project proposals that will be voted on by PSMRC-IAB membership to select the next research projects that will start in July 2018.
MILLER, MOATS, ABBEY HONORED BY COLLEGE OF ENGINEERING AND COMPUTING

Two Department of Materials Science and Engineering faculty members and a doctoral student have been recognized by the College of Engineering and Computing for their research prowess, teaching excellence, service contributions and scholarly productivity.

Michael Moats, associate professor of metallurgical engineering, was named one of six CEC Dean's Scholar in October 2016. The new award honors assistant and associate professors who were nominated by their department chairs and selected by a five-person CEC committee made up of senior professors from the college’s nine departments. The two-year title includes a $10,000 research stipend.

F. Scott Miller, a teaching professor of metallurgical engineering, was named a CEC Dean's Educator Scholar in March. The two-year award recognizes tenured and non-tenure track faculty and includes a $5,000 stipend.

Miller also serves as associate chair for undergraduate programs in the MSE department. In that capacity, he teaches hundreds of students each semester — from first-year intro classes to graduate seminars — while also heading the Advanced Materials Characterization Lab.

“Without fanfare or attention, Scott does all of the little things that make students successful,” says former department chair Matt O’Keefe. “His calm and thoughtful demeanor is well-suited to help guide a young person on a successful career path. “The concern he has for each and every student’s welfare is genuine.”

And doctoral student Charles Abbey was named one of 10 CEC Dean’s Ph.D. scholars in May. Abbey’s graduate work focuses on the investigation of anode processes during copper and zinc electrowinning in synthetic sulphuric acid electrolytes.

Faculty winners received the news in surprise classroom visits and were later recognized at a ceremony at Hasselmann Alumni House. The doctoral students were also honored at a Havener Center reception.
FACULTY AWARDS AND PROMOTIONS

Each year several awards are given to faculty members who have distinguished themselves by their contributions to Missouri S&T:

Caizhi Zhou, Roberta and G. Robert Couch assistant professor of materials science and engineering, received a 2017 National Science Foundation CAREER award for a project titled “Understanding Interface-Mediated Deformation in Layered Composites through Modeling and Experiment.”

Gregory Hilmas, Curators’ Distinguished Professor of materials science and engineering, received a campus Outstanding Teaching Award for 2015–16 and was promoted to interim chair of materials science and engineering.

Jeffrey Smith received a campus Outstanding Teaching Award for 2015–16 and was promoted to professor of materials science and engineering.

Mohsen Asle Zaeem, assistant professor of materials science and engineering, won a 2016 Faculty Research Award.

Mary Reidmeyer was promoted to teaching professor of materials science and engineering.

Joseph Newkirk was promoted to professor of materials science and engineering.

FIVE STUDENTS NAMED CATERPILLAR-APEC SCHOLARS

Four undergraduate students and one doctoral student in materials science and engineering have received annual scholarships through a joint effort with Caterpillar Inc. to promote economic development in the Asia-Pacific region.

The undergraduate students received $2,500 and research assistant positions on Caterpillar-sponsored projects in the Missouri S&T materials science and engineering department. The Ph.D. student received an annual stipend of more than $27,000 and an additional $10,000 for tuition and research support for the duration of his graduate program.

The university’s Caterpillar-APEC Scholars Program began in 2014 as an outgrowth of Asia-Pacific Economic Cooperation, a 22-country partnership that works to support sustainable economic growth and prosperity in the Asia-Pacific region.

“Extending the university’s global reach while training the next generation of engineers is part of our core mission,” says Matthew O’Keefe, professor of metallurgical engineering and the former department chair. “The partnership with Caterpillar allows Missouri S&T to also keep abreast of industry needs amid a dynamic and ever-changing world economy.”

