



The DOMAIN of DISCOVERY

The University of Texas at Austin is a flagship university for innovative energy research. For 85 years UT PGE faculty have been developing tools that revolutionize the oil and gas industry, including the radial drill collar and the mini permeameter. With the department's reputation as the No. 1 petroleum engineering graduate program in the country, many students majoring in STEM at prestigious universities across the country desire to come to the Forty Acres to learn first-hand from some of the world's best petroleum engineering experts.

The Summer Undergraduate Research Internship (SURI) program, now in its eighth year, provides this research opportunity to a select group of almost 20 undergraduate students who are vetted through a stringent application process. Thanks to the support of our dedicated alumni and corporate partners, the students work in the UT PGE labs with faculty and graduate students on critical energy topics. The goal of the program is to offer a strong research experience to students, particularly those who are interested in pursuing a PhD in petroleum engineering.

The students are assigned a specific project at the beginning of the 10 week program and then provide their results at a final poster session

to faculty and program supporters. In addition, the students take a field trip to a major oil and gas company each year to see what it is like to conduct research in industry.

In the past, the program has mainly consisted of non-UT students. Due to the industry downturn leading to low summer internship availability, the department supplemented additional positions within the program. The purpose is to ensure UT PGE students gain valuable skills in the lab, which will help them succeed as students and engineers in industry.

During the program, UT PGE senior Lauren Wucinski worked with associate professor Matt Balhoff on microbial enhanced oil recovery (EOR). She was injecting microbes into a core so they could eat away at the oil and water interfacial tension, which reduces residual oil saturation.

"There is still so much to discover in petroleum engineering," said Wucinski. "We are looking for the next thing to revolutionize the industry."

Prior to the program, graduate school was not even a blip on Wucinski's radar, but now she is considering continuing on her educational journey after working directly with graduate students on a daily basis. She didn't realize how much research would fit her personality

type, but as someone who describes herself as "super detail-oriented" and "always checking everything twice" the research avenue matches her strengths.

Karl Schmidt, a senior in physics at the University of Southern California, tested a new algorithm on characterizing mixtures of fluids developed by assistant professor Ryosuke Okuno. He was comparing the old and new methods to see how thermodynamic parameters affect the topology of the Gibbs free energy.

"I'm helping to further refine the understanding of what the oil and gas is doing underground," said Schmidt. "If we know the properties and behaviors we can extract it more efficiently."

Schmidt is hoping to take his physics degree and apply it to an engineering field in graduate school. He has found petroleum engineering research rewarding and that it has taken him out of his comfort zone.

"We are doing completely groundbreaking research - we are working on ideas that have never been explored or even considered," said Schmidt. Wucinski added, "The program promotes coming up with new ideas. It might work, it might not but it is all about the drive to try."