



01 Feb 2019

The Bridge Newsletter Spring 2019

Missouri University of Science and Technology

Follow this and additional works at: <https://scholarsmine.mst.edu/bridge>



Part of the [Architectural Engineering Commons](#), and the [Civil and Environmental Engineering Commons](#)

Recommended Citation

Missouri University of Science and Technology, "The Bridge Newsletter Spring 2019" (2019). *The Bridge Newsletter*. 1.

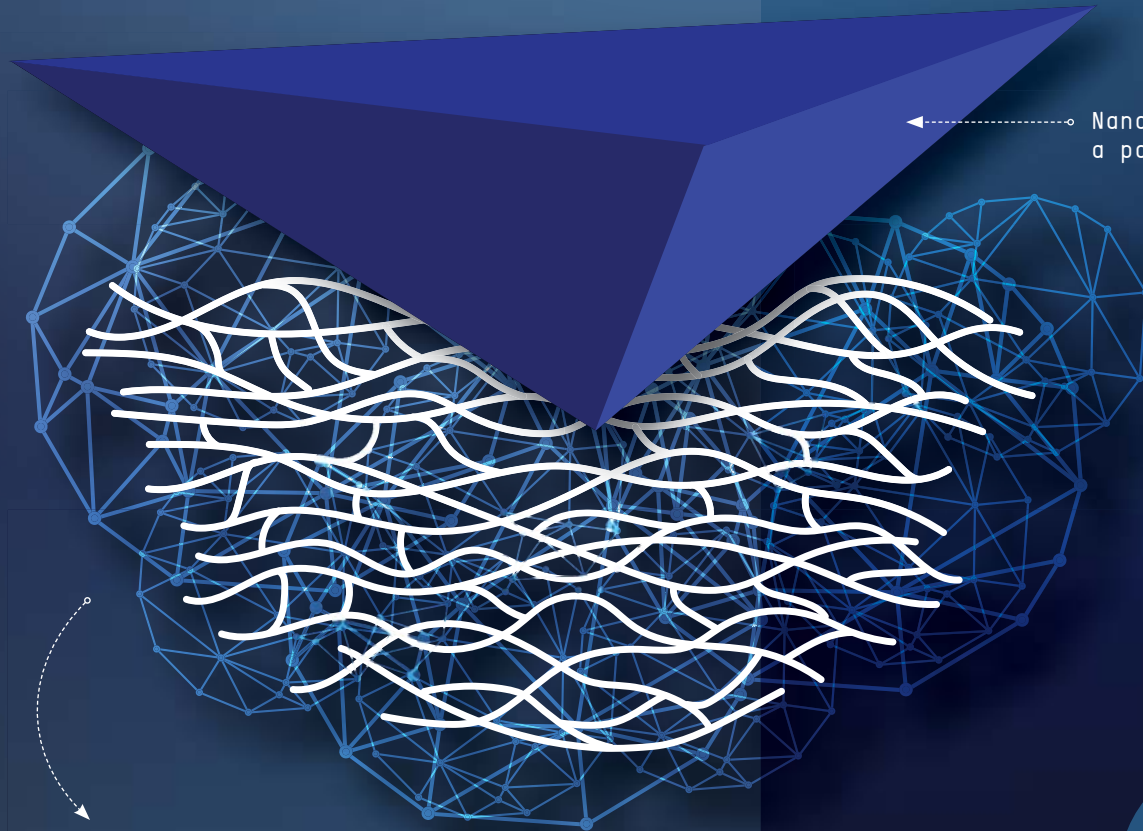
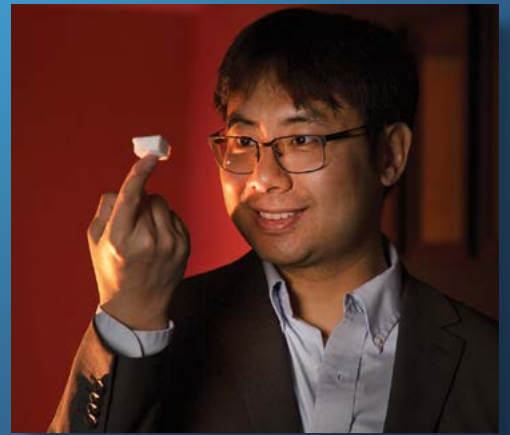
<https://scholarsmine.mst.edu/bridge/1>

This Newsletter is brought to you for free and open access by Scholars' Mine. It has been accepted for inclusion in The Bridge Newsletter by an authorized administrator of Scholars' Mine. This work is protected by U. S. Copyright Law. Unauthorized use including reproduction for redistribution requires the permission of the copyright holder. For more information, please contact scholarsmine@mst.edu.

THE BRIDGE

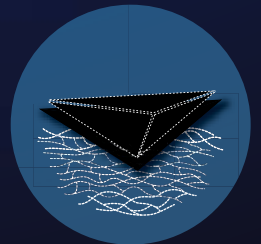
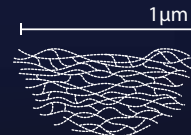
Missouri S&T
Spring 2019 | Vol. 42

Civil, Architectural and Environmental Engineering



Nanoindentation on a polyurea aerogel

Illustration highlighting Dr. Chenglin Wu's research on nanofibrous polyurea aerogels, as featured in the 2018 journal *Soft Matter*



Building better aerogels

page 11

MISSOURI
S&T
care.mst.edu

FROM THE CHAIR: Joel G. Burken, Ph.D., P.E., BCEE, F.AEESP

As we close the book on the 2018-19 academic year, we look back at some notable accomplishments from the team in our Civil, Architectural and Environmental Engineering Department. I reflected back on our department's mission: **We shape the future of built and natural environments of our global society through creative research and education.** Our team has undoubtedly taken on that mission, and is indeed shaping our future society and world.

Our students, alumni and faculty have been noted for accomplishment in competitions and innovation across Missouri and the U.S., and are making impacts globally in their professional careers, many highlighted in this edition of *The Bridge*.

The results are measurable. Research awards for our faculty and students are increasing, as we hit \$5.98M in new awards in 2018 — up by 70% in one year. The increase demonstrates the core capabilities of our faculty and students to do work that is compelling and of great value in generating new knowledge for our profession. The funding offers investment to train our students with new equipment and instrumentation and to keep our team at the cutting edge of technical capabilities.

We have professor-student teams investigating new methods of building resilient structures (page 6), developing new materials from the molecular level to improve future infrastructure (page 11) and drone platforms (page 4) that can assess structural resilience in our infrastructure or detect pollutants in our water, soil and food. Exposing our students to cutting-edge ideas that are years away from implementation in common practice can broaden their views of the world that *could be* as they enter the profession to help build and guide our future built world and our global society. I am also encouraged by the depth

of impact our team has accomplished, for example we celebrate the commitment our students and faculty like **Dr. Mark Fitch** have in Engineers Without Borders (page 14) and with three recent graduates joining the Peace Corps to continue their efforts to improve the lives of others (page 10) and truly strive to meet our motto of Changing the World. Our future is certainly on the rise!



We also look back to celebrate the career accomplishments of 14 new Academy of Civil Engineers inductees (page 18), who exemplified the accomplishment and impacts in their varied careers. We hope for all of our graduates to aspire to such levels of impacts in their careers, and appreciate the time our alumni give back to help prepare and inspire future Miners.

For me personally, the chance to engage the breadth of our students, faculty, employers and alumni is truly an honor. I am always amazed and encouraged by the accomplishments and amazing talents of our team. I was also quite honored to be nominated as an Honorary Knight of St. Pat this spring, for me the "Best Ever" St. Pat's for sure! I greatly appreciated joining so many other alumni as fellow Knights, and also current students honored this year as well (page 3). Rolla is certainly a special place for engineering education, and we will most certainly look to revel in our history during our 150th anniversary as a campus and in civil engineering education in 2020-21. Please share your stories and memorabilia at marketing.mst.edu/150 so that we can use them to celebrate and commemorate the legacy built in that 150 years!

Sincerely,

DEPARTMENT ADMINISTRATION

Department Chair

Joel Burken, Ph.D., P.E., BCEE, F.AEESP

Assistant Chairs

Civil: Eric Showalter, Ph.D., P.E.

Architectural: Stuart Baur, Ph.D., A.I.A.

Environmental: Mark Fitch, Ph.D.

Graduate Programs: Cesar Mendoza, Ph.D.



**VISIT & LIKE OUR
FACEBOOK PAGE**

www.facebook.com/MissouriSandTCARe



AWARD OF DISTINCTION

Al Kaplan, CE'72, (pictured above right) of Houston, owner of Energy Projects Consulting, received an Award of Professional Distinction during Missouri S&T commencement ceremonies held in May. The award recognizes his outstanding professional achievement.