Linda Harrell, Caterpillar’s Advanced Materials Technology Research manager, says, “This scholarship program offers a great research collaboration opportunity for our company, Missouri S&T and the students. It brings together our two organizations’ collective expertise, foundry capabilities and equipment that complements what we each have available at our locations. Beyond receiving scholarship money, the students work with us on real-world problems to grow their capabilities, while Caterpillar gets the benefit of exposure to the bright minds and fresh perspectives of the next generation of brilliant innovators.”

The four undergraduate scholarship winners are:

- Aleksandr Chernoff, senior, of Glenelg, Maryland;
- Joshua Green, senior, of Springfield, Missouri;
- Rebecca Molt, sophomore, of Camden, Missouri;
- Hannah Westin, senior, of Holts Summit, Missouri.

The Caterpillar-APEC fellow is Jie Wan of Xi’an in the Shaanxi Province of China, one of the APEC member nations. Wan’s doctoral research focuses on developing advanced white cast iron seal ring technology to improve the performance of large earth-moving vehicles. Under the guidance of David Van Aken, a Curators’ Distinguished Professor of metallurgical engineering, his work focuses on developing new alloys and associated processing methods to improve wear performance, reduce cost and improve manufacturing.
Mary Reidmeyer, teaching professor of ceramic engineering and outreach coordinator in materials science and engineering at Missouri S&T, has been named the recipient of the inaugural Elizabeth Cummins Women’s Advocate Award at Missouri S&T. She was honored during a campus ceremony on Wednesday, April 19.

The award is given to any Missouri S&T employee, regardless of gender or job designation, who demonstrates commitment to the women on campus through mentorship and advocacy and by setting an example through professional achievement.

As part of the award, Reidmeyer received a $1,000 stipend funded by Missouri S&T graduate Cynthia Tang, founder and former chair of Insight Industries Inc.

“In my 10 years at Missouri S&T, I’ve encountered dozens of amazing role models, professors, fellow students and colleagues. However, Mary has been the one constant support through the years,” wrote one nominator. “But what sets Mary apart … is the direct mentorship I’ve received from her over the years — woman to woman.”

Under Reidmeyer’s leadership as recruitment and outreach coordinator, undergraduate enrollment in ceramic engineering has doubled, and 50 percent of that enrollment is female. She is co-director of the Missouri S&T Materials Camp, coordinator of the department’s Jackling Introduction to Engineering curriculum, and a mentor who has encouraged future generations of female scientists and engineers through K-12 programs including Expanding Your Horizons, EroGirl and the Society of Women Engineers’ lock-in conference.

“Perhaps Reidmeyer’s greatest achievement to date is the widely known and highly successful Hot Glass Shop, which she organized about seven years ago, along with a new student group, the Gaffer’s Guild,” wrote another nominator. “The Hot Glass Shop is a very effective recruiting tool and is kept busy giving demonstrations to prospective students, alumni and visitors from around the world.”

Reidmeyer earned bachelor of science, master of science and Ph.D. degrees in ceramic engineering from Missouri S&T in 1978, 1984 and 1989, respectively. Her research focuses on processing, product development, glasses, heat- and corrosion-resistant coatings, deposition methods, high-temperature lubricants, and consumables for the metal casting industry.

“I have worked with Reidmeyer in a variety of roles for over 25 years, and she is one of the most enthusiastic members of the materials science and engineering department in the areas of teaching, outreach, and overall service to...
the department and the university,” wrote another nominator.

This was the inaugural presentation of the Elizabeth Cummins Woman’s Advocate Award, named for the professor emerita of English and technical communication at Missouri S&T and S&T’s first Woman of the Year. Cummins, who served as chair of English and technical communication, was the first woman to chair an academic department at S&T.

“We need as many voices as possible to speak for women on campus, particularly when they want to go into STEM fields, but also for women who want to go into the humanities,” says Cummins. “The ultimate aim is to have a voice speaking out for women’s issues, noting their intelligence and ability, and then the women themselves will have the confidence to also become a voice.”

