



LHC Seminar

SPEAKER: LISTER, A. (University of British Columbia (CA))

TITLE: **Recent ATLAS results on inclusive and differential top quark production**

DATE: Tue 05/07/2016 11:00

PLACE: 222-R-001 - Filtration Plant

ABSTRACT

Recent results from measurements of top quark pair and single top production by the ATLAS experiment are presented. Final inclusive and differential results from Run 1 are shown along with a first look at the 13 TeV data. Measurements of single top quark production in all three possible modes have been performed at ATLAS at 8 TeV. The first 13 TeV data was used to measure the t-channel production cross section, showing good agreement with the prediction. The Run 1 data was used to measure particle and parton level differential cross sections in top-pair events over a wide range of phase-space up to high masses, high momentum or high jet multiplicity. These results are compared to state-of-the-art NLO Monte Carlo predictions. A number of parton level results are compared to recent NNLO differential distributions, which show good agreement with the data. Results in both the lepton-plus-jets and dilepton channels are shown. The 2015 data at 13 TeV has allowed us to measure the additional jet multiplicity in dilepton events at a new centre-of-mass energy. The Run 2 data has also allowed measurements of the production of top quark pairs in association with an additional weak boson. Finally, a measurement of the top pair production cross section in events with one electron and one muon is presented; its precision is on a par with that of the NNLO+NNLL calculations.