Kaplan began his career at Mobil Oil Co., where he managed offshore and liquefied natural gas (LNG) projects in over 20 countries, including Indonesia, the Netherlands, the United Kingdom and Qatar. He served as vice president for major projects with Marathon Oil Corp., and after leaving in 2008, set up an independent consulting firm. He has since served as acting head of wind projects for BP U.S., an advisory board member for an algae-to-biodiesel company and LNG project manager for the Mozambique LNG Project with Anadarko Petroleum Corp.

LUCKY MINERS

Below is a listing of "Best Ever" folks that represented the department during 2019 St. Pat's festivities.

ST. PAT'S COURT, GUARD

- **John Powell**, a sophomore in architectural engineering from Chesterfield, Mo.

2019 HONORARY KNIGHT

- **Dr. Joel Burken**, Curators' Distinguished Professor and department chair

2019 QUEEN CANDIDATES

- **Cassandra Funke**, a senior in civil engineering and architectural engineering from Joplin, Mo.
- **Julia Ingram**, a senior in civil engineering from Blue Springs, Mo.
- **Paige Masten**, a sophomore in architectural engineering and civil engineering from Lake Saint Louis, Mo.
- **Sabrina McRoberts**, a freshman in architectural engineering from Warrenton, Mo.

- **Anna Meyer**, a senior in environmental engineering from Sullivan, Mo.

- **Annie Muehlfarth**, a senior in environmental engineering from St. Louis

2019 STUDENT KNIGHTS OF ST. PATRICK

- **Ian Mclean**, a senior in environmental engineering from Rolla, Mo.
- **Zachary Olivas**, a junior in architectural engineering and civil engineering from Saint Peters, Mo.
- **Emily Quist**, a senior in environmental engineering from Wildwood, Mo.
- **Matthew Shallow**, a senior in environmental engineering from Rolla, Mo.

THE BRIDGE



In this issue

4

Bridge repair needs

S&T researchers are in the midst of a five-year effort to develop new technologies to inspect and maintain bridges and portions of highways in Missouri.

7

Incoming ASCE President speaks at S&T

Missouri S&T student chapter of ASCE hosted the 2020 president of the American Society of Civil Engineers (ASCE) President, Dr. K.N. Gunalan, for a guest lecture on the challenges humanity faces in investing and maintaining infrastructure.

12

ENR honors professionals

Alumnus and faculty both highlighted in ENR Midwest's 2019 Top Young Professionals list for their contributions in "changing construction, design and academic research."

10 MAPA Lecture

13 Hurst/McCarthy Lecture

15 Stueck Lecture

16 Prakash Lecture

18 Academy of Civil Engineers inductees



Poised to help address the state's **BRIDGE REPAIR NEEDS**

by Andrew Careaga

Missouri Gov. Mike Parson's plan to release bond funds to support bridge repair across the state came as welcome news to researchers at Missouri S&T, home to a federal initiative to develop new robotic tools to inspect and preserve bridges and other infrastructure.

Missouri S&T researchers are in the midst of a five-year effort to develop new technologies to inspect and maintain bridges and portions of highway. The U.S. Department of Transportation grant provides \$1.4 million a year to fund a University Transportation Center at S&T known as INSPIRE, which stands for Inspecting and Preserving Infrastructure through Robotic Exploration.

"The work underway through our INSPIRE program can benefit similar statewide initiatives to repair our aging infrastructure in the future," says **Dr. Genda Chen**, the Robert W. Abnett Distinguished Chair in Civil Engineering at Missouri S&T and director of INSPIRE.

During his State of the State Address in January, Missouri's governor announced his proposal to use bond proceeds worth \$351 million to repair an estimated 250 smaller bridges across the state.

Many of the bridges are in dire need of repair, says Chen. He points to the American Society of Civil Engineers' Infrastructure Report Card, which gives Missouri's bridges a score of C. One out of every eight bridges in Missouri is considered "structurally deficient," the scorecard notes, and the Missouri Department of Transportation has identified 4,800 bridges in need of repair across the state.

The Missouri S&T researchers can help by developing new robotic tools to inspect bridges without disrupting traffic flow. The work involves unmanned aerial vehicles (UAVs) as well as robots capable of crawling up the side and underside of a bridge to inspect pillars or bridge decks.



“With the arrival of the robotic era, we expect bridge inspection to be reinvented and transformed into a faster, cheaper, safer and more consistent process.”

RELATED INFRASTRUCTURE RESEARCH

Missouri S&T is also home to one other federal University Transportation Center: RE-CAST (Research on Concrete Applications for Sustainable Transportation). This S&T-led consortium of five universities was selected for funding in 2013 at the rate of \$1.4 million per year for six years. RE-CAST researchers investigate the use of new materials and structural systems to improve transportation infrastructure durability and sustainability.

“The ultimate goal of the research program is to fast-track the acceptance of these technologies and develop national standards and guidelines for their use for the reconstruction of the nation’s infrastructure for the 21st Century,” says Khayat, the RE-CAST director.

Khayat also leads the Center for Infrastructure Engineering Studies (CIES), which brings together faculty and students from various disciplines to develop ways to extend the life span of highways, bridges and other transportation infrastructure. The Missouri Department of Transportation (MoDOT) has been an integral partner with S&T throughout the years, and the two organizations have worked together on a variety of research projects throughout the state.

“MoDOT and Missouri S&T have a strong and enduring partnership that has led to innovations in science and engineering necessary for Missouri’s roads and bridges,” says David D. Ahlvers, state construction and materials engineering for MoDOT.

“We are developing robotic arms for both flying and climbing unmanned vehicles to inspect and maintain bridges and other transportation infrastructure,” Chen says. “Once this technology is developed and in use, we will not need to close traffic for bridge inspection and preservation.”

In addition to inspecting bridges, the robotic arms could apply sealant or paint to bridge sections, all guided remotely by engineers who monitor the work on a screen and visually verify the results as needed. Chen envisions equipping the robots with sensors and microwave cameras capable of detecting potential issues inside bridge beams and decks before they become problematic.

“With the arrival of the robotic era, we expect bridge inspection to be reinvented and transformed into a faster, cheaper, safer and more consistent process,” Chen says.

EXPANDED CAPABILITIES COMING SOON

Missouri S&T will soon augment the work underway through INSPIRE through a new research facility: the Clayco Advanced Construction and Materials Laboratory (ACML). When completed in spring 2020, the ACML will expand Missouri S&T’s infrastructure research capabilities to develop and test new construction materials and methods, which can make the repaired bridges last longer.

“The addition of this premier facility will position S&T as a global leader in infrastructure research and will help us realize our long-term vision of making civil infrastructure safer, more durable and longer lasting,” says **Dr. Kamal H. Khayat**, the Vernon and Maralee Jones Professor of Civil Engineering and ACML director.

As an expansion of S&T’s Butler-Carlton Civil Engineering Hall, the ACML will combine the university’s infrastructure testing and analysis expertise — a specialty of the current High-bay Structures Laboratory — with development of new infrastructure materials and construction methods in the ACML. The result will be greater collaboration among researchers who specialize in developing the new materials and those who specialize in applying them in infrastructure design, Khayat says.

“The addition of the Clayco ACML to our current building gives our students and faculty a unique facility and capability in the United States, and we certainly plan to pair our expertise with these facilities to improve Missouri’s infrastructure and engineering capabilities for generations to come,” says **Dr. Joel Burken**, Curators’ Distinguished Professor and chair of civil, architectural and environmental engineering.

Rising in the rankings



In the 2018 *U.S. News & World Report* the CAReE department's civil and environmental engineering programs maintained and elevated their positions with the civil program ranking at No. 50 and the environmental program at No. 48.

"The rankings of the civil program are strong among the disciplines that have the greatest number of programs nationally, with 249 programs represented in the rankings," says **Dr. Joel Burken**. "Being at 50 puts us in the top 20%, and while that is the strongest in the ranked programs at Missouri S&T, we know we can improve our productivity and watch the rankings elevate in the coming years."

Burken also noted that some of the primary metrics that can impact rankings have been trending positively in 2018 as well. New research awards for 2018 increased to \$5.99 million, a 69% increase from 2017, Ph.D. student enrollment has been growing, and increasing college rankings for S&T will help impact the program rankings positively.

During a Spring Open Forum, **CEC Vice Provost and Dean Richard W. Wlezien** shared that Missouri S&T's graduate engineering ranking has risen from 106th in the nation to No. 82 — a leap of 24 points, or 22.6%, in the highly competitive rankings. Wlezien attributes the increase to improved accounting of research expenditures, improvements in faculty research productivity, growth in the number of Ph.D.s granted and improvements in the peer assessment of S&T's graduate engineering offerings.

The College of Engineering and Computing at Missouri S&T offers one of the broadest arrays of engineering degrees of any university. Graduate degree options include master's and Ph.D. degrees in 18 engineering disciplines.

