

# Top Discriminator Signal Over Bkg for several selection Categories

NTUA

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GEORGE BAKAS

# Signal Over Bkg

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- Signal over Background for
  - Mtt samples over Bkg
  - Nominal sample over Bkg
- All histograms are vs mJJ (reco)
- Categories:
  - 1. Both jets are top tagged and b tagged
  - 2. 1 Jet top and b tagged and other jet top tagged
  - 3. 1 Jet top and b tagged and other jet b tagged
  - 4. Both jets are top tagged
  - 5. Both jets are b tagged

# Signal over Bkg for mJJ (reco)

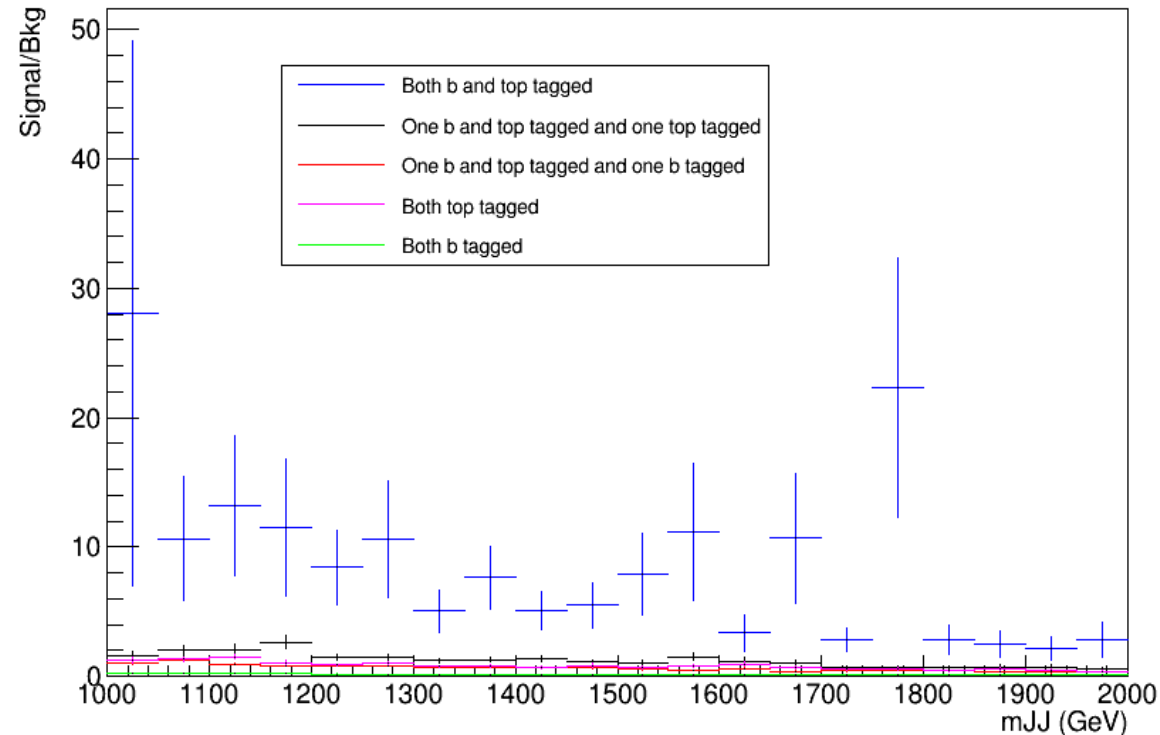
**Cuts:** nJets > 1, |jetEta| < 2.4 (bot jets), jetPt > 400 GeV (both jets)  
120 GeV < jetMassSoftDrop < 200 GeV (both jets)

