



MISSISSIPPI STATE UNIVERSITY
JAMES WORTH
BAGLEY
COLLEGE OF ENGINEERING

DAVE C. SWALM
SCHOOL OF CHEMICAL
ENGINEERING

carbon	helium
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C	He
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neon	tungsten	sulfur
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TO STAY INFORMED:

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Faculty Spotlight: Dr. Amin Amirlatifi

By: Will Laird

Dr. Amin Amirlatifi is an assistant professor of the Swalm School of Chemical Engineering at Mississippi State. Dr. Amin started his studies at the University of Petroleum Technology and received degrees from the University of Calgary and Missouri Science & Technology. He worked in industry for 8 years before hearing that Mississippi State was reviving its Petroleum Engineering (PTE) program. Dr. Amin applied and became the first faculty member for the new PTE program here. Dr. Amin has a two kids, 6 and 11, and a wife who is a Ph.D. Candidate in the Science & Engineering Department.

From an early age, Dr. Amin excelled in his math and science courses. He was also exceptionally proficient with electronics and computers. He saw petroleum engineering as a way to flex his many skills without being narrowed into a niche field. Coupled with the knowledge of rocks he acquired from his dad as a geology professor, petroleum engineering was an obvious choice. Dr. Amin also sees working in a university setting as an obvious choice. According to Dr. Amin, "it is my duty to give back by teaching" and "without our future generation, we are nothing." He currently teaches Petro-

leum Reservoir Rock Properties (PTE 3953) and the lab for the course along with Reservoir Engineering 1 (PTE 4903) and the Special Topics Course in Data Analytics (CHE 4990). For the Rock Properties lab during COVID, Dr. Amin knew his students would not get the full learning experience of working in a lab by just watching a video of someone conducting the lab. Therefore, he created a way in which students could attend lab through a virtual reality simulator. Students were able to turn valves and get live readings of gauges. This shows Dr. Amin's ingenuity, but also the passion he has for teaching his students.

Dr. Amin has many interests that have led him to several areas of research. He has papers published in quantum computing, CO₂ sequestering,

data analytics, and energy storage, just to name a few. At the latest Society of Petroleum Engineers Annual Technical Conference & Exhibition, two of his papers on carbon sequestering were among the top 5 most read papers presented at the conference. Carbon sequestering is the storage of atmospheric CO₂, typically underground. Dr. Amin sees carbon sequestering as one of the many tools needed by humans to reduce our emissions. Carbon Capture Transportation Utilization & Storage (CCTUS) can be very energy intensive and can lead to more emissions. To make this process more cost effective, we must find areas that already have the infrastructure in place to transport the CO₂ and subsurface areas that have already been examined. Going forward, Dr. Amin sees CO₂ becoming an important commodity for use in biofuel production and making cement.

Dr. Amin has brought substantial recognition to the Swalm School of Chemical Engineering through his areas of research and has equipped PTE and CHE students with the knowledge to succeed after graduation. Dr. Amin exemplifies the qualities of excellence and innovation for which we strive, making him a fitting first faculty member of the revived PTE program.



Alumna Spotlight: Dr. Angela Summers

By: Mae Riffel

Dr. Angela Summers is a Brandon, MS native who grew up as a Bulldog fan. She began her career at Heinz Community College and then transferred to Mississippi State University. In 1985, she obtained her Chemical Engineering BS from Mississippi State. During her time as an undergrad, she realized that the world of academia highly interested her. In the same month of her graduation with a bachelor's, she began her graduate schooling at Clemson University, where she obtained her MS in Environmental Engineering, followed by a PhD in Chemical Engineering from the University of Alabama. After all this schooling, she was ready to tap into industry.

Dr. Summers experienced the immediate effects of a chemical plant explosion at Pasadena, TX in 1989. This impacted her and her career path. In 1999, she decided to start her own business, SIS-TECH Solutions. This company specializes in the application of instrumentation and controls in preventing process safety

incidents. She notes how this was not an easy path, as this field is less than 10% female. She had to develop a very thick skin and learn how to overlook what other people thought and "just do."

When asked about owning her own technical business, she said that, although college prepared her for the technical side of it, the business side had to be learned along the way. Her mother even tried to prep her for this by making her take an accounting course offered at her high school, which she mentioned is one of her most used classes today. If she could give advice to students studying chemical engineering today, it would be to take a few accounting and business courses during their time in college as well as pay attention to their writing and speaking skills. Dr. Summers elaborated, "If you can learn to write, how to speak in public, and balance your checkbook, you can be a winner."

Dr. Summers now keeps herself busy with not only SIS-Tech Solutions, but



also owning a winery and teaching every spring at the University of Houston-Clearlake. She and her late husband, Sanjeev, purchased the land in 2004 and have worked extremely hard to create Saffron Field Vineyard into what it is today. Dr. Summers noted that her soft skills are on display when working at the winery as she works with customers and also keeps open communication with her engineering business and the winery no matter where she is.

