

## **Implications of effective axial-vector coupling of gluon for $t\bar{t}$ spin polarizations at the LHC**

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We analyze the impact of effective axial-vector coupling of the gluon on spin polarization observables in  $t\bar{t}$  pair production at the LHC (arXiv:1212.3272, to appear on PRD). Working at leading order in QCD, we compute the  $t\bar{t}$  spin-correlation and left-right spin asymmetry coefficients in the helicity basis in the laboratory frame as functions of the new physics scale  $\Lambda$  associated with this coupling. We found that the  $t\bar{t}$  invariant mass dependent asymmetries are more sensitive to the scale  $\Lambda$  than the corresponding inclusive ones, in particular when suitable cuts selecting high  $t\bar{t}$  invariant mass regions are imposed. In the context of this scenario, we show that the LHC has potential either to confirm or to rule out the Tevatron FB top asymmetry anomaly by analyzing the  $t\bar{t}$  spin-correlation and left-right polarization asymmetries. On the other hand, stringent lower bound on the new physics scale  $\Lambda$  can be set in this scenario if no significant deviations from the SM predictions for those observables will be measured.

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