**Top tagger cut :** 0.6

**B-tagging:** loose working point

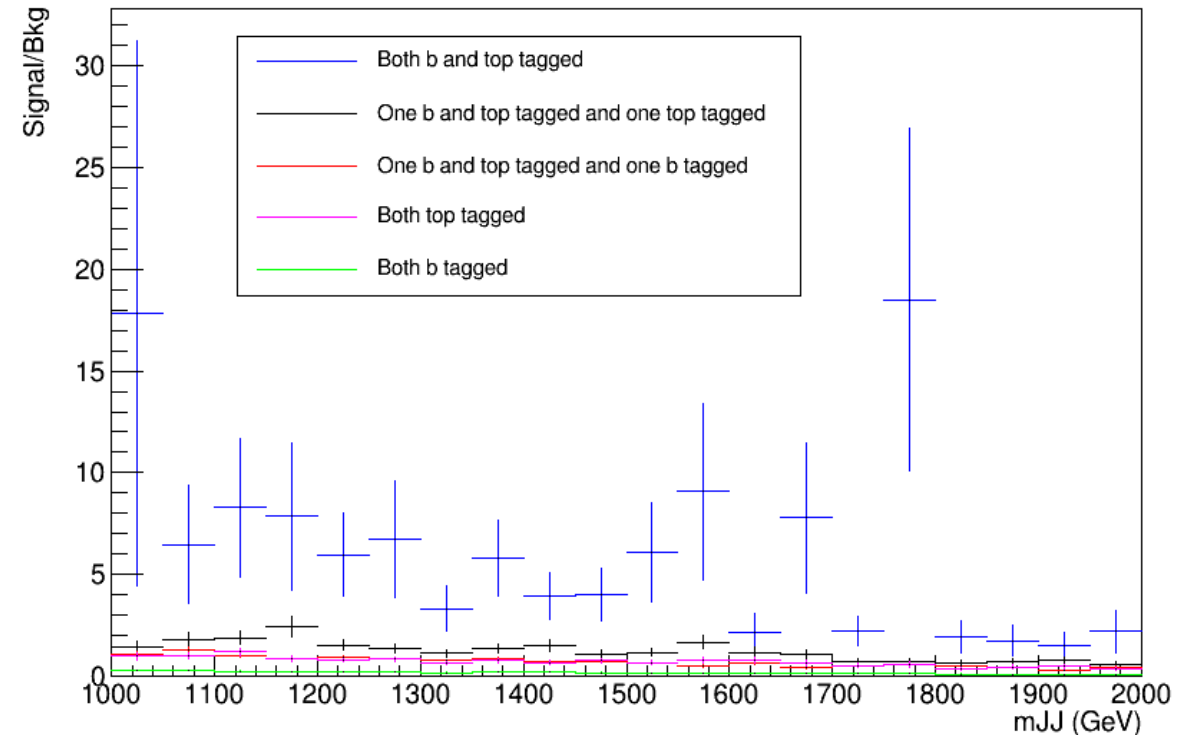
Signal Mtt Sample Over Bkg (All Categories)

Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (All Categories)

