Measurements of single top quark production cross section and search for anomalous $Wtb$ Couplings at D0

JYOTI JOSHI, University of California, Riverside, D0 COLLABORATION — We present new measurements of the single top quark production cross section in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV using data corresponding to 5.4 fb$^{-1}$ of integrated luminosity collected by the D0 detector at the Fermilab Tevatron Collider. The large mass of the top quark, close to the electroweak symmetry-breaking scale, makes it a good candidate for probing physics beyond the Standard Model, e.g. anomalous couplings. We examine the data to study the Lorentz structure of the $Wtb$ coupling. We find that the data prefer the left-handed vector coupling and set upper limits on the anomalous couplings.

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