

ICHEP2012



Contribution ID: 540

Type: **Parallel Sessions**

Search for anomalous Wtb couplings in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV (D0)

Friday, July 6, 2012 3:15 PM (15 minutes)

We present new direct constraints on a general Wtb interaction using data corresponding to an integrated luminosity of 5.4 fb^{-1} collected by the D0 detector at the Tevatron $p\bar{p}$ collider. The standard model provides a purely left-handed vector coupling at the Wtb vertex, while the most general, lowest dimension Lagrangian allows right-handed vector and left- or right-handed tensor couplings as well. We obtain precise limits on these anomalous couplings by comparing the data to the expectations from different assumptions on the Wtb coupling using information from electroweak single top quark production. We combine this with results studying the helicity of W bosons from top quark decays in $t\bar{t}$ events.

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Session Classification: Room 216 - Top Quark Physics / Particle Astrophysics & Cosmology - TR4 & TR11

Track Classification: Track 4 - Top Quark Physics