Signal Over Background



# Signal over Bkg for mJJ (reco)

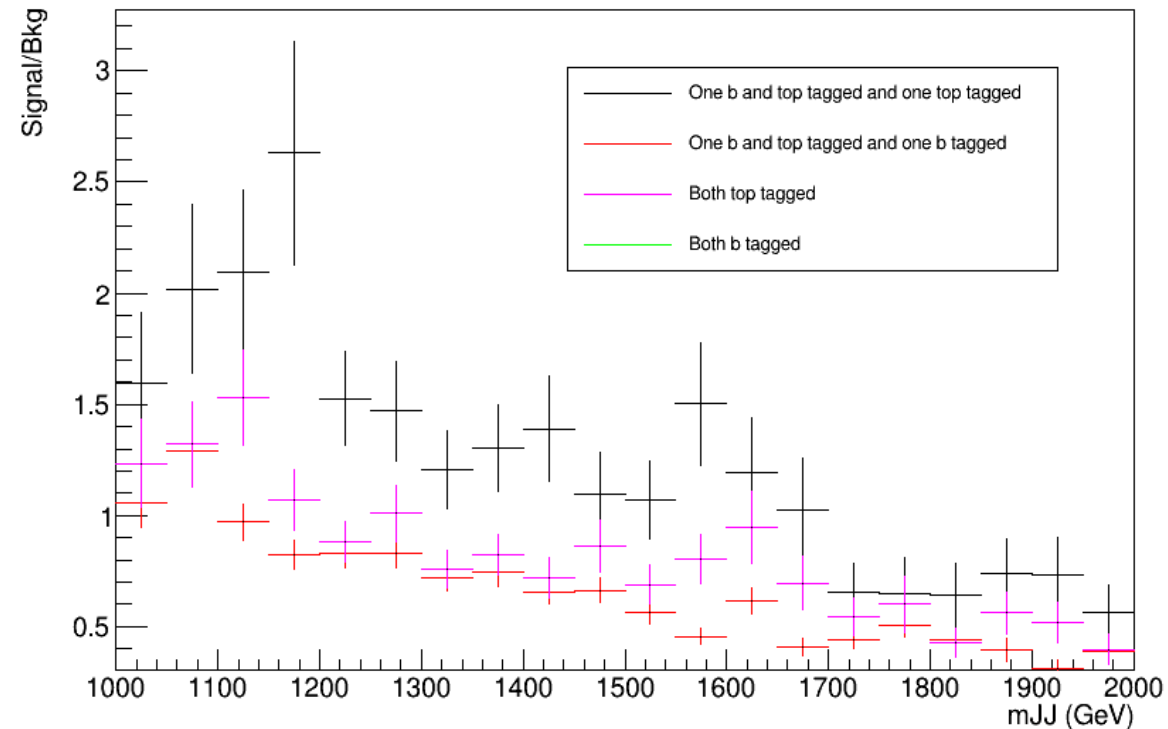
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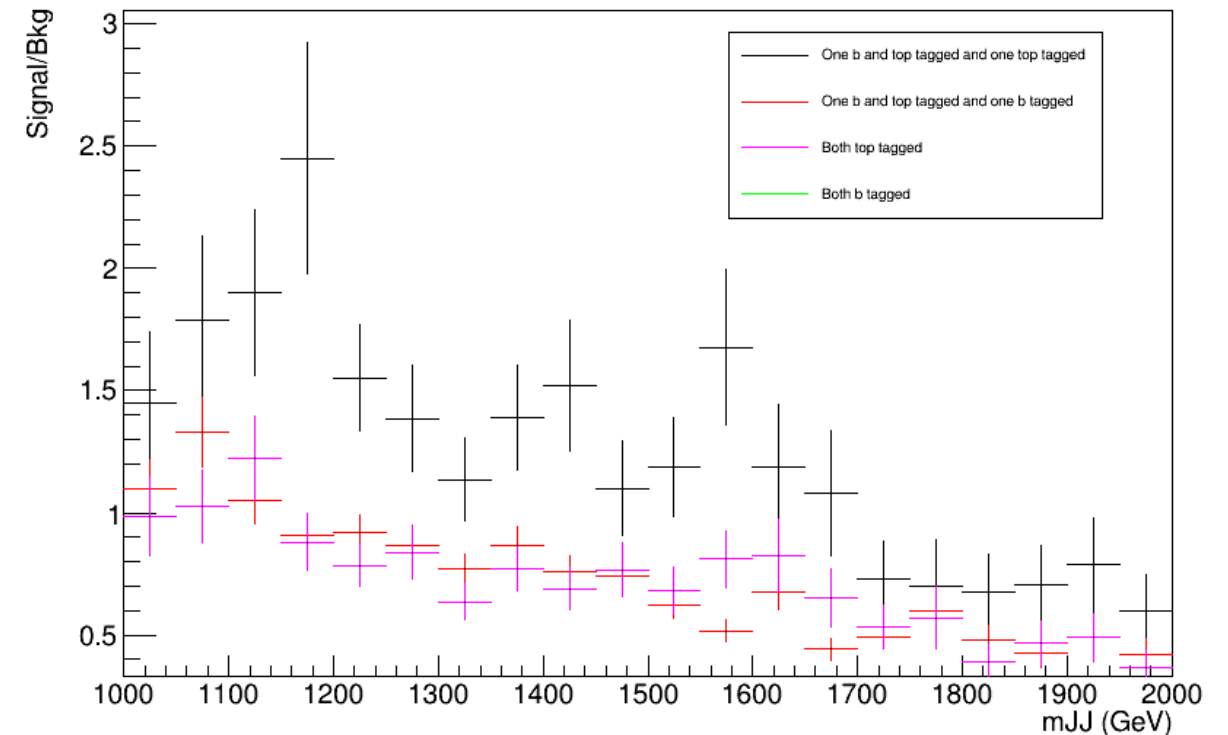
Signal Mtt Sample Over Bkg (Categories 2-5)

Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (Categories 2-5)

