Search for a fourth generation $t'$ quark that decays to $W$ boson + jet

JEONG KU LIM, Korea University, DOOKEE CHO, Brown University, D0 COLLABORATION — We present a search for pair-production of a fourth generation $t'$ quark with its antiparticle, followed by their decays to $Wq$, based on 5.3 fb$^{-1}$ of proton-antiproton collisions at $\sqrt{s} = 1.96$ TeV collected by the D0 experiment at the Fermilab Tevatron. We compare the reconstructed mass of the $t'$ quark from lepton+jets final states and the scalar sum of the momenta of all observed objects in the event to Standard Model expectations to search for signals of new physics. We set upper limits on the $t\bar{t}'$ production cross section.

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