

SPOTLIGHT: THE UNDERGRADUATE RESEARCH EXPERIENCE

What is your current position and how did you get to where you are?

My name is **Ashleigh M. Schwarz**. I started as a high school intern in the X-Ray Photoelectron Spectroscopy (XPS) Lab, and in my senior year of college, I transferred to an electrical engineering internship. I am currently an electrical engineer at Pacific Northwest National Laboratory (PNNL).

What made you decide to do research as an undergraduate student?

I have always enjoyed problem solving, whether it was fixing music stands in orchestra class or building my own light table for an art project. I wanted to become an engineer, but I was not sure what type of engineer I wanted to be. In school, I loved learning about how different elements interact. When there was a chance to apply for an internship at PNNL, I hoped to end up in a chemistry-related position. I ended up in surface analysis and eventually became a subject matter expert on operating the XPS. This led me to working on different research projects with outstanding colleagues and mentors. Over the years, I was excited to see what research and engineering looked like as a career.



As an undergraduate researcher, were there particular incidents that stand out?

My internship was in the Environmental Molecular Sciences Laboratory (EMSL), a Department of Energy user facility at PNNL. What stood out in my internship was the people. Everyone was willing to teach me, answer my questions, and was understanding when I did not comprehend. While working in the XPS lab, I was able to meet scientists and be involved in their research. This broadened my understanding of chemistry, specifically binding energies (I can still rattle off the binding energy of silicon and carbon). My work on the XPS led to my inclusion on multiple research papers.

One of my favorite incidents started when I was doing spectrum analysis on a recent XPS run. A scientist came in and announced that he'd had an epiphany. He figured out a new way of testing batteries with XPS. To help make his epiphany a reality, I spent a year or so working on the team that redesigned the sample holder for the XPS system. The new holder allowed us to charge and discharge a battery and collect data on the chemistry involved. Also, I got to be part of the discussions and implementation of testing the samples. I enjoyed working on a project from start to finish. It is exciting to see the process from inception to publication.

Any final thoughts?

Starting as an undergraduate student was a tremendous experience. It helped me to develop skills in creating posters and presentations along with confidence in speaking and writing. It gave me a chance to experience what it was like working in my chosen field in a learning environment. I am where I am today because of that internship.

