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Measurement of top quark pairs production cross-section in the lepton+jets channel at $\sqrt{s}=7$ TeV at the LHC with the ATLAS experiment

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Top quark pair production in pp collisions has been measured at a center of mass energy of 7 TeV using 36.6 pb⁻¹ of data recorded in 2010 by the ATLAS experiment at the LHC. A cut based analysis was applied to select events containing exactly one energetic charged lepton, large missing transverse energy compatible with the presence of an undetected neutrino and four jets, of which at least one tagged as originated from a b quark. The main backgrounds, due to QCD and W+jets processes, have been evaluated directly by data, while other sources of background and the signal are described by a Monte Carlo simulation.

The final result is obtained combining the electron and muon channels using a technique based on Bayes' theorem that takes into account both correlated and uncorrelated systematics.

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