

Rachel Jordan Hyneman – HEP Seminar – 9/13/2023
CERN

The title is:

Studying Higgs Boson Self-Interactions at the ATLAS Experiment

The abstract is:

As the most recently discovered fundamental particle, the Higgs Boson offers many promising avenues towards further understanding our universe. One special avenue of study is in measuring the Higgs Boson's interactions with itself, which have significant implications for both the microscopic and macroscopic nature of the universe we inhabit. In this talk, I will discuss how we study the Higgs self-interaction through measurements of the production of pairs of Higgs Bosons at the ATLAS experiment at the Large Hadron Collider. I'll focus on how we can use machine learning to measure the "impossible" final state in which both Higgs bosons decay to two b-quarks. I'll then discuss how this measurement fits within the broader program and prospects for Higgs Boson self-interaction studies in ATLAS.