Darwish to compete in ASCE's Innovation Contest

It's clear Ph.D. civil engineering student, **Yasser Darwish**, doesn't lack for great ideas and is an optimistic, aspiring entrepreneur. He demonstrates a true passion for new construction materials and is always willing to push



himself to the limits to achieve big goals. He competed in the Missouri Entrepreneurship Quest (EQ) Student Accelerator Program earlier this year (see page 11).

His next big quest is to win ASCE's Innovation Contest, which was developed in 2015 as part of the

strategy to address the ASCE Grand Challenge. Now in its fourth year, the Innovation Contest seeks innovative ideas nationally and gives them a platform for broader exposure.

Darwish will share his innovation — Impact Protection of Bridges Using Meta-Material Revolved Shell Panels — which won the category New Construction Materials and Methodology. These multiple bi-stable shells can dissipate up to 70 percent of the impact energy resulting from a vehicle collision with a crash barrier on bridges, highways and roads.

Darwish and his advisor, **Dr. Mohamed ElGawady**, are invited to an event in July at ASCE headquarters in Reston, Va., where they'll share their innovation with industry leaders and compete for \$2,000 cash prizes for the Overall Grand Challenge Award and the Best Entrepreneur Award.

Faculty members selected as Outstanding Reviewers

Two faculty members from our department were selected as American Society of Civil Engineers (ASCE) Outstanding Reviewers for international journals.



Dr. Islam El-adaway, Hurst/McCarthy Professor of Construction Engineering and Management, has been selected as an ASCE 2018 Outstanding Reviewer by the editor of the *Journal of Professional Issues in Engineering Education and Practice*.



Dr. Lesley Sneed, Stirrat Faculty Scholar and associate professor, has been selected as an ASCE 2018 Outstanding Reviewer by the editor of the *Journal of Composites for Construction*.



ASCE 2020 President Dr. K.N. Gunalan, pictured center, with Missouri S&T students and faculty.

Incoming president of American Society of Civil Engineers speaks at S&T

Missouri S&T welcomed the 2020 president of the American Society of Civil Engineers (ASCE) President, Dr. K.N. Gunalan, to campus for a guest lecture in February.

In his lecture, titled “Engineering the Future,” Gunalan discussed the challenges humanity faces in investing and maintaining infrastructure to maintain quality of life in the U.S. and globally as the world population is projected to surpass 9 billion by 2050. To face the challenge of shrinking resources, he said engineers must broaden their knowledge beyond science and technology to understand the integration of societies.

Gunalan challenged civil engineers to create safe, sustainable and efficient infrastructure to preserve the planet’s limited resources for future generations.

“It takes leadership and a plan to improve the life of every human being. We cannot find a solution without taking action,” Guna noted.

He discussed the many things that students can draw from the ASCE organization and encouraged them not to limit themselves. Talking about how one never knows where things will take them and who you will meet along the way.

Gunalan is vice president of alternative delivery at global infrastructure firm AECOM, based in Salt Lake City, Utah. Previously, he was a vice president for Parsons Brinckerhoff. He earned his Ph.D. in civil engineering from Texas Tech University in 1986, where his advisor was **Dr. Warren K. (Kent) Wray**, provost and executive vice chancellor emeritus. Gunalan is a licensed professional engineer in New Mexico and Utah.

The Missouri Society of Professional Engineers, ASCE and the Missouri S&T College of Engineering and Computing sponsored a dinner and reception with campus leaders. While the S&T student chapter of ASCE hosted the guest lecture.



Dr. K.N. Gunalan special guest lecturer



The Masonry Society names ElGawady Awards Committee chair



Dr. Mohamed ElGawady has been named chair of the Awards Committee by the Administrative Committee Team of The Masonry Society (TMS).

In the past, the chair was the vice president of TMS, but in recent years, the duties of the vice president increased to including chairing the Meetings Committee. In October, the board of directors agreed to “decouple” the chair responsibilities from the vice president position and ElGawady agreed to be considered as chair of the Awards Committee. Following up on this, ACT considered candidates and chose ElGawady for this important role.

ElGawady, is a professor and Benavides Faculty Scholar at S&T. Previously, he held positions at Washington State University and University of Auckland. He was a visiting associate professor at University of South Australia and Tokyo Institute of Technology.

Within TMS, ElGawady has served on the Research Committee and the MSJC Prestressed Masonry Subcommittee, Veneer and Glass Block Subcommittee, Seismic Subcommittee, and Shear Subcommittee.

He has authored and co-authored 120 referred journal and conference papers and technical reports. His research interests include seismic behavior of prestressed masonry, shear strength of partially grouted masonry and the application of fiber reinforced polymers (FRP) in strengthening masonry/reinforced concrete structures. He is currently serving a third term as a Zone 2 representative of TMS’s board of directors.



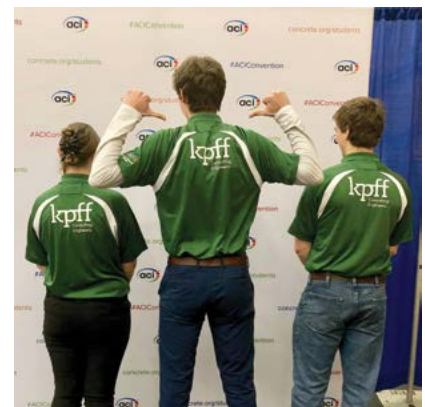
ACI designates S&T ‘excellent’

The American Concrete Institute (ACI) honored Missouri S&T with an ACI Award for University Student Activities. The award uses a points system based on participation in concrete related activities and programs to reward academic institutions. Points are earned for the number of students with ACI membership, participation in regional and national concrete competitions, ACI convention and committee attendance, community service, student chapter activities, and hosting campus meetings and events. Thirty-five universities were designated as “Excellent” for 2018.



The ACI student organization also shared with us that out of 34 teams competing from multiple countries including the United States, Canada, Puerto Rico, Mexico, Poland and others, the team placed second in Economical Design and fourth in Overall Efficiency, (first out of the 17 teams from the United States) at their convention this year. **Dr. Lesley Sneed** and **Dr. Dimitri Feys** are the team’s faculty advisors. Please join us in congratulating them on their success.

The complete list of the 2018 ACI Award university winners are available online under “past winners.”



Bridge Team reigns as Mid-Continent Champs

Missouri S&T's Steel Bridge Design Team recently won first place at the regional American Institute of Steel Construction (AISC) Mid-Continent Student Conference and then put their bridge engineering and construction skills to the test at the national level.

The national competition was held May 31-June 1 at Southern Illinois University-Carbondale. This is the second year in a row that Missouri S&T has won the regional competition and qualified for the national event.

During the regional competition held in April, S&T's team earned three awards, including first place in construction economy scoring, first place in construction speed and first place overall.

Photo by Bob Phelan



2019 S&T Steel Bridge Team

At the national competition, Missouri S&T's Steel Bridge Design Team competed against other collegiate teams from around the country to construct a scale-model bridge as fast as possible. The competition was scored based on a dollar amount rather than a points system. The scoring simulates the accounting process involved in determining the budget for an actual bridge construction project.

The bridge was scored on its weight and rigidity, construction speed and the number of team members building the bridge. Penalties were assessed for infractions like dropping bolts, holding two pieces of the bridge at once and stepping over designated lines. Each bridge was also "load tested" to see if it could hold a required amount of weight.

The Student Steel Bridge Competition was designed to supplement a civil engineering education with a comprehensive student-driven project experience from conception and design through fabrication, construction and testing.



Networking and Social Event



The department hosted an evening of networking and engagement on Monday night before the Missouri S&T 2019 Spring Career Fair.

With over 30 employers and 70 students signed up, it was a great opportunity for students, alumni and employers to connect outside the normal fair hours in a more relaxed setting.

The next networking event is planned for Monday, Sept. 23, 2019. If you are interested in joining us, please contact **Jody Seely** by email at seelyj@mst.edu.





JOINING PEACE CORPS

Three recent CArEE graduates are continuing their remarkable journey of Changing the World by joining the Peace Corps.

Ashley Longrie, EnvE'18, (pictured top right) is currently stationed in Peru; **Chris Turner**, EnvE'18, (top left) embarked for Madagascar this past spring and **Sam Bryant**, CE'19, (bottom right) will be heading to Ghana. All three students were active in service groups at Missouri S&T, including Engineers Without Borders (EWB), Alternative Spring Break and Miner Challenge. Bryant was also voted a 2018-19 Outstanding Senior (see pg. 22), receiving his award at the Academy of Civil Engineers induction banquet in April.

ON THE MOVE

Marsia Geldert-Murphey

Regional Director
Missouri and Illinois Operations
Lochmueller Group Inc.



Marsia Geldert-Murphey, CE'97, will identify new business lines and opportunities, improve market penetration and promote the growth of Lochmueller Group. She will work with Illinois regional office leader Brian Mueller and Missouri regional office leader Scott J. Smith to coordinate activities

related to client management and business development. Marsia will also be a staff mentor and technical resource for QA/QC and geotechnical engineering.

