

Top quark pair charge asymmetry using the ATLAS detector at the LHC

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Summary

A measurement of the top quark pair ($t\bar{t}$) production charge asymmetry A_c using 4.7 fb⁻¹ of proton-proton collisions at a centre-of-mass energy of 7 TeV collected by the ATLAS detector at the LHC is presented. A $t\bar{t}$ -enriched sample of events with a single lepton (electron or muon), missing transverse momentum and at least four high transverse momentum jets, of which at least one is tagged as coming from a b-quark, is selected. The measured value of the $t\bar{t}$ production charge asymmetry is 0.006 ± 0.010 , where the uncertainty includes both the statistical and the systematic components. Differential A_c measurements as a function of the invariant mass, the rapidity and the transverse momentum of the $t\bar{t}$ -system are also presented. In addition, A_c is measured for a subset of events with large $t\bar{t}$ velocity, where physics beyond the Standard Model could contribute. All measurements are consistent with the Standard Model predictions.

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