Signal Over Background



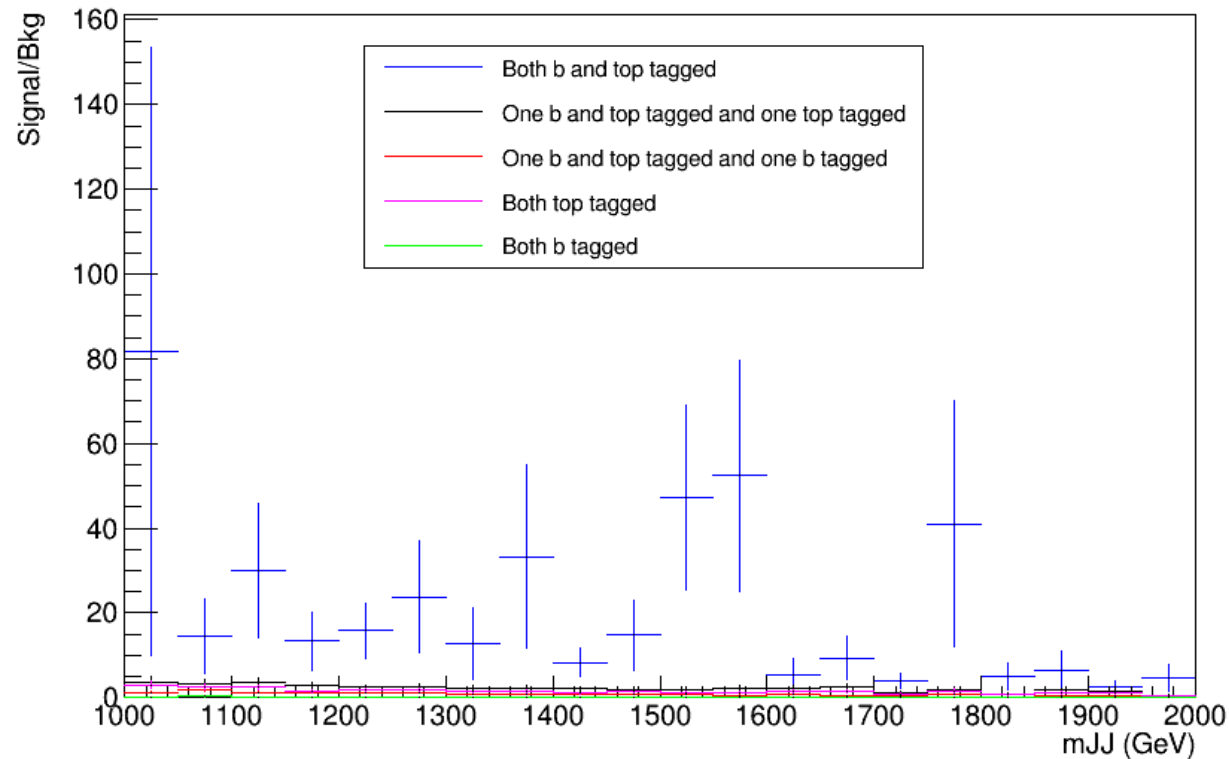
# Signal over Bkg for mJJ (reco)

**Cuts:**  $n_{\text{Jets}} > 1$ ,  $|\text{jetEta}| < 2.4$  (bot jets),  $\text{jetPt} > 400$  GeV (both jets)  
 $120 \text{ GeV} < \text{jetMassSoftDrop} < 200 \text{ GeV}$  (both jets)

