Contribution ID: **142** Type: **Oral Presentation**

Prospects for Measuring the Four-Top Production Cross Section using 139fb^{-1} of Data in pp Collisions at $\sqrt{s} = 13$ TeV with the ATLAS Detector

Thursday, 1 August 2019 14:40 (20 minutes)

The production of four top-quarks, a rare final state predicted by the Standard Model, has never been seen at the 3σ level. Additionally, this final state may be particularly sensitive to physics beyond the Standard Model. The ATLAS search for four top-quark production using 2015-2018 data collected at $\sqrt{s} = 13$ TeV, with a combined luminosity of 139 fb^{-1}, is in progress. One important aspect to improve the measurement is the optimization of variables for jets, including b-tagged and re-clustered jets, in order to isolate signal events from the primary $t\bar{t}$ background in the 1-lepton and dilepton opposite-sign channels. By performing profile likelihood ratio fitting, we evaluate and report the significance associated with alternative selection criteria on jet variables.

Primary author: LINDLEY, Rachel Elizabeth (University of Arizona (US))

Presenter: LINDLEY, Rachel Elizabeth (University of Arizona (US))

Session Classification: Top Quark Physics

Track Classification: Top Quark Physics