ChemE Student Wins Co-op Student of the Year



Congratulations to Chemical Engineering senior **Kimmie Shiyou!** She was awarded Co-op Student of the Year. Kimmie completed four co-op rotations with Tronox in Hamilton, MS. Kimmie provided the following statement:

I was very grateful and excited to receive the Co-op Student of the Year award earlier this semester, and I am very thankful to the Career Center and Tronox. Co-oping was a great experience that I would recommend to everyone looking to have a career in chemical engineering! I was able to learn so much and also apply what I learned in classes. It was also a great opportunity for networking with other engineers with similar experiences as me. I would recommend using the Career Center's Co-op Office to your advantage: they offer so many helpful services.

Co-op Highlight: International Paper

By: Ben James



My co-op journey began in Fall 2020 when I applied to an opening that was found through a professor's email promoting the position. Not long after, I was interviewing with International Paper (IP) and able to accept a position as a Process Engineer Intern for their Vicksburg containerboard facility. A year later, I arrived on site and started my one-year co-op where I learned an abundance of useful knowledge – both process and professional.

During my first semester, I was assigned to the papermaking unit of the mill. This area is one of final steps of production of the containerboard, which is then used to make boxes of various sizes. I spent my first few weeks learning about the papermaking

process and becoming acquainted with the operators and engineers with whom I would be working for the duration of my co-op. While the Pulp & Paper course (CHE 4513) at Mississippi State was informative, actually seeing the different parts of the process, including the massive Kamyr digester and roll-out fourdrinier, helped me appreciate the greatness of the process!

One notable project that I worked on during this semester dealt with the trialing of chemical additives to the stock going to the paper machine. In this project, I oversaw the relocation of a chemical injection point because the current entry location for the chemical was causing a buildup of organic matter on a pump impeller. Once a permanent tap was installed in the new location, the chemical was fed to the process once again. The data were pulled to determine if there were any mixing issues with the new location. To be able to accomplish this project effi-

ciently, I had to create a relationship and sustain good communication with the contractors in charge of the chemical. I also learned the steps it takes to complete a project in a professional work environment.

While working at IP, I was also able to experience a paper mill outage. This yearly mill-wide outage, which can last multiple weeks, allows for the different units to conduct any capital or time-consuming projects. Lucky for me, I was allowed to oversee some hydro blasting jobs that were going to be conducted around the paper machine. I learned from having to manage my own outage job, including overseeing all the paperwork needed to greenlight the task and making on-the-spot decisions to ensure the health and safety of the workers I was supervising. I also learned how exhausting an outage can be!

My experience at IP gave me good insight not only to the pulp and paper industry but also to the professional duties of a chemical process engineer. I look forward to continuing my career in the pulp and paper industry after graduation.

AIChE Wins Banner Competition

Congratulations to AIChE for winning the student organization banner competition as part of Homecoming 2022 week in October. Many members contributed long hours to complete this impressive banner that features Swalm Hall, including **Caroline Boltz, Maggie Britton, Courtney Cochran, Laban Hunt, Will Laird, Lucie LeBlanc, Lexi Nassour, Jolee Rushing, Ryan Shaw, Victoria Taylor, and Marian Waltman.**



AIChE Student Conference in Phoenix, AZ

By: Jolee Rushing

The 2022 American Institute of Chemical Engineers Annual Student Conference was the best experience. We were able to hear from so many great speakers and meet students from chapters all over the world. Most notably, we won the 2021-2022 Outstanding Student Chapter Award! This is our 21st time winning the award in 22 years!

Victoria Taylor, K-12 STEM Outreach Chair, and I competed in the K-12 STEM Outreach competition, where we were taught kids of various ages about polymers and how to make edible gummy worms (see our demonstration video here: <https://tinyurl.com/34ftca8>). ChemE senior Maggie Britton presented her research at the undergraduate research poster competition. Our ChemE Car and Jeopardy team leaders, **Sean Williams** and **Will Laird**, watched and learned how other teams compete on a national level, so that we can be more prepared

to compete at the upcoming regional conference in Gainesville, FL.

I attended the Student Chapter President's Meeting, where I met with student chapter presidents from universities in Maine, New Hampshire, Kentucky, and more. It was so great to talk with these other presidents and learn how their AIChE chapters are thriving. During this meeting, we discussed successful events from our chapters and ideas we can use to improve our chapters and chapter involvement. We

took notes and planned ways to have an even bigger presence at next year's conference in Orlando, FL.

A new idea I want to implement from this conference is staying more in touch with our local AIChE Fellows. All of Mississippi's Fellows are either current professors or retired professors from Mississippi State. Doing so could help us get more ideas for professional development events, and we could even incorporate them into our alumni mentoring program if they are willing.



