SOCIETY of PHYSICS STUDENTS

"My summer research experience at CERN"

Grace Miller, Physics Honors & Math Honors senior (class of 2025)

The European Center for Nuclear Research (CERN) is renowned for its cutting-edge research in the world of particle physics. CERN houses the Large Hadron Collider (LHC), a 27-kilometer particle accelerator, famous for its discovery of the Higgs Boson—the particle responsible for giving things mass.

I had the opportunity to work at CERN through a Research Experience for Undergraduates (REU) organized by Duke University. During my time at CERN, I worked under the ATLAS experiment to help build a framework that will allow us to measure the full quantum tomography of top quark decays at the LHC. This will provide the necessary groundwork to analyze aspects of quantum entanglement in top quark decays, specifically between the orbital angular momenta and the spin angular momenta of the decay products. This will be the first measurement of entanglement in orbital and spin angular momenta outside of photons. I will elaborate on some of CERN's fascinating experiments, the research project I contributed to, and share my experiences working at CERN and living in France!

Tuesday, October 1st , 2024

SR 151, 11:30 am

Pizza will be provided