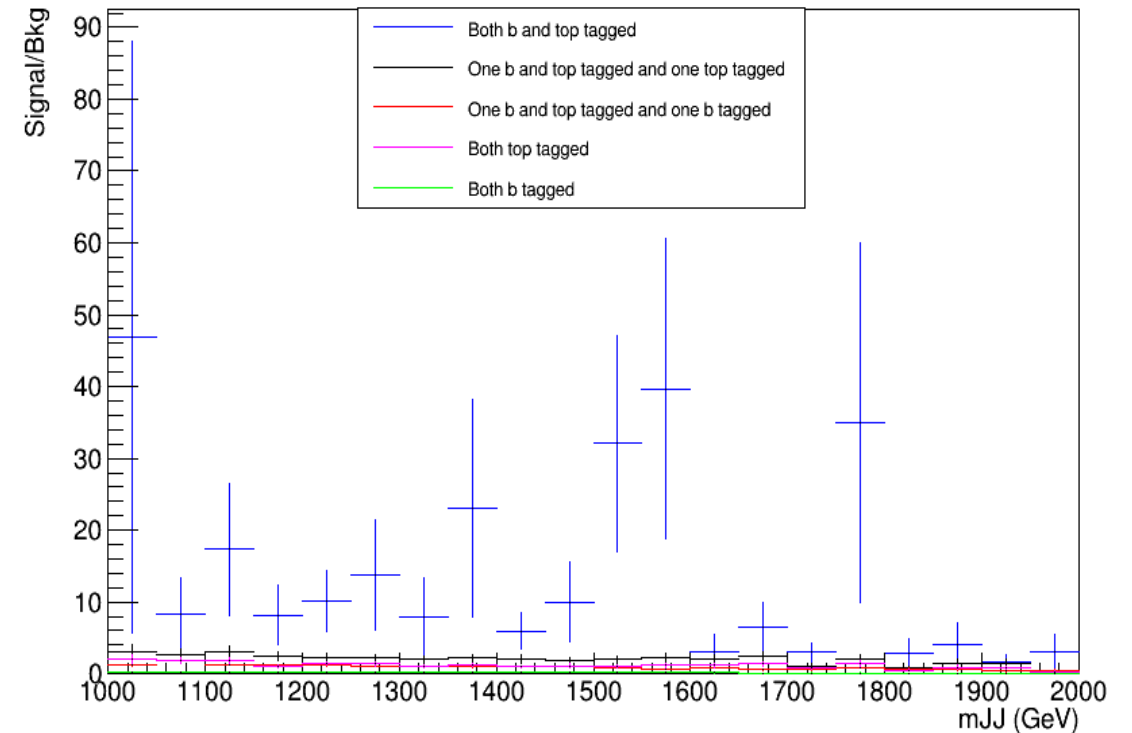
**Top tagger cut :** 0.7

**B-tagging:** loose working point

Signal Mtt Sample Over Bkg (All Categories)  
Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (All Categories)  
Signal Over Background



# Signal over Bkg for mJJ (reco)

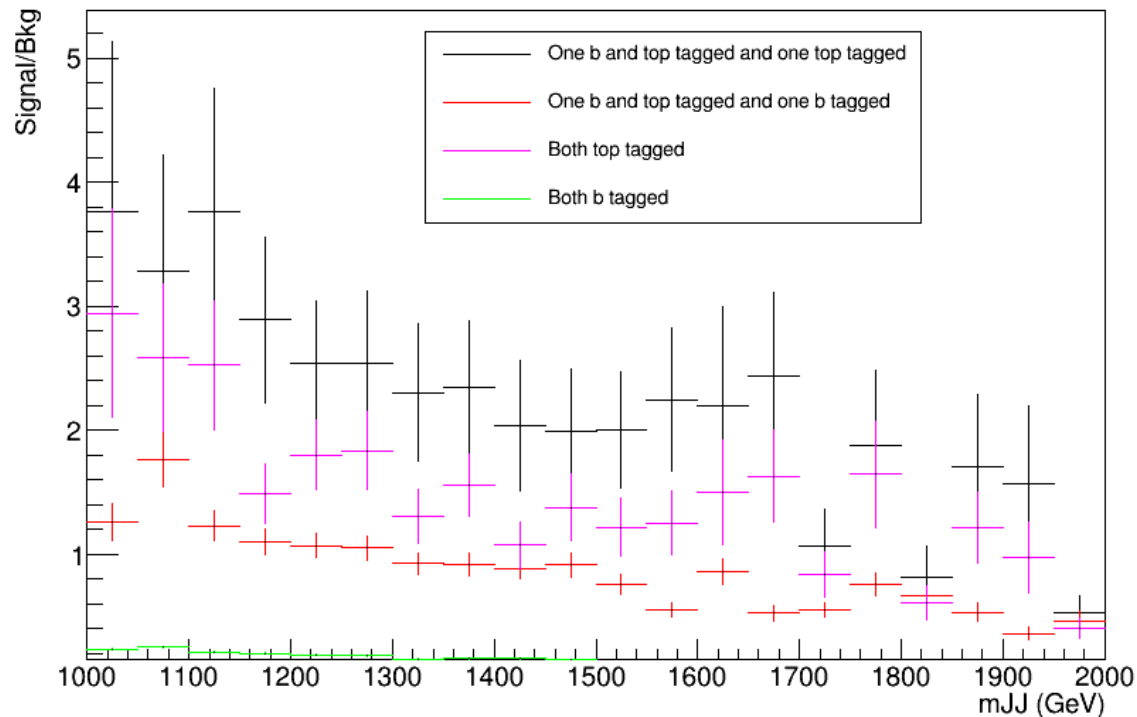
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 $120 \text{ GeV} < \text{jetMassSoftDrop} < 200 \text{ GeV}$  (both jets)