“I felt that female faculty are supported and mentored by many people, and I wanted to recognize and publicly support these mentors, regardless of their gender or position at the university,” says Tang, who established the award in honor of one of her own mentors.

“I named this award after Liz Cummins as a way to honor an amazing woman who has supported so many women in so many ways during her career,” Tang says.

“The path you take in life is guided by your choices and some heavy doses of fate and fortune,” Ely said. “There is no perfect path, just as there is no perfect work/life balance.

“In my time as a metallurgist, a career woman, a wife and a mother, I’ve learned to surrender to imperfection, accept the life imbalance, take the help, live in the moment and treasure relationships above all else.”

Ely earned a bachelor’s degree in metallurgical engineering from Missouri S&T in 2004 and started her professional career as a metallurgical process engineer at Olin Brass. Since 2010, she has worked for GKN Aerospace in a variety of roles, including lead manufacturing engineer on the Boeing 787-9 wing rib package. Today Ely is the head of technology for GKN Aerospace-Aerostructures North America, where she leads a team that develops advanced manufacturing processes for many aerospace applications.

The Thomas J. O’Keefe Lecture Series at Missouri S&T was created in memory of O’Keefe, Curators’ Distinguished Professor emeritus of metallurgical engineering. He earned bachelor’s and Ph.D. degrees from the university and was a student and professor in the metallurgical engineering department from 1953 until his death in 2008. The lecture series is funded by Joe and Sally Rupp. Joe Rupp was a student of O’Keefe's and earned a bachelor’s degree in metallurgical engineering from S&T in 1972.

Mary Reidmeyer (left), teaching professor of ceramic engineering and outreach coordinator in materials science and engineering, is pictured with Elizabeth Cummins, professor emerita of English and technical communication. Cummins was the first woman to chair an academic department at S&T.

WORK/LIFE BALANCE SUBJECT OF O’KEEFE LECTURE SERIES

A metallurgical engineering graduate of Missouri S&T shared her perspective on work/life balance at the eighth annual Thomas J. O’Keefe Lecture Series.

Laura Lee Ely reminisced on her personal and professional past and discussed her post-college shortcomings — and how she worked to fix them.

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MICHIGAN EXPERT DELIVERS GOLICK LECTURE

Nationally renowned expert Alan Taub addressed the challenges facing today’s materials scientists during the 25th A. Frank Golick Lecture in materials science and engineering.

Taub, a professor of materials science and engineering and mechanical engineering at the University of Michigan, presented on two topics during a two-day campus visit in late April: the first lecture was titled “Aligning Carbon Nanotubes in Polymer Matrices by Applying Electrical, Magnetic and Shear Forces, while the second was titled “Challenges to Reduce Weight in Transportation Applications.”

The Golick lecture series is named after a 1918 metallurgical engineering graduate. It was created in 1969 through a memorial fund established by Golick’s widow, Loree, to attract nationally recognized metallurgical engineers to the campus to interact with the faculty and students, and to present a lecture series.

Golick was associated with several ferrous and nonferrous metal producers during his early career. He developed a number of important new applications for both classes of metals before moving into the marketing field upon joining LaSalle Steel Co. in 1939. His successful career in the steel industry resulted in his appointment as vice president for sales in 1946, a position he held until his death in 1966.

Taub earned a bachelor of science degree in engineering in 1975 from Brown University and a Ph.D. in applied physics in 1979 from Harvard University. He was the vice president of GM Global Research and General Motors Co.; chief technical officer of LIFT; managed Ford Motor’s material science department; and was a senior lecturer on materials science at Massachusetts Institute of Technology.
WITH YOUR SUPPORT, THERE'S NO LIMIT TO WHAT WE CAN ACHIEVE.

Thank you to everyone who made contributions to last year’s Phonathon. This fall, a student representative will call you to swap stories about your Rolla experiences, share information about the university and talk with you about making a gift to S&T.

Help keep S&T’s future bright. Answer the call.