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Anomalous couplings in single top and searches for rare top quark couplings with the ATLAS detector

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The top quark is the heaviest known fundamental particle and probing its couplings with the other fundamental particle may open a window to physics beyond the Standard Model. Single top-quark production provides a unique window to study the coupling between the top quark, the W boson and the b quark, since it involves the Wtb vertex in both production and decay. Measurements of angular correlations in single top quark events in the t-channel exchange of a W boson are presented based on the 8 TeV ATLAS dataset. Differential cross-sections are measured as a function of angular variables that are sensitive to anomalous contributions to the Wtb vertex and the top quark polarization. Searches for flavour-changing neutral current top-quark interactions are also discussed based on the 8 TeV and 13 TeV ATLAS dataset. Searches for rare top quark decays to Higgs and Z bosons are presented in top quark production, and searches for rare top quark interactions with gluons and Z bosons are presented in single top quark production.

Experimental Collaboration

ATLAS

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