



Joint EP/PP/LPCC seminars

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TITLE: **Measurement of W +jet production and of the top-pair production cross-section with ATLAS"**

DATE: Tue 01/02/2011 11:00

PLACE: Council Chamber

ABSTRACT

We present first measurements of the top-quark pair-production and the inclusive W +jets cross-section in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector at the Large Hadron Collider.

These are important Standard Model processes which have been the subject of much recent theoretical attention in preparation for LHC running.

In a data sample of 2.9 pb⁻¹ we observe 37 top-pair candidates in the single lepton and 9 in the dilepton channel, leading to the measurement of the $t\bar{t}$ production cross-section $\sigma(t\bar{t}) = 145 \pm 31^{+42}_{-27}$ pb.

In a data sample of 1.3 pb⁻¹, cross-sections, in both the electron and muon decay modes of the W boson, are presented as a function of jet multiplicity and of the transverse momentum of the leading and next-to-leading jets in the event. Measurements are also presented of the ratio of cross sections $\sigma(W + \geq n) / \sigma(W + \geq n-1)$ for inclusive jet multiplicities $n=1-4$.

The measurements are compared to recent higher-order and high-multiplicity Standard Model calculations.