Studies on interference effects of flavor changing neutral currents in the top sector ($tu\gamma$, $tc\gamma$ couplings)

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Productions:

- Production mode sample:
- generate p p > t a \$\$ t \sim , add p p > t u \sim a \$\$ t + anti-particle processes
- Decay mode sample:
- generate p p > t t \sim > t a u \sim + anti-particle process (causes weird TopEta behaviour)
- Interference Sample:
- generate p p > t a, add p p > t u \sim a + anti-particle processes

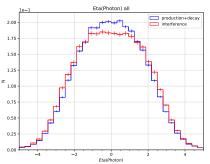


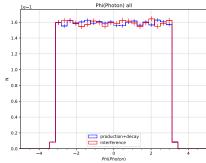
Plots

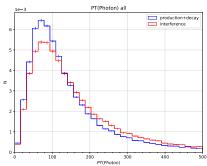
Creation of following plots:

- TopFCNC Model in MadGraph@NLO
- 50k Events for each generated sample
- Showering using Pythia 8
- DELPHES with ATLAS card as basic detector simulation
- Look at bJet, Photon, W Boson and Top Quark p_T , mass, η , ϕ distributions
- Including ΔR and invariant Masses of sub systems $(t\gamma, b\gamma, W\gamma, ...)$



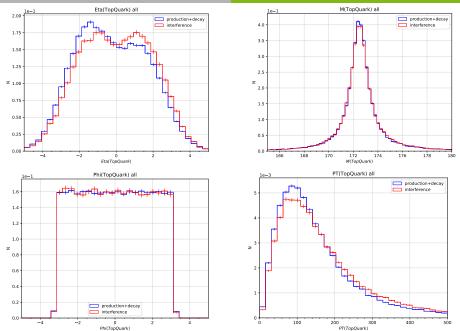


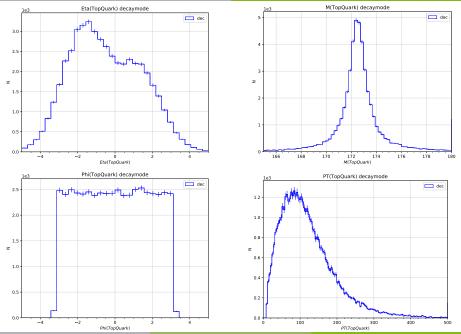


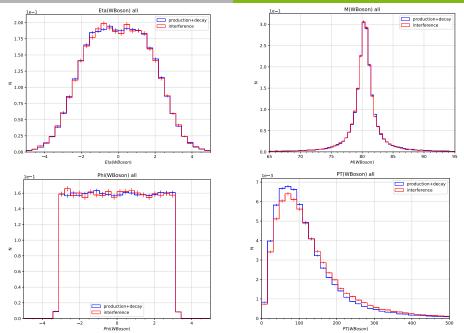




interference vs. decay+production

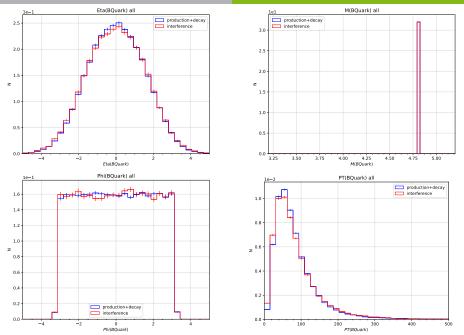




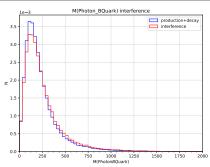


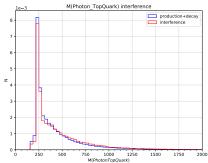


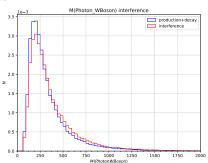
interference vs. decay+production



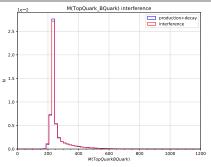
M_truth interference vs. decay+production

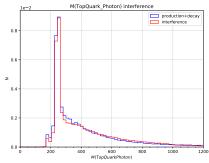


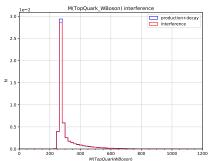


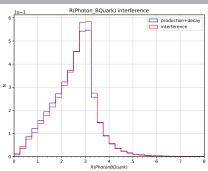


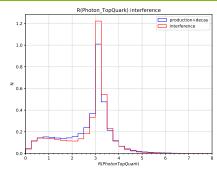
M_truth interference vs. decay+production

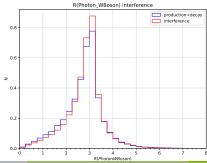




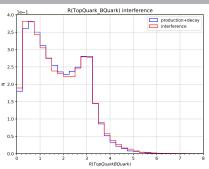


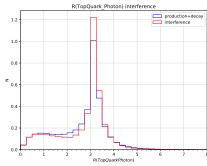


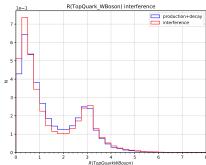




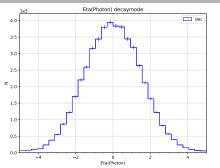
R_truth interference vs. decay+production

