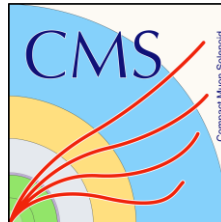


Status Report for $t\bar{t}b\bar{b}$ Spin Correlation

George Bakas



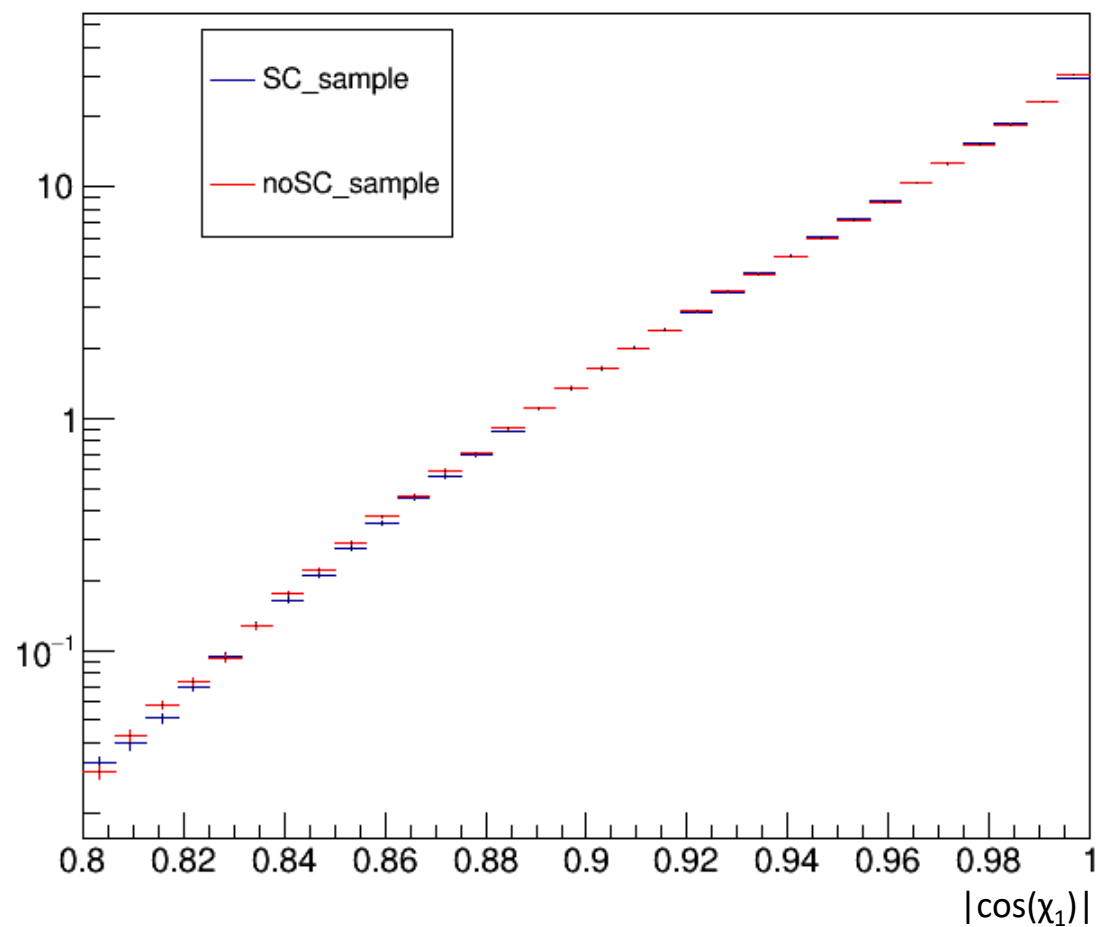
Top Spin Correlation

- Files are ready (CMSSW 10_2X)
 - TT_noSC_Mtt-1000toInf_TuneCP5_13TeV-powheg-pythia8
 - TT_Mtt-1000toInf_TuneCP5_13TeV-powheg-pythia8
- Chi2Test for various distributions
 - $|\cos(\chi_1)|$, χ_1 : angle between W's in ZMF
 - $|\cos(\chi_2)|$, χ_2 : angle between top and W in ZMF
 - $|\Delta\phi|$ between W's in parton level
 - What other distribution could have sensitivity to SC in the all hadronic channel?
- If $p_value < \alpha (0.05)$ then we can assume that the hypothesis that the two histograms are identical is **rejected**
- If $p_value > \alpha (0.05)$ then we can assume that the hypothesis that the two histograms are identical can be **accepted**
- Chi2Test Results:
 - Chi2 = 143.020042, Prob = 2.53302e-16, NDF = 31, igood = 0
 - Chi2 = 38.513869, Prob = 0.166093, NDF = 31, igood = 0
 - Chi2 = 48.329603, Prob = 0.0135818, NDF = 29, igood = 0



Top Spin Correlation

W₊/W₋ angle in ZMF SC_sample



top/W angle in ZMF SC_sample