MAPA Lecture

Purdue director presents lecture on asphalt engineering careers



Dr. Magdy Abdelrahman, MAPA Professor, Dr. Rebecca McDaniel, lecturer and Dale Williams, MAPA Executive Director

Dr. Rebecca McDaniel presented the civil, architectural and engineering department's Missouri Asphalt Pavement Association (MAPA) Distinguished Lecture in January. McDaniel is the technical director of the North Central Superpave Center at Purdue University, a position she has held since 1995.

During her presentation, she shared her personal experiences and ways to build a satisfying, rewarding career in civil engineering. While McDaniel's career has focused mainly on asphalt materials and pavements, the lessons she has learned are applicable to engineering in general. McDaniel offered examples that demonstrated how sometimes stepping out of your comfort zone can lead to life-long relationships and opportunities to advance.

She shared how a summer job changed her life and talked about the world of engineering changing every day. She gave students tips on things to experience during their college days.

Here are a few takeaways from her presentation:

- Try out what you want to do
- Participate in internships
- Join clubs and societies
- Follow through with the PE exam
- Pledge the Order of the Engineer
- Get out of your comfort zone (sometimes)
- Learn something new every day.

BUILDING BETTER AEROGELS BY CRUSHING THEM

..... by Peter Ehrhard

Photo by Tom Wagner/Missouri S&T

Strong, flexible and ultralight aerogels are used in a wide variety of products, from insulation for offshore oil pipelines to parts for space exploration missions. Now, aerogels are undergoing a paradigm shift due to a breakthrough in the understanding of their mechanical properties at the nanoscale level.

Aerogels are a diverse class of solid materials derived from a gel in which the liquid component of the gel is replaced with gas, making them lightweight and strong. Researchers at Missouri S&T are investigating the mechanical properties of aerogels at the nanoparticle level — combining experiments and computer modeling to look at how polymeric aerogels can fail and become deformed. By crushing and indenting aerogels, they gained a better grasp on the gels' properties.

"We looked at the deformation of polyurea aerogels at a very small scale — at the building blocks themselves," says **Dr. Chenglin Wu**, assistant professor of civil, architectural and environmental engineering at S&T.

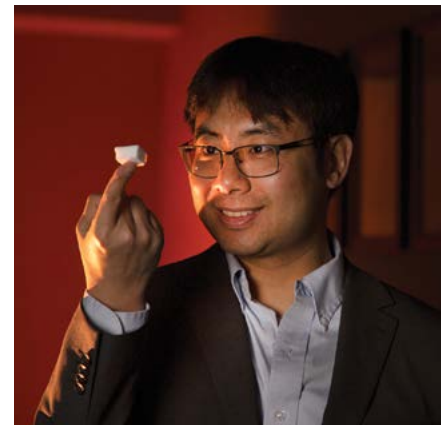
"The data that we have obtained has provided, for the first time, first-hand

information on nano-deformation of nanoporous polymers, and will be useful in the design, optimization and engineering of polymeric aerogel and soft nanoporous materials."

During his research, Wu and his team have identified four failure modes of aerogel structures. They found that material scaling properties were dependent on both the relative density and the secondary particle size of the gels. That means there is no conventional power-law relationship between the aerogels.

"Aerogel properties have traditionally been reported using bulk samples, but in order to improve a nanostructured material, one has to understand the behavior of the nanostructure itself," says Wu, the lead researcher on the project. "Using the bulk properties as a proxy would never substitute for the real thing. In that regard, no one so far had been able to look at the length scales of the nanostructured building blocks."

The research was first published in August in *Soft Matter*, a Royal Society of Chemistry journal that focuses on the intersection of physics, chemistry and



Dr. Chenglin Wu

biology. The research was led by Wu's nanotechnology and nano mechanics laboratory team in collaboration with **Dr. Nicholas Leventis**, Curator's Distinguished Professor of chemistry at S&T.

"Our research could be applied to areas such as energy absorption in ballistic protection to biomedical implants and drug-deliver platforms," says Wu. "This work enables the rational nanoscale-up design of nanoporous polymers for a very wide spectrum of applications ranging from ballistics, to biomedicine to space exploration."



A "Shark Tank" success

Yasser Darwish, a Ph.D student in civil engineering, and his advisor, **Dr. Mohamed ElGawady**, competed on the Missouri S&T campus and moved on to compete at the UM System in the Entrepreneurship Quest (EQ) Student Accelerator Program Finals held during the Entrepreneurial Educator Summit in Columbia, Mo. Their team — CrunchPillow — came up with the idea to create a panel that would attach to the front of vehicles to offer protection in case of a crash. Their hope was to reach the point where this product could be installed on any car around the world. They hope to tap into the rental car market.

CrunchPillow, along with 11 other student teams, competed in April, for the coveted \$15K first place prize. While Darwish did not claim a spot in the top three, we are super proud of him pitching his business plan and for his "world-changing" idea and entrepreneurial spirit.

ENR

MIDWEST

HONORS MISSOURI S&T ALUMNUS & PROFESSOR

One of most accomplished groups of Top Young Professionals ever to be honored by ENR Midwest includes C-suite executives still in their 30s, an entrepreneur who filled a need in the design-to-construction workflow, a construction engineering and management professor who has done important research, and others who have taken a non-traditional path to leadership.

Dr. Islam El-adaway, the Hurst-McCarthy Professor of Construction Engineering and Management, made the list of ENR Midwest's 2019 Top Young Professionals. The 20 individuals, all under age 40, were honored for "changing construction, design and academic research."

The list also included S&T alumnus **Chris Vaeth**, CE'02, vice president of preconstruction at McCownGordon Construction in Kansas City. The McCownGordon Construction company was co-founded by **Patrick McCown**, CE'74, retired CEO.

Engineering News-Record (ENR) provides engineering and construction news, analysis, commentary and data for construction industry professionals through a weekly magazine and website (www.enr.com). Read on to learn more about our two honorees.



Islam El-adaway, 38

Egyptian-American engineering professor
Hurst-McCarthy Professor of Construction
Engineering and Management
Missouri S&T

El-adaway earned his bachelor's degree in construction engineering from the American University in Cairo (AUC) in his native Egypt in 2003. He was then hired as a contract administrator for Nile Aster International (NAI), which was then the largest electro-mechanical contractor in the Egyptian market. NAI was the Egyptian branch of Aster Associate Termimpianti SpA of Milan, Italy. El-adaway's success in managing local construction contracts led to him being named contracts administrator and claims adviser overseeing the company's regional projects in Qatar, Oman and the United Arab Emirates.

While working full time for NAI, he earned his master's degree in construction engineering from AUC in 2006. Later that year, he moved to the U.S. and earned his Ph.D. in civil engineering from Iowa State University in 2008. He wrote his dissertation on construction dispute mitigation using both multi-agent-based simulation and risk-management modeling.

El-adaway started his academic career at Mississippi State University (MSU) and, based on his work there, he was recruited by the University of Tennessee in Knoxville as an associate professor of civil engineering and coordinator of the construction engineering and management (CEM) program. Last August, El-adaway was hired by Missouri S&T as the Hurst-McCarthy Professor of Construction Engineering and Management.

During his 10-plus years in academia, El-adaway worked on research projects valued at more than \$2 million and published nearly 100 peer-reviewed papers, all of which were published and/or presented in academic journals or at conferences in his specialty area. He mentored five Ph.D. candidates and five master's students toward earning their degrees as well as one post-doctorate research fellow.

He also serves on National Science Foundation review panels and is an associate editor for the *Journal of Management in Engineering*.

El-adaway is a licensed professional engineer in the U.S. and a registered chartered engineer in the U.K. He was recently named a fellow of the American Society of Civil Engineers and a fellow of the Institution of Civil Engineers.

Chris Vaeth, 39

Vice President, Preconstruction
McCownGordon Construction, Kansas City

Vaeth quickly advanced through McCownGordon Construction, serving as senior project manager, manager of preconstruction and director of preconstruction before rising to his current role in 2016.

Vaeth is the youngest member of McCownGordon's executive leadership team. He plays an important role in the firm's business development efforts and in grooming the next generation of leaders by mentoring young professionals in both the preconstruction and operations side of the business.

Vaeth has extensive experience managing all manner of projects. One thing he teaches younger employees is to focus on collaborative delivery methods and understand the importance of extensive coordination and constant client communication. His experience includes work at numerous universities including Kansas State University, University of Kansas, Children's Mercy Research Tower, Church of the Resurrection, State Street Data Center and many more.

Vaeth is active in the Kansas City region, serving as a board member for the Wyandotte Economic Development Council and the Kansas City Kansas Public Schools Diploma Steering Committee. He is also a member of the Association for Corporate Growth chapter in Kansas City. Vaeth also received the 2019 Exemplary Young Alumni Award from the S&T Academy of Civil Engineers (page 17).