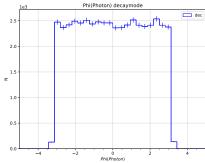


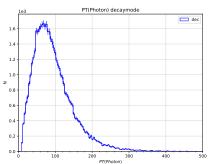




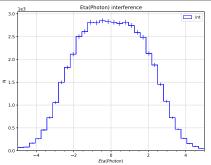
Photon_truth

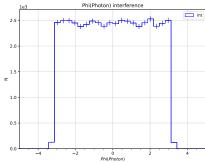






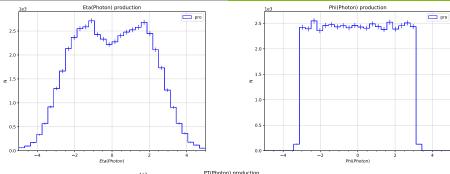
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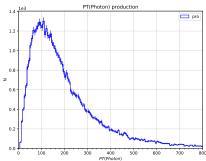


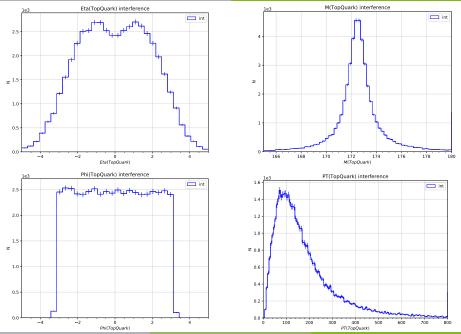


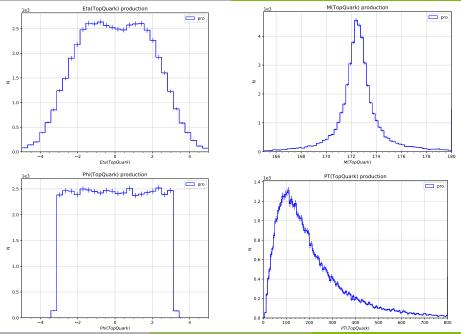


Photon_truth

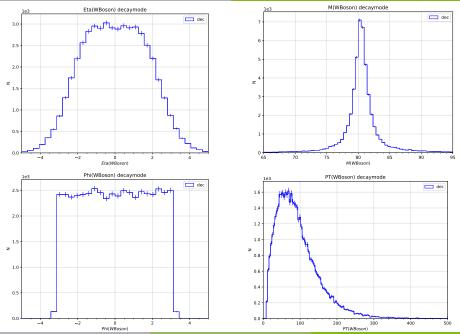


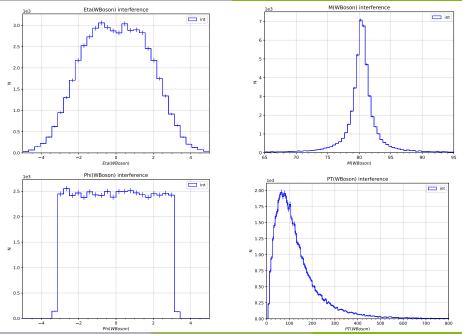




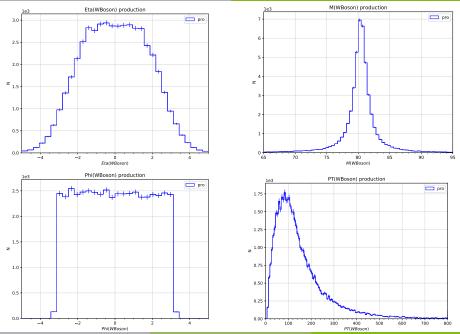


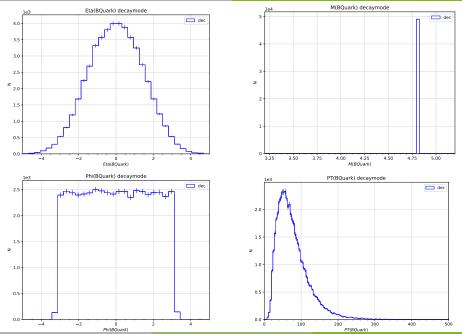
WBoson_truth

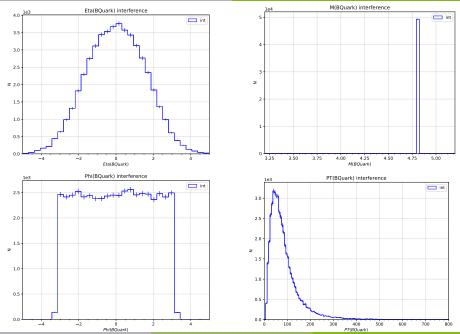


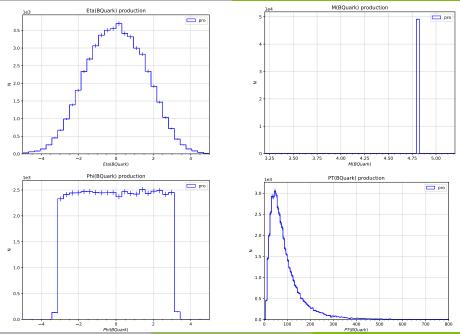


WBoson_truth









M truth

