

# Add T T->lepton+jet background

- **Add T T->lepton+jet background MC sample**
  - **cross section: 364351 fb-1**
  - **Most are removed by basic cuts**
  - **19 events left after all cuts**
- **Check analysis code and found a typo**
  - **Related to T' transverse mass calculation**
  - **Keep checking**
- **Trying to find a good main variable**
  - **Stacked plots are on the way...**
  - **Thinking about loosen the pt cut a little bit**

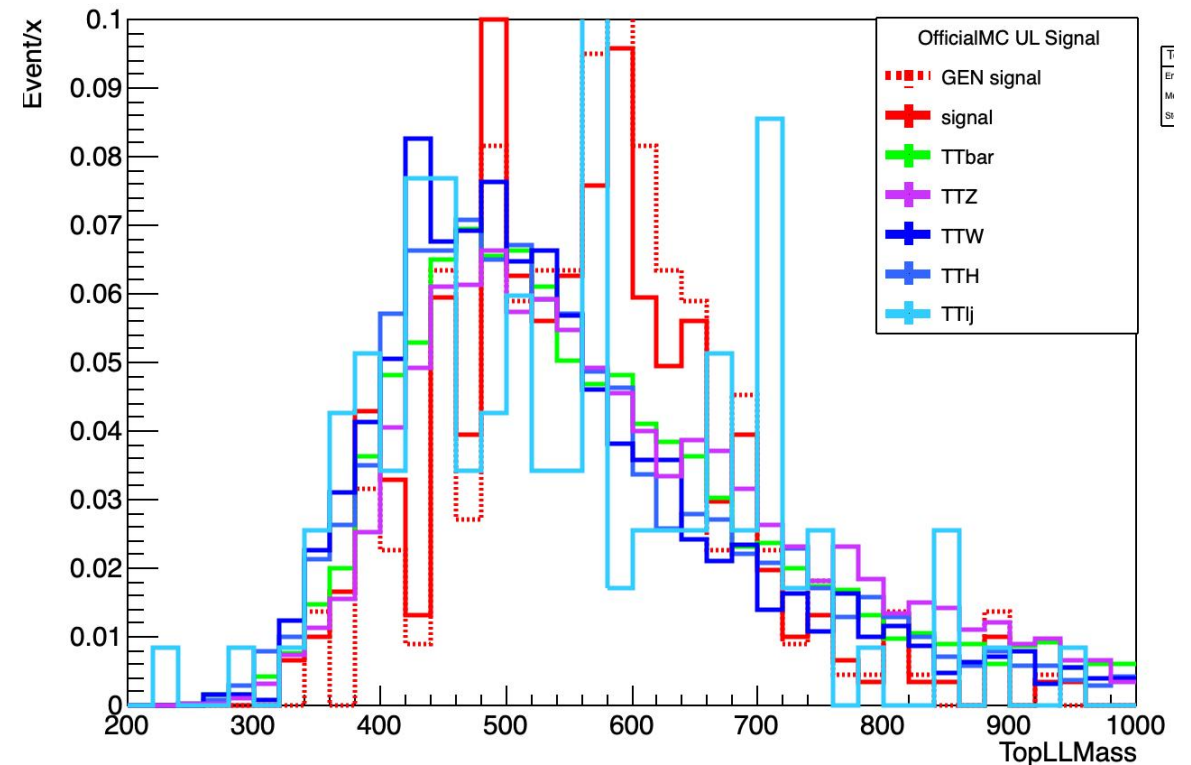
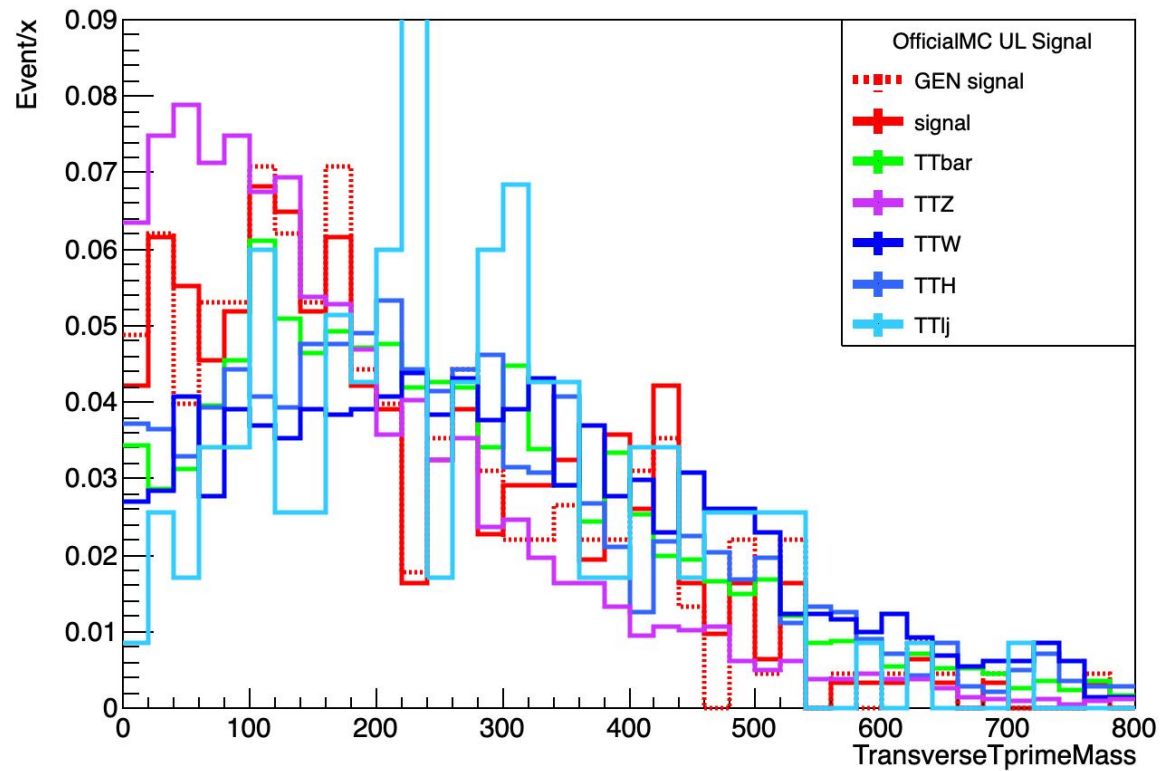
The following cuts are basic cuts:

