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Cross section measurement of $t\bar{t}\gamma$ production in pp collision at $\sqrt{s} = 8$ TeV with the ATLAS experiment

The cross-section for top-quark pair production in association with a photon is measured in proton-proton collisions at the LHC at a center of mass energy of $\sqrt{s} = 8$ TeV. The data with a total integrated luminosity of 20.2 fb⁻¹ collected by the ATLAS detector in 2012 is used. The measurement is performed in the single lepton decay channel. The signal region is defined by the final state of exactly one high p_T lepton, large missing transverse momentum, at least four jets where at least one is being b-tagged and exactly one photon with $p_T > 15$ GeV. The cross-section times the branching ratio is determined in a fiducial region defined in terms of the detector acceptance. The measured $t\bar{t}\gamma$ fiducial cross-section is in good agreement with the NLO prediction. In addition, the differential cross section as a function of photon p_T and η is measured.

Experimental Collaboration

ATLAS

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