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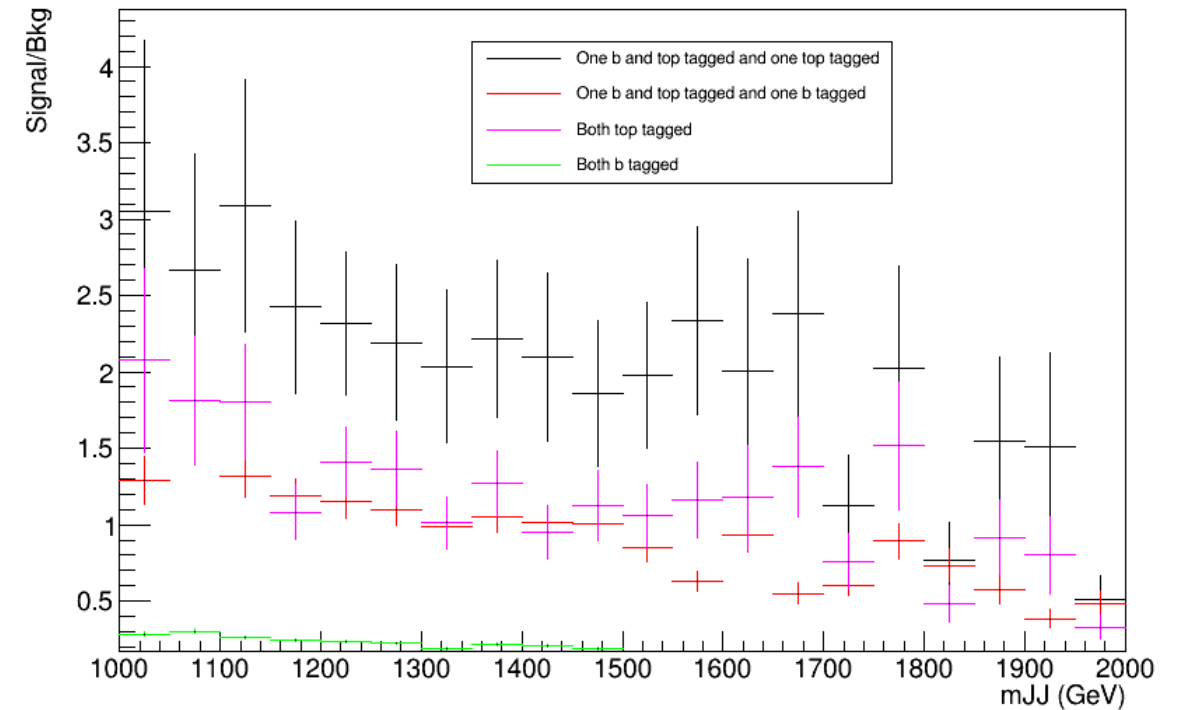
Signal Mtt Sample Over Bkg (Categories 2-5)

Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (Categories 2-5)

