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Measuring the $t\bar{t}$ Forward-Backward Asymmetry using semi-leptonic final states at 8 TeV with the CMS detector

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We present a measurement of Forward-Backward Asymmetry (A_{FB}) in $t\bar{t}$ production. The data sample corresponds to 19.7 fb^{-1} of integrated luminosity in proton-proton collisions at $\sqrt{s} = 8 \text{ TeV}$ collected by the CMS experiment at the LHC. Events selected contain a single isolated muon or electron, with four or five jets of which two are b-tagged. A template technique is used to extract the asymmetry from the top quark kinematic distributions. This technique is based upon an extension of the tree-level cross section for $q\bar{q}$ initial states that sensitively isolates $q\bar{q}$ from gg/qg initial states. The measured A_{FB} and relative abundance of $q\bar{q}$ initiated $t\bar{t}$ will be reported and compared to both theoretical calculation and results from D0 and CDF experiments of Tevatron.

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