Hurst/McCarthy Lecture

Expert on Inka Empire engineering lectures

Current challenges in sustainable infrastructure could be solved by studying ancient engineering, says Dr. Cliff Schexnayder, who gave the first Hurst/McCarthy Lecture at Missouri S&T on March 8, 2019.

In his presentation, titled "Inka Engineering Project," Schexnayder discussed how the engineers of the Inka Empire (also known as the Incan Empire) succeeded in building their Andean road network because they learned to work with nature instead of trying to control it. He says that close examination and reverse engineering of their accomplishments can lead to thoughtful solutions to current engineering challenges, particularly the effort to construct sustainable infrastructure.

A construction engineer with over 50 years of practical experience, Schexnayder is an Eminent Scholar Emeritus at the Del E. Webb School of Construction at Arizona State University. He earned a Ph.D. in civil engineering from Purdue University, and master's and bachelor's degrees in civil engineering from Georgia Institute of Technology. A registered professional engineer in four states, Schexnayder is a distinguished member of the American Society of Civil Engineers and a member of the National Academy of Construction.

Schexnayder has worked with major heavy construction and highway construction contractors as a field engineer, estimator and corporate chief engineer, and he served with the U.S. Army Corps of Engineers on active duty and in the reserves, retiring as a colonel. His last assignment was as executive director, directorate of military programs for the Office of the Chief of Engineers in Washington, D.C.

Fitch receives UM System President's Award for service

by Sarah Potter

Missouri S&T's **Dr. Mark Fitch** received a University of Missouri System President's Award for University Citizenship — Service. University of Missouri (UM) System President **Mun Choi** recognized Fitch at the Thursday, April 11, UM Board of Curators meeting on the Missouri S&T campus.

"I feel this award honors the students and my colleagues who do all the hard work that results in success," says Fitch, an associate professor in civil, architectural and environmental engineering. "I just show up when asked and try to organize things."

Photo by Tom Wagner/Missouri S&T



Dr. Mark Fitch

"Most will never know the effort Mark put forth, nor will they realize the great campus benefit of his even-tempered, honest and unwavering leadership," said **Dr. Joel G. Burken**, chair and Curators' Distinguished Professor of civil, architectural and environmental engineering at S&T.

Fitch was honored in particular for his service work through Engineers Without Borders (EWB). He serves as the advisor for S&T's student chapter of EWB.

"Through EWB, Mark leads students in international projects and spends weeks of the year, unpaid, working

with students in developing countries," says Burken. "The work he leads is changing the lives of the communities they engage and also the lives of our S&T students. This year, three S&T graduates from the environmental engineering program at S&T will be joining the Peace Corps to take a professional step in the same direction."

Burken says Fitch's dedication and talent have also been critical to the long-term health and success of the department. Fitch is assistant chair of the environmental engineering bachelor's degree program, and in that role, Burken says, Fitch advocates for the students as well as the campus.

"He does not simply organize engagement and recruiting events, he demonstrates complete commitment to the daily and weekly efforts required to follow up on promises made," says Burken.

Fitch helped guide the S&T campus through the Higher Learning Commission accreditation process. He also served a five-year rotation as an officer of the S&T Faculty Senate, which included three years of service on the UM System Intercampus Faculty Council.



TLT Conference

Missouri S&T's Teaching and Learning Technology (TLT) Conference featured a session presented by **Dr. Nicolas Ali Libre**, assistant teaching professor. His presentation, titled "Practical Approaches to Engaging Students in their Learning and Success," discussed how to incorporate active learning strategies to provide a more meaningful and deeper learning experience for students. The conference featured a range of presentations, workshops and demonstrations. It was also S&T's opportunity for instructors in K-12 and higher education classrooms to learn about new technologies to aid their teaching practices.

Oerther selected for fifth Fulbright

Dr. Daniel B. Oerther, professor of environmental health engineering, has been selected for his fifth Fulbright award. During the 2019-20 academic year, Oerther will join King's College London in the School of Population Health and Environmental Science as a faculty member for life sciences and medicine. In London, he will complete his research study, titled "Reversing the spread of antimicrobial resistance globally through interprofessional environmental health fundamentals, practice and policy." King's College London, founded in 1829 under the patronage of King George IV, is the fourth-oldest university in England and the largest training center for medical, nursing and biomedical researchers in Europe. Established in 1946, each year the Fulbright program awards grants to approximately 1,200 faculty to teach and conduct research in over 160 countries.

Stueck Lecture

International water resources expert shares leadership lessons

Global water resources and wastewater industry expert Dr. Paul F. Boulos shared successful business leadership lessons during the 2019 Stueck Lecture in April at Missouri S&T. His lecture was titled "On Building and Sustaining Great Companies: Why do some companies fail and others succeed? Lessons on Leadership."

"Many companies achieve success. A few achieve great success. But none seems to be able to sustain success for a long period of time, and many fail," says Boulos. "We draw our conclusions from lessons learned in hopes of helping to improve the chances of becoming successful as leaders of engineering firms and delivering superior sustainable performance."

Boulos said that 75 percent of venture-backed startups fail, and more than half of all U.S. companies fail after five years with over 70 percent failing in 10 years. During his presentation,



Boulos examined the factors that caused this decline — specifically, the critical roles that leadership and culture play in business success.

Boulos is one of the world's foremost experts on water resources and navigation engineering, and the author of 10 books and more than 200 technical articles on issues related to the water and wastewater industry. He is CEO of Digital Water Works, an engineering services provider dedicated to innovating for the global water and wastewater industry.

Prior to Digital Water Works, Boulos served as president and director of MWH Global (until its sale to Stantec in 2016), an environmental engineering and construction firm with more than 7,000 employees in 35 countries and annual revenues of \$1.6 billion. The company was considered one of the world's top three experts on power, water and wastewater issues. Boulos also founded and served as chair, president and CEO of Innovyze, a global provider of wet infrastructure management technology. He led its ownership transition and sale to a private equity firm in May 2017 for \$270 million.

Boulos has received numerous honors and awards, including notable technical awards for excellence in scholarship from the American Water Works Association, the Environmental Protection Agency and the American Society of Civil Engineers (ASCE).

Be humble and authentic, lead wisely and ethically... And think long-term for the common good

Leadership is about doing the right things right

Thank You



Dr. Paul F. Boulos

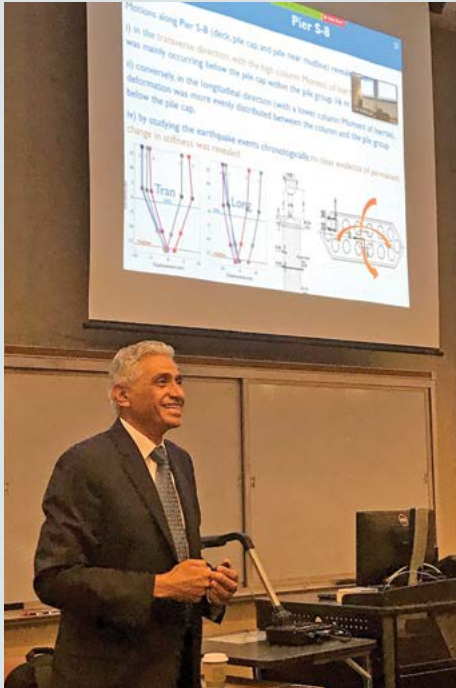
He received the Ellis Island Medal of Honor and was elected to the grade of Distinguished Member of ASCE, the society's highest honor. Boulos was also elected to the National Academy of Engineering in 2014, and serves on the academy's Center for Engineering Ethics and Society (CEES) advisory group.

Boulos earned a bachelor's degree in general science from the Lebanese American University, as well as bachelor's, master's and Ph.D. degrees in civil engineering from the University of Kentucky, and he has completed the Advanced Management Program at Harvard University. He lives in Colorado with his wife, Katya.

The Neil and Maurita Stueck Distinguished Lecture Series is made possible by a fund established by **Maurita Stueck** to bring additional outside perspectives to S&T students, and to honor her late husband, a 1943 civil engineering graduate of the university.

GeoMo Symposium and Prakash Lecture

S&T hosts geotechnical symposium and lecture



Dr. Ahmed Elgamal
GeoMo 2019 Guest Lecturer

In May, Missouri S&T hosted the 2019 GeoMo symposium in St. Louis. The symposium, titled "Advancements in Seismic Geotechnical Engineering," was held at the Millennium Student Center on the University of Missouri-St. Louis campus.

National experts Dr. Liam Finn, professor emeritus at the University of British Columbia, and Dr. Ahmed Elgamal, professor and associate dean for faculty affairs the University of California – San Diego, were both scheduled to be guest speakers. Unfortunately, Dr. Finn, was not able to deliver his talk due to health-related issues that prevented him from traveling.

