

Studies on interference effects of flavor changing neutral currents in the top sector (tu_γ, tc_γ couplings)

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Productions:

- Production mode sample: $\sigma = (22.66 \pm 0.03) \text{ pb}$
- generate $p p \rightarrow t \bar{a} \bar{t}$, add $p p \rightarrow t \bar{u} \bar{a} \bar{t}$ + anti-particle processes
- Decay mode sample: $\sigma = (48.18 \pm 0.06) \text{ pb}$
- generate $p p \rightarrow t \bar{t} \rightarrow w^+ b \bar{u}$ + anti-particle process
- Interference Sample: $\sigma = (70.35 \pm 0.08) \text{ pb}$
- generate $p p \rightarrow t \bar{a}$, add $p p \rightarrow t \bar{j} \bar{a}$ + anti-particle processes
- Parameters $C_{tB} = 12$

- Variables Truth:
- Photon, TopQuark ($t \rightarrow Wb$), WBoson, BQuark, Highest p_T Up Quark
 - ▶ p_T, η, Φ, m
- ΔR and invariant mass from γ, t to:
 - ▶ γ, t, u, W

- Variables Reco:
 - Photon, TopQuark, WBoson, highest p_T bJet and Jet
 - ▶ p_T, η, Φ, m, b
 - ΔR and invariant mass from γ, t to:
 - ▶ $\gamma, t, \text{Leading Jet}, b \text{ Jet}, W$
 - Cuts:
 - ▶ $n_{\text{Photon}} > 0, n_{\text{Lepton}} > 0, p_{T, \text{all}} > 20 \text{ GeV}, \eta_{\text{all}} < 2.5,$
 $E_T^{\text{miss}} > 20 \text{ GeV},$ and no complex solutions for neutrino reco
- too many weights are zero!

































