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Towards the Selection of Top-Like Events in the Lepton+Jets Channels in Early 7 TeV LHC-Data with CMS

The top quark is the heaviest known fermion in the standard model. Due to its large production cross section, pairs of top and antitop quarks will be copiously produced in high energy proton-proton collisions at the Large Hadron Collider (LHC). The event selection deemed for the selection of ttbar events is applied to an early data set of proton-proton collisions at sqrt(s) = 7 TeV. The predicted background yields are compared to the overall yield of events collected in this data set, and data-driven techniques to estimate the background contribution from QCD multijet events are evaluated in sideband regions of the phase space. Kinematic comparisons demonstrate good agreement between simulated events and current data, putting the prospect of measurements of the top-quark pair production cross section on firm ground.

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