Signal Over Background



# Signal over Bkg for mJJ (reco)

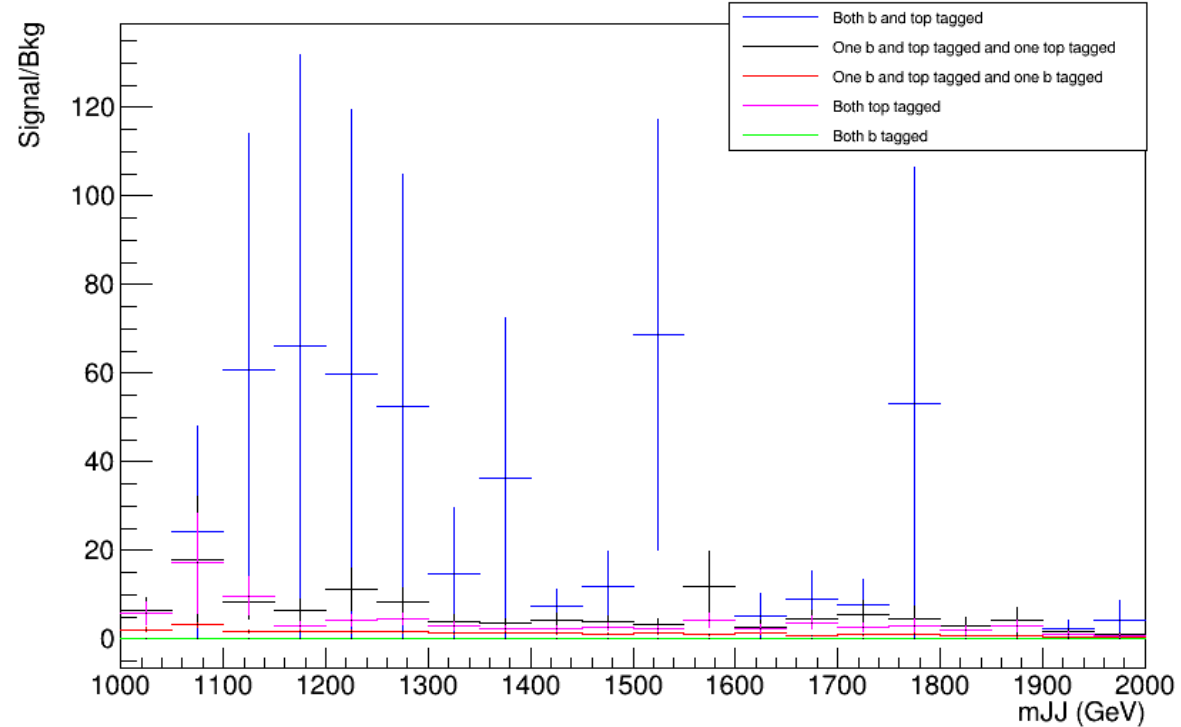
**Cuts:** nJets > 1, |jetEta| < 2.4 (bot jets), jetPt > 400 GeV (both jets)  
120 GeV < jetMassSoftDrop < 200 GeV (both jets)

