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Evidence for the associated production of a W boson and a top quark in ATLAS

In proton-proton collisions at the LHC, top quarks can be produced in pairs via the strong interaction and individually via the weak interaction. The weak interaction production can be subdivided into three channels: the tchannel,
the s-channel and the associated production of a
W boson and a top quark. The total production cross section of these three channels is about one third of the total top quark production cross section. The t-channel
has the dominant cross section and has been measured both at the Tevatron and the LHC. However, the Wt associated production has not yet been observed.
Different final states can be used to isolate the associated Wt production from background processes, depending on the decay modes of the two W bosons. The channel with two leptons in the final state has already been used to present evidence for Wt associated production at $\sqrt{s}$ =7 TeV. The measurement uses a boosted decision tree to separate signal from background. The latest results from the ATLAS experiment for the Wt production process will be presented.

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