Dr. Elgamal graciously filled in for both lectures and also presented the Shamsheer and Sally Prakash Distinguished Lecture, funded by **Dr. Shamsheer Prakash**, professor emeritus of geotechnical engineering

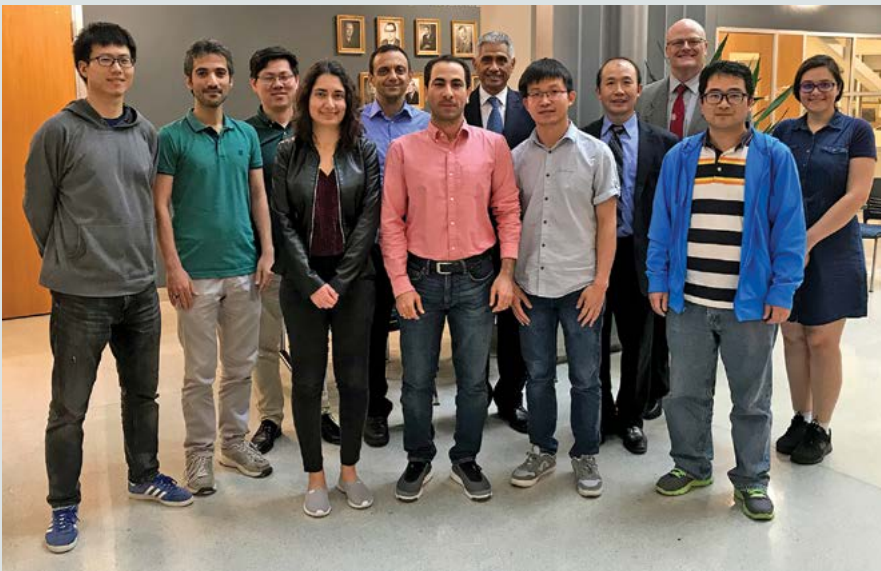
and Dist.M.ASCE, the day prior on the S&T campus. Elgamal's lecture was titled "Bridge-Ground Systems: Recorded Seismic Response, Shake Table Experiments and Computational Simulation."

His presentation focused on soil-foundation-bridge interaction during earthquakes as well as behavior of pile foundations in liquefiable ground undergoing lateral spread deformations.

Elgamal is a professor of geotechnical engineering at the University of California, San Diego's Jacobs School of Engineering and served as chair of the structural engineering department from 2003-07. Before joining UCSD, Elgamal was a faculty member at the Rensselaer Polytechnic Institute and Columbia University, and technical director for the Rensselaer Geotechnical Centrifuge Research Center. He holds a bachelor's degree from Cairo University and a master's degree and Ph.D. from Princeton University. He served as a research fellow at the California Institute of Technology.

"The symposium is an opportunity to network with fellow practicing engineers as well as geotechnical graduate students, faculty and national scholars in geotechnical engineering," says **Dr. Joel Burken**, Curators' Distinguished Professor and chair of civil, environmental and architectural engineering at Missouri S&T. "The event gives practical information designed to enhance area practicing engineers' capabilities."

Attendees received six professional development hours.



Students and faculty in the geotechnical engineering program visited with Dr. Ahmed Elgamal in the Kummer atrium after the Prakash Lecture.

CONNECTIONS and ENGAGEMENT



Academy of Civil Engineers (ACE) members attending the 2019 meetings

Academy of Civil Engineers partners in success

Academy of Civil Engineers members represent an elite group of alumni or successful executives that are leaders in their communities or businesses and have achieved outstanding success. They are active in professional or career organizations, recipients of honors in their profession, and are involved in their community. Many are known by their engagement in public service, service organizations, and/or charitable causes, or are lecturers on subjects related to their chosen field. This group is often called upon by the department to be partners in the education of S&T engineering students. They also help support awards like the ones shown below and on page 22.



TOP ROW: 2019 Poster Contest, Undergraduate First Place (3-way tie): Brittney Kennedy, Kala Morgan and Annie Muehlfarth; Graduate First Place: Amro Ramadan; Second Place: Yasser Darwish; and Third Place: Eslam Gomaa.
BOTTOM ROW: Franklin Y. Cheng Teaching Scholar: Mohanad Abdulazeez; 2019 Exemplary Young Alumni Award: Paula (Wuebbels) Hart, CE'00, and Chris Vaeth, CE'02.

MASTHEAD 14

Academy of Civil Engineers

Fourteen professionals with ties to Missouri S&T were inducted into the Missouri S&T Academy of Civil Engineers during the academy's induction ceremony, which was held Thursday, April 25, at Hasselmann Alumni House. The academy recognizes outstanding alumni for their professional achievement and success, and it provides support and experience to help the civil, architectural and environmental engineering department at S&T to reach its collective mission and vision.

Here are the 2019 inductees:

Tom Abkemeier, PE
Vice President and Office Manager
Shannon and Wilson, Inc.
St. Louis, Mo.



Tom Abkemeier, CE'87, MS CE'92, of St. Louis, is vice president and St. Louis office manager for Shannon and Wilson. A licensed professional engineer and past director of the Engineers Club of St. Louis, he is active in many organizations, including the American Railway Engineering and Maintenance Association, the American Society of Civil Engineers, the St. Louis Railway Club and the American Public Works Association. Abkemeier is also active in his community, serving as a youth coach for basketball, baseball and soccer. He and his wife, Melissa, have been married 22 years and have four sons ages 12-20. Their oldest son is studying to be a physical therapist, his twins recently graduated from high school — one is studying chemical engineering at S&T — and his youngest is in seventh grade. Abkemeier enjoys playing softball and volleyball and woodworking. His service to the CAEE department includes participation in various student activities and hands-on support of the implementation of geotechnology lab updates.

Michael Buechter, PE,
D.WRE, R.EWRT
Program Manager
Metropolitan St. Louis Sewer District
Webster Groves, Mo.



Michael Buechter, CE'90, of Webster Groves, Mo., is a program manager for the Metropolitan St. Louis Sewer District and a licensed professional engineer. He also holds a master's degree in civil engineering from Oklahoma State University. Buechter, who has served as a manager of both in-house labor and consultant companies, has served on many special and standing committees and has played a significant role in ensuring compliance with the region's MS4 permit. He provides leadership and manages the daily operations of several programs within the MSD engineering department and administers the Small Contractor Program. Buechter is active with ASCE, serving as president of the St. Louis Chapter from 2016-17 and as a member of the EWRI Institute. He taught courses at Saint Louis University and Southern Illinois University-Edwardsville. He is president of the St. Louis Chapter of MSPE, was on the Engineers' Club board of directors, authored or co-authored many publications and has been a technical speaker. His engineering experience includes both water resources and transportation. Buechter participated in Boy Scouts for over 13 years and founded the Missouri Stream Team 3543,

combining his interest in scouting and the environment. He served eight years on the Webster Groves Board of Zoning Adjustment, and he has served the Civil Air Patrol as an administrative and finance officer. Buechter and his wife, Rita, who is also an environmental engineer, have four sons, two of whom are Eagle Scouts. Their oldest son, Stephen, is studying technical writing at S&T.

Don DaSaro

Assistant Professor
Business Management
Oregon Tech University
Klamath Falls, Ore.



Don DaSaro, CE'67, of Klamath Falls, Oregon, is assistant professor of management at Oregon Tech University. Before college, he served four years in the U.S. Marine Corps as

a combat engineer and explosives expert. An assignment to design and build a running track for the Kaneohe Bay Marine Base in Hawaii, sparked his ambition to become a civil engineer. DaSaro joined Caterpillar after graduation, and spent 41 years with the company in various management roles in international marketing, sales, labor relations, management development, leadership and human resources. The majority of his career was spent in the Asia-Pacific region, but he also traveled extensively in Latin America and spent time in the Caterpillar World Trade Group. DaSaro spent significant time working with and training engineers from different disciplines and encouraging their management skills. He developed and implemented a management training program for Asian-born personnel focused on strategic and soft skills tied to each candidate's long-term career path that would fit with Caterpillar's succession plan. DaSaro spent five years in Washington, D.C., working with the World Bank, U.S. EXIM, the United Nations and other multilateral lending institutions serving as liaison with the worldwide Caterpillar dealer organization and Caterpillar. The focus was on major hydroelectric dams, irrigation and major

highway projects around the world. He testified before the Senate Foreign Relations Committee, including former U.S. Sen. John McCain, on lifting our embargo and opening Vietnam for business in 1991. His work contributed to the lifting of the embargo in 1994. While in Washington, he completed an MBA from Marymount University. He was awarded a 4th degree black belt from the World Tae Kwon Do Federation of South Korea. After retirement, Don and his wife, Amy, moved to Oregon from Singapore to be closer to family. They have five children and six grandchildren. After relocating DaSaro began teaching general business, marketing, leadership, international business and engineering management courses at Oregon Tech.

Thomas M. Feger, PE

Consultant
Professional Services Inc.
Springfield, Ill.