- For Muons
  - Two opposite sign muons
  - $P_t > 20\text{GeV}$
  - $|\eta| < 2.4$
  - Tight Muon ID: Muon\_tightId
  - Tight isolation: goodMuons\_miniPFRellso\_all < 0.05
  - Significance cut: Muon\_sip3d < 3
- For jets
  - Tight jet ID: Jet\_jetId= 6
  - $P_t > 30\text{GeV}$
  - $|\eta| < 2.5$
  - At least 3 good jets
  - At least 1 Loose B jet( goodJets\_btagDeepFlavB>0.049)
- Cut0: Mu pair mass < 60GeV
- Cut1: Top reconstruction is valid
- Cut2: Mu pair  $P_t$  + top  $p_t$  > 350 GeV
- Cut3: Minimal delta R (mu, b jet from top) > 2
- Cut4: delta R (b jet from top, W from top) < 2.5

# Fix a Typo in T' Transverse Mass Calculation

➤ Fix a typo in T' Transverse Mass Calculation:

- **Still checking**
- Didn't effect the cut strategy and other variables



# “Remove” Main Pt cut

- After basic cut, cut0, cut2, cut3 & cut4:
  - (top candidate + lepton pair).M() looks like a good main variable
  - **7255** TTbar background events
  - **3.62** GEN signal events
  - Maybe need to loosen cut1 (Mu pair Pt + top pt > 350 GeV)

