

XXIV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS16)



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Top quark pair property measurements using the ATLAS detector at the LHC

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Precise measurements of the properties of the top quark test the Standard Model (SM) and can be used to constrain new physics models.

The top quark pair charge asymmetry is an asymmetry predicted to occur beyond leadingorder QCD in the SM, and may be significantly enhanced by the presence of new physics. The $t\bar{t}$ production charge asymmetry is measured inclusively and differentially using the 8 TeV ATLAS dataset using both the lepton+jets and dilepton channels, including a dedicated measurement for highly boosted topquarks.

The results are in agreement with the SM and are compared to new physics models. The topquark is predicted in the SM to decay almost exclusively into a W boson and a bquark. We present a wide range of searches for nonSM top quark decays using the 8 TeV ATLAS dataset, including $t \rightarrow q H$, $t \rightarrow q \gamma$ and $t \rightarrow q Z$. In addition, measurements of the Whelicity and spin correlations in $t\bar{t}$ production are presented.

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