Thomas M. Feger, CE'69, of Springfield, Illinois, is a part time special consultant for Hanson Professional Services Inc. He has worked in both the public and private sectors. He has solved engineering

issues from the perspective of a utility engineer working for Illinois Power Co.; a planning, construction and sewer system engineer for the city of Springfield; and as a senior civil engineer for Hanson Professional Services Inc. Feger is active in a wide variety of professional, civic, alumni and community organizations serving in various positions of leadership. They include the American Public Works Association, serving as director and president of the Prairie Branch and Illinois Chapter membership committee chairman; the National Society of Professional Engineers; the Illinois Society of Professional Engineers; the Greater Springfield Chamber of Commerce Quantum Growth Partnership infrastructure committee; numerous roles at St. Aloysius Catholic Church and Grade School; and youth summer leagues, junior high and high school baseball coach. Feger is active in the Miner Alumni Association, serving as a founding member and member of the board of

directors of the association's Lincolnland Section. He is a former area director and an admissions ambassador, serving as point person at college fairs and prospective student receptions in central Illinois. In 2008, Feger was named Outstanding Engineer of the Year by the Capital Chapter of the Illinois Society of Professional Engineers and in 2016, he received the Frank J. Mackaman Volunteer Service Award from the Miner Alumni Association. Feger has three sons, Thomas M. Jr. and twins Bryan and Brett.

Bernard D. Held, PE

Retired Senior Vice President
Crawford, Murphy & Tilly
Plainfield, Ill.



Bernard D. Held, CE'75, of Plainfield, Illinois, is a retired senior vice president at Crawford, Murphy & Tilly (CMT). He joined CMT in 1976 and served most recently as director of water resources.

He retired in 2018, but has continued to serve as an adviser. Held has 42 years of progressive engineering experience in the water and wastewater industry. He has worked as a resident engineer, design engineer, project engineer, project manager, program manager, department manager and director for CMT. Over his career, Held has managed several multi-million-dollar construction programs for wastewater and drinking water improvement programs for a variety water reclamation and municipal clients. He is a member of the Water Environment Federation, the American Water Works Association, and the Illinois Water Environment Association, where he was inducted into the 5S honor society in 2017. A member of the National Board of the United States Minority Contractors Association, Held served on the Miner Alumni Association board of directors from 2012 to 2018, and he is an alumni admissions ambassador helping recruit students to S&T. Held and his wife, Jane, have four grown children (one a civil engineering alumna) and 13 grandchildren.

(continued on the next page)

Academy of Civil Engineers (continued)

Gary W. Hines, PE

Vice President of Operations
Pipeline Research Council
International Inc.
Frisco, Texas



Gary W. Hines, CE'95, of Frisco, Texas, is vice president of operations for Pipeline Research Council International Inc. (PRCI). Prior to joining PRCI, he was vice president

of learning and professional development at the Southern Gas Association (SGA). Before SGA, Gary worked for Southern Star Central Gas Pipeline Inc. in Owensboro, Ky. He has over 20 years of experience in the energy industry with over 10 years in various leadership and management roles. Prior to his tenure in management, he held positions in project engineering, project management and managing environmental remediation projects at both Southern Star and The Williams Companies in Tulsa, Okla. Hines discovered his passion for learning and helping others to learn while at Rolla. He has served as a program evaluator for ABET (Accreditation Board for Engineering and Technology) and mentored peers and emerging leaders in preparing for the Certified Association Executive (CAE) accreditation exam. Hines earned an MBA from Colorado State University in 2005. He also holds a private pilot's license. He is a registered professional engineer in Missouri and has earned his CAE credential. An active member of the Miner Alumni Association, Hines serves on the board of directors and is an area director representing Texas. He is married to his high-school sweetheart, Nicole, and they have three teenagers — Emily (a student at Ole Miss), Alex and Aaron.

Tim Hudwalker, PE

Vice President
BSI Constructors
St. Louis, Mo.



Tim Hudwalker, CE'88, of St. Louis, is vice president of BSI Constructors. He earned a master of engineering degree from Clemson University in 1990. A two-sport athlete at S&T, he earned

letters in both basketball and golf and was a member of Sigma Phi Epsilon, Chi Epsilon, and Theta Tau Omega. Hudwalker started his career with H.B. Zachry Co. constructing oil and gas facilities in the gulf coast region and in 1995, joined BSI Constructors as project engineer. He moved his way through the ranks and became vice president in 2013, and currently serves as project executive for numerous notable clients in the St. Louis region. He serves on the building committees of Ursuline Academy and Mehlville School District, and was recently appointed to the executive committee of the AGC of Missouri. Hudwalker and his wife, Shari, have three children, Curtis, Megan and Jonathan, EMgt'18.

Richard Jaquay, PE

Retired Construction Manager
Black and Veatch
Goodyear, Ariz.



Richard Jaquay, CE'63, of Goodyear, Arizona, is a retired construction manager for Black and Veatch. Jaquay spent 41 years with Black and Veatch on the construction side of

water and wastewater systems, serving in leadership roles on many projects. He has been recognized at the highest levels, including being named Engineer of the Year in Construction for the state of

Arizona in 1988. He was elected president of the Arizona Society of Professional Engineers in 1992. Jaquay has been active in both professional service and community service, and has served in many volunteer roles for K-12 education, including judging science projects through his local high school, and with international community sanitation and health. He was recognized for his statewide leadership with MATHCOUNTS. His brothers, Francis, ME'77, and Steven ChE'76, who passed away in 2005, are also Miner alumni. Jaquay loves to read and owns an extensive private library. He has visited every continent and over 60 countries. His wife, Barbara, is a geography scholar who holds a master's degree from Arizona State University and a Ph.D. from Texas A&M. She has taught in six states.

LaWanda Jones, PE

Corporate Marketing Manager
ABNA Engineering Inc.
St. Louis, Mo.



LaWanda Jones, CE'91, of St. Louis, is a corporate marketing manager for ABNA Engineering Inc.,. She earned an MBA from the University of Missouri-St. Louis

in 2007 and a community development degree from Saint Louis University in 2008. Jones' engineering career began with an internship at Consolidation Coal Co. (CONSOL) ensuing project experiences throughout Missouri, Illinois, Kentucky, Ohio, West Virginia and Pennsylvania. She also holds professional engineering licensure in most of these states. Her career continued at ABNA Engineering Inc., providing project management and civil designs in site design, complex utility projects, planning, environmental and historical compliance, water and wastewater resources, and community engagement. During Jones' 30 years of experience, she developed a portfolio of engineering leadership on a number of exciting capital projects, some of which plunged her 700 feet below ground and dangled her over

225 feet in the air (of course with a bedazzled safety harness). Jones is an active S&T alumna. She has served as a keynote speaker for Honor, Hurdles and Heroes, she chaired the Chancellor's Advisory Committee on African American Recruitment and Retention (CACAARR), endowed two S&T scholarships, and is a 2015 Miner Legend and a 2019 Women Hall of Fame inductee. She is also active in several civic, social and professional organizations such as the National Society of Black Engineers (NSBE). Jones loves learning and uses her motivating spirit to attract the next generation of engineers into the science and technology field. She and her husband, LeRoye, have two children, Maya and Isaiah.

Brent Massey, PE
Principal
CEI Engineering Associates Inc.
Bella Vista, Ark.



Brent Massey, CE'95, of Bella Vista, Ark., is principal in charge of CEI Engineering Associates Inc. He joined CEI after graduation and has worked on engineering designs for development

projects all over the country, rising to principal and vice president of operations for the 100-person firm. Massey is licensed in 23 states and has had the opportunity to work on projects in 49 of the 50 states. His projects include public streets, water mains, trails and commercial developments for corporate America such as McDonald's, Auto Zone, Walmart and Kohl's. He is the Engineer of Record for the Walton family's Crystal Bridges Museum of American Art in Bentonville. Active in the American Council of Engineering Companies of Arkansas (ACEC/A), Massey has served as a director of the council, as well as the Arkansas president and PAC chair. He is currently serving an appointment to the advisory committee on Arkansas Public Schools Academic Facilities. Active in church and community, Massey has served as a youth coach in basketball and softball. For many years he has chaired the men's ministry of the First Baptist Church in Bentonville, and has chaired

"Bucks and Boats," a Christian outreach program in Northwest Arkansas. He and his wife, Melissa, have two children.

Dr. John J. Myers, PE,
F.ACI, F.ASCE, F.IIFC, FTMS
Associate Dean and Professor
College of Engineering and Computing,
Civil, Architectural and
Environmental Engineering
Missouri S&T
Rolla, Mo.
HONORARY MEMBER



Dr. John J. Myers, of Rolla, Missouri, associate dean of academic affairs for the Missouri S&T College of Engineering and Computing, was inducted as an honorary member.

