

# Measurement of $t\bar{t}$ production with a veto on additional central jet activity in pp collisions at $\sqrt{s} = 7$ TeV using the ATLAS detector

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## Abstract

A measurement of the jet activity in  $t\bar{t}$  events produced in proton-proton collisions at a centre-of-mass energy of 7 TeV is presented, using 2.05 fb<sup>-1</sup> of integrated luminosity collected by the ATLAS detector at the Large Hadron Collider. The  $t\bar{t}$  events are selected in the dilepton decay channel with two identified b-jets from the top quark decays. Events are vetoed if they contain an additional jet with transverse momentum above a threshold in a central rapidity interval. The fraction of events surviving the jet veto is presented as a function of this threshold for four different central rapidity interval definitions. An alternate measurement is also performed, in which events are vetoed if the scalar transverse momentum sum of the additional jets in each rapidity interval is above a threshold. In both measurements, the data are corrected for detector effects and compared to the theoretical models implemented in MC@NLO, POWHEG, ALPGEN and SHERPA. The experimental uncertainties are often smaller than the spread of theoretical predictions, allowing deviations between data and theory to be observed in some regions of phase space..