AIChE Hosts Football Tailgate

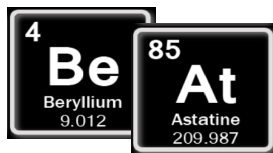
By: Will Randolph

Before the home football game against the Texas A&M Aggies, the AIChE student chapter hosted a tailgate in Swalm Hall. Students, families, faculty, and alumni enjoyed good food before heading off to enjoy an exciting Mississippi State football game. Hamburgers and hot dogs were grilled by none other than Dr. Bill Elmore. Desserts and barbequed beans were also served. This event provided a good chance to meet other students and share stories and experiences, as well as a great opportunity to network with the alumni and those in the industry. Be on the lookout for information about a tailgate next football season!



ChemEs Got the

Obviously, majoring in Chemical Engineering mandates a large amount of time in classes, labs, and studying. However, many students are able to balance the workload with being a member of the Famous Maroon Band. Being a member of the marching band requires daily evening practices, playing at every home game, and traveling throughout the season to play at away games. The marching band is typically composed of ~40% engineering students. Chemical Engineering students are



continuing to contribute to that statistic.

Not only are there many Chemical Engineering students who are a part of the band, but Chemical



Engineering's very own **Kelsei Elmore** is currently one of only four drum majors in the band. She serves as a leader on and off the field for the Famous Maroon Band!

Ryan Shaw, a senior in Chemical Engineering and tuba player, shared how the discipline he has learned in the band has prepared him well for the discipline necessary to be successful in engineering. Ryan enjoyed being mentored as an underclassman by seniors in the band who were also Chemical Engineering students. He has continued that legacy by befriending and mentoring underclassman who are where he was just 3 years ago.

AIChE Develops Alumni Mentoring Program

The Swalm School of Chemical Engineering is piloting a mentoring program in which CHE and PTE alumni are paired with undergraduate students who desire mentoring and direction for their future careers. Mentors and mentees communicate regularly to share successes, struggles, and concerns and to facilitate the students' professional development. Seniors Alayna Todd and Ashlyn Ruiz participate in this program and have shared their experiences.

Participating in the Swalm School Alumni Mentoring Program has been an incredible opportunity. My mentor, Ashley Wynne, has provided invaluable advice and encouragement. Ashley has critiqued my resume, connected me with other industry professionals, given me interview tips, and helped me set deadlines for optimum success in my job search. She has also given me insight into being a working mom and a woman in a male-dominated field. Her experience and advice have aided me in selecting my future career by answering my questions, listening to my goals and desires, and providing invaluable insight where needed. Ashley has become a trusted mentor and friend through this program, and I am grateful for Ashley's time and effort throughout our time in the program. (Alayna Todd, Chemical Engineering, May 2023)

The mentoring program has been an extremely beneficial experience while completing my degree. Ashley Wynne is my amazing mentor who has helped me to reach my professional and academic goals by supporting me through sharing her own experiences and providing me with great advice. She has helped me with everything from managing a stressful schedule to the job search process. Ashley has motivated and encouraged me while I applied and interviewed for jobs as well. She played an extremely important role helping me with the offer process by helping me review these important documents. Ashley helped me prepare for all of this by reviewing my resume, having regular meetings about my goals, and helping me build confidence as a future engineer. I am so thankful for all she has done to go out of her way to help me, and I am so happy I can call Ashley a friend and mentor! (Ashlyn Ruiz, Chemical Engineering, May 2023)

Congratulations to our Fall 2022 CHE Graduates!

Jackson Craig
Aaron Goldman Ω
William Johnson
Paul Devine
Jacob Fisher Ω
Micah Owens
Devarsionta Williams



A Spooky Affair

Addie Partrick, a ChemE sophomore, was among the student volunteers who helped with AIChE's Halloween-themed STEM outreach event at the Skate Odyssey after-school program this October. Over 150 K-8 students enthusiastically learned about density, chromatography, and polymerization by making jack-o-lantern lava lamps, coffee-filter flowers and butterflies, and bouncy balls. Next up: Girl Scouts Day in January 2023!

Ω = Omega Chi Epsilon member



Four ChemE Students Initiated into Tau Beta Pi

Congratulations to four chemical engineering upperclassmen who were initiated into Tau Beta Pi, The Engineering Honor Society, this semester. Only engineers of high scholastic achievement and exemplary character are invited to join Tau Beta Pi. For that reason, we are incredibly proud of **Dylan Bond, Aaron Brannan, Vitor Da Silva**, and

Ryan Shaw for joining. There are many distinguished Mississippi State

alumni and current faculty who are also members of Tau Beta Pi. Following the

initiation ceremony, **Bonnie Chapman**, a Mississippi State ChemE alumna, spoke to the new members encouraging them to pursue great things in their career while maintaining the exemplary character that qualified them for the honor society. Congratulations, gentlemen!



Congratulations to AIChE for such a successful semester. Thank you to all who helped in developing the newsletter this semester. Be on the look out for the Spring 2023 edition! — Maggie Britton, AIChE Newsletter Editor