Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Searching for Dark Matter with Boosted Higgs Bosons in pp collisions at $\sqrt{s}$ = 13 TeV with the ATLAS detector NIKOLA WHALLON, University of Washington, ATLAS COLLABORATION — If Dark Matter interacts with Standard Model particles, it could be possible to pair produce Dark Matter in association with another particle at a collider such as the LHC. If this other particle is a Higgs boson, the process is called mono-Higgs, since the resulting signature is a single boosted Higgs boson, reconstructed using advanced jet techniques, balanced by missing energy from the undetected Dark Matter particles. I will present the latest results of the mono-Higgs search using data taken from pp collisions at $\sqrt{s}$ = 13 TeV with the ATLAS detector, including model-independent limits and limits on a 2HDM simplified model. In order to increase the sensitivity reach of the search for future iterations, I have worked closely on the development of new boosted Higgs tagging techniques, including the use of variable radius (VR) track jets. These new techniques, and their performances, will also be presented, and their application to the mono-Higgs and other BSM searches will be discussed.

Nikola Whallon
University of Washington

Date submitted: 12 Jan 2018 Electronic form version 1.4