Myers earned a bachelor of science degree in architectural engineering from The Pennsylvania State University in 1987. He also earned a master of science degree in civil engineering and a Ph.D. from the University of Texas at Austin. Myers joined the S&T faculty in 1999 and has served as an assistant professor, associate professor, professor, acting vice provost and dean, associate vice provost and dean for academic affairs, director of the Structural Engineering Research Laboratory, director of the National University Transportation Center, Architectural Engineering Program coordinator and the CAEE assistant chair. Myers is known for the high caliber of his work, but also for his ability to engage his students in the classroom and the laboratory. He supports campus recruitment programs and other student-related activities. Myers helped prepare the successful proposal for the architectural engineering program at S&T, and he led its implementation through the first two accreditation cycles. Myers is active in a variety of professional organizations, including the American Concrete Institute, the Prestressed-Precast Concrete Institute, The Masonry Society, IIFC, ASCE's Architectural Engineering Institute and the American Society for Engineering Education. He also serves on the editorial board of the Swiss-based

Journal of Sustainability. A recognized Fellow in many of these same organizations, he has received numerous awards for his efforts as an educator, including being recognized by the Academy of Civil Engineers in 2017 with the Inaugural Joseph H. Senne Faculty Scholarly Achievement Award. Myers and his wife, Angie, have three children, Tyler, Makenna and Cailyn.

Scott Preston, PE
Colonel
U.S. Army Corps of Engineers
Alexandria, Va.



Col. Scott Preston, CE'97, MS EMgt'02, of Alexandria, Va., is a graduate of the Marine Corps War College in Quantico, Va. An ROTC student, he was commissioned a 2nd Lieutenant in

the U.S. Army Corps of Engineers at graduation. While on active duty, Preston served in roles of increasing responsibility at Fort Leonard Wood, Mo., Korea, Heidelberg and Bamberg, Germany, and Fort Knox, Ky. He commanded the 169th Engineer Battalion, Fort Leonard Wood, Mo., where he trained the army's vertical construction engineers, firefighters, mappers, divers and sapper leaders. He most recently served as an assignment officer with Colonel Management Office, Office of the Chief of Staff of the Army in the Pentagon, where he managed the careers of all colonels in the Corps of Engineers and Chemical Corps. He completed a master of arts degree in strategic studies from the Marine Corps War College in June. This summer, he will take command of the U.S. Army Corps of Engineers, Tulsa District. He is a graduate of the Engineer Officers Basic Course, Captains Career Course, Airborne and Ranger School, and Command and General Staff College. Preston's combat deployments include Kosovo in 1999, Iraq in 2003 and 2008, and Afghanistan in 2010. His volunteer activities include serving as alumni advisor for the S&T chapter of Lambda Chi Alpha fraternity, Cub Scout den leader and a Scouts BSA assistant scoutmaster. He received the Miner Alumni Association's

(continued on the next page)

Academy of Civil Engineers (continued)

Distinguished Young Alumnus Award and the Academy of Civil Engineers' Young Alumni Award. From the Army Engineer Association, he received the Bronze Order DeFleury Award and from the Army, the Meritorious Service Medal and Bronze Star Medal. Preston and his wife, Christy, have two children.

Dr. Kevin Sutterer, PE

Chair and Professor
Civil and Environmental Engineering
Rose-Hulman Institute of Technology
Terre Haute, Ind.



Dr. Kevin Sutterer, CE'82, MS CE'84, of Terre Haute, Ind., is a professor and head of civil and environmental engineering at Rose-Hulman Institute of Technology. He

earned a master's degree from Purdue University and a Ph.D. from Georgia Institute of Technology. At Rose-Hulman, Sutterer teaches courses in geology as well as geotechnical and transportation engineering. His research interests include waste utilization in structural fills, seismic stability of earth structures, geosynthetics, ground modification and geotechnical construction. His research interests include open-ended project-based learning, curriculum development and learning through case studies. A registered professional engineer, Sutterer has worked as a consultant in most areas of geotechnical engineering. Among his honors, Sutterer was named to the Council of Outstanding Young Engineering Alumni at Georgia Tech and Young Engineer of the Year by the National Society of Professional Engineers in 1996. He was awarded Outstanding Faculty Advisor by the American Society of Civil Engineers in 2008. In 2018, he was honored by the American Society for Engineering Education with the George K. Wadlin Distinguished Service Award. Sutterer and his wife, Kathy, have three grown children and are grandparents.

Mike Woessner, PE

President
Investment Realty Inc.
Rolla, Mo.



Mike Woessner, CE'76, of St. James, Mo., is president of Investment Realty Inc. He received the university's Award of Professional Distinction in 2008. Woessner

worked for BCI, a local wood truss manufacturing company from 1976 to 1984. In 1978, he obtained his real estate salesperson license and then in 1980 he received his Broker's license. He opened Investment Realty Inc. in Rolla in 1984 and has become a leader in the commercial and development market and leads a staff of over 35 people. Woessner has been involved with numerous commercial and residential developments in and around Rolla and is also responsible for the Miner Alumni Association purchase of the property for Hasselmann Alumni House. He is a member of several professional and civic organizations, including the National Association of Realtors, the Rolla Regional Economic Commission the South Central Board of Realtors, the Rolla Lions Club, the Rolla Area Chamber of Commerce and the Missouri 100 Club. He was also a member of the S&T Chancellor Search Committee. Woessner and his wife, Linda, have two grown children and five grandchildren.

Academy Awards (cont.)

Joseph H. Senne Jr.
Faculty Teaching and
Service Achievement Award
Dr. Lesley Sneed

Joseph H. Senne Jr.
Faculty Scholarly
Achievement Award
Dr. Hongyan MA

**CArE Engineering
Exemplary
Young Alumni Award**
Paula (Wuebbels) Hart, CE'00
Chris Vaeth, CE'02

**Academy of Civil
Engineers Outstanding
Ph.D. Student
Achievement Award**
Liang Fan

**Neil Stueck Outstanding
Senior Award**
Sam Bryant, CE'19

**CArE Engineering
Outstanding
Support Staff Award**
Greg Leckrone



Liang Fan



Sam Bryant



ABBOTT RETIRES

After 18 years of service to Missouri S&T, Gary Abbott, research engineering technician in civil, architectural and environmental engineering, retired.

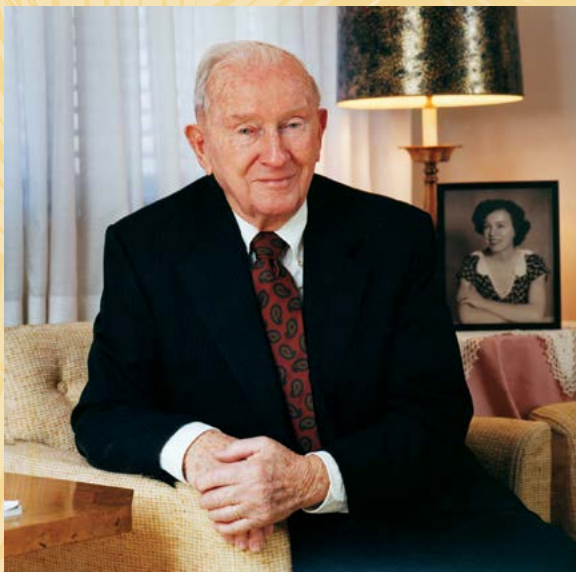
In December, the department invited the campus community to celebrate with Abbott. As you can see, a few people stopped by to wish him well in his retirement.



Engineers and technicians that worked closely with Abbott throughout the years.



Pictured are John Bullock, engineering technician I, Gary Abbott, Dane Shaw, CE'11, MS CE'13, and his wife Julie, CE'11, ArchE'11, MS CE'13.



Chester Baker, CE'55

CHESTER BAKER PASSES AWAY AT AGE 104

Chester Hugh Baker, CE'55, passed away Jan. 27 in Rolla, Mo. at age 104. He worked at the U.S. Geological Survey in Rolla for more than 30 years, retiring in 1981. Baker is the namesake of the Chester and Evelyn Baker Greenhouse, located on the roof of the Butler-Carlton Civil Engineering Building.

Chester proudly served in the U.S. Navy in the South Pacific during World War II from 1943 to 1945. He was a member of the Academy of Civil Engineers and a strong supporter of our department and the S&T campus.



**Civil, Architectural and
Environmental Engineering**
211 Butler-Carlton Hall, 1401 N. Pine St.
Rolla, MO 65409-0030

NON PROFIT ORG.
U.S. POSTAGE
PAID
ROLLA MO
PERMIT # 170

Connect with us.

Email your news to: care@mst.edu



CELEBRATING
150
YEARS

Missouri S&T will kick-off its 150th anniversary celebration during Homecoming 2020 with special events on and off campus. The 13-month celebration will wrap up in November 2021. Please join us as we honor the university's past, celebrate its present and envision its future.

October 2020 - November 2021

For more details, visit marketing.mst.edu/150