**Top tagger cut :** 0.8

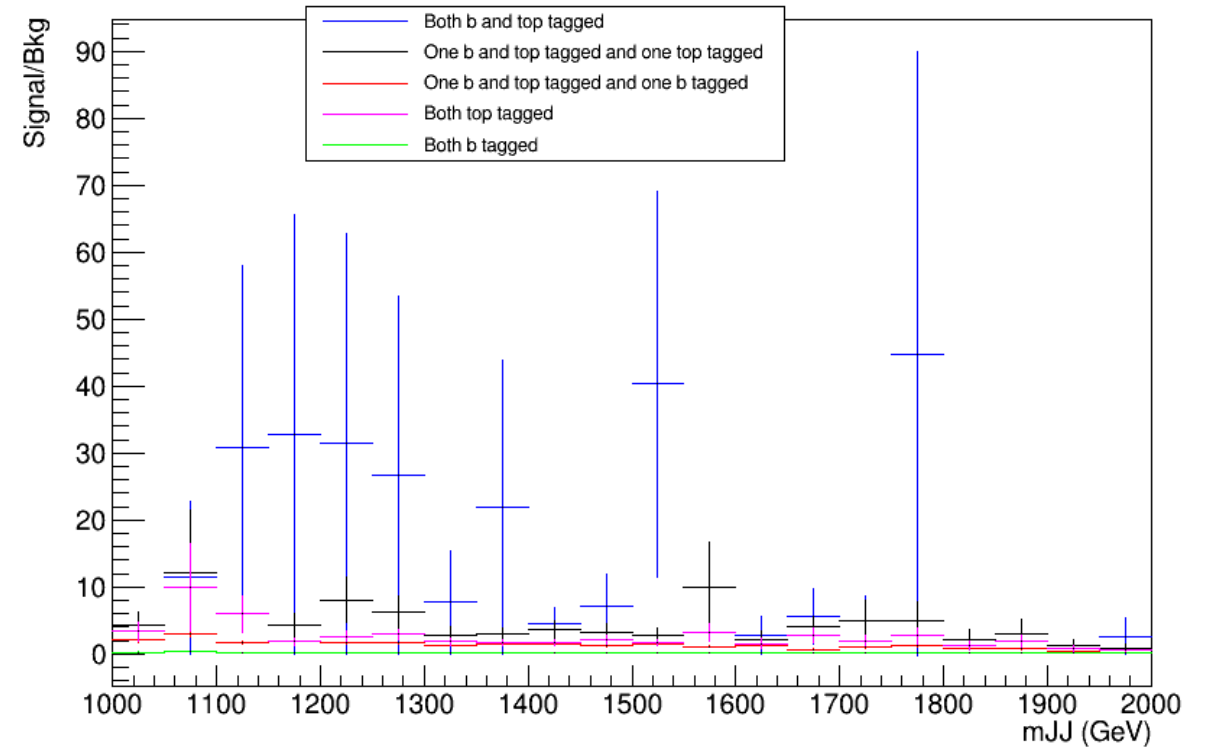
**B-tagging:** loose working point

Signal Mtt Sample Over Bkg (All Categories)

Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (All Categories)  
Signal Over Background



# Signal over Bkg for mJJ (reco)

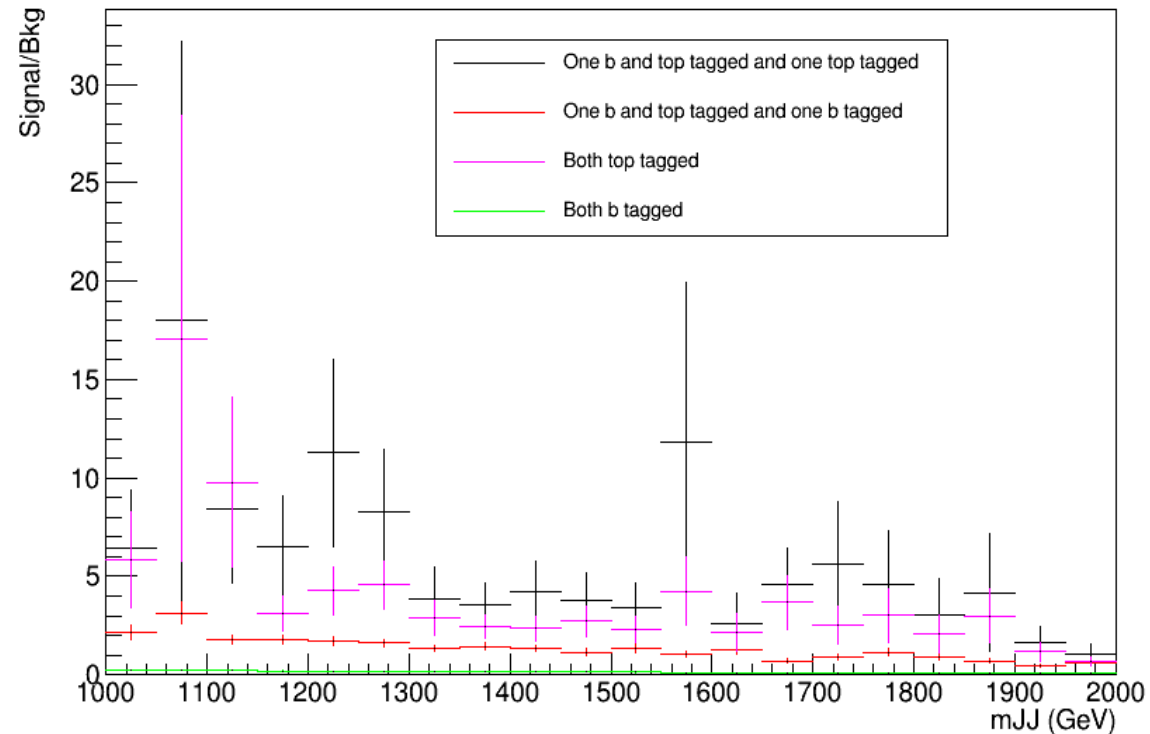
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**Top tagger cut : 0.8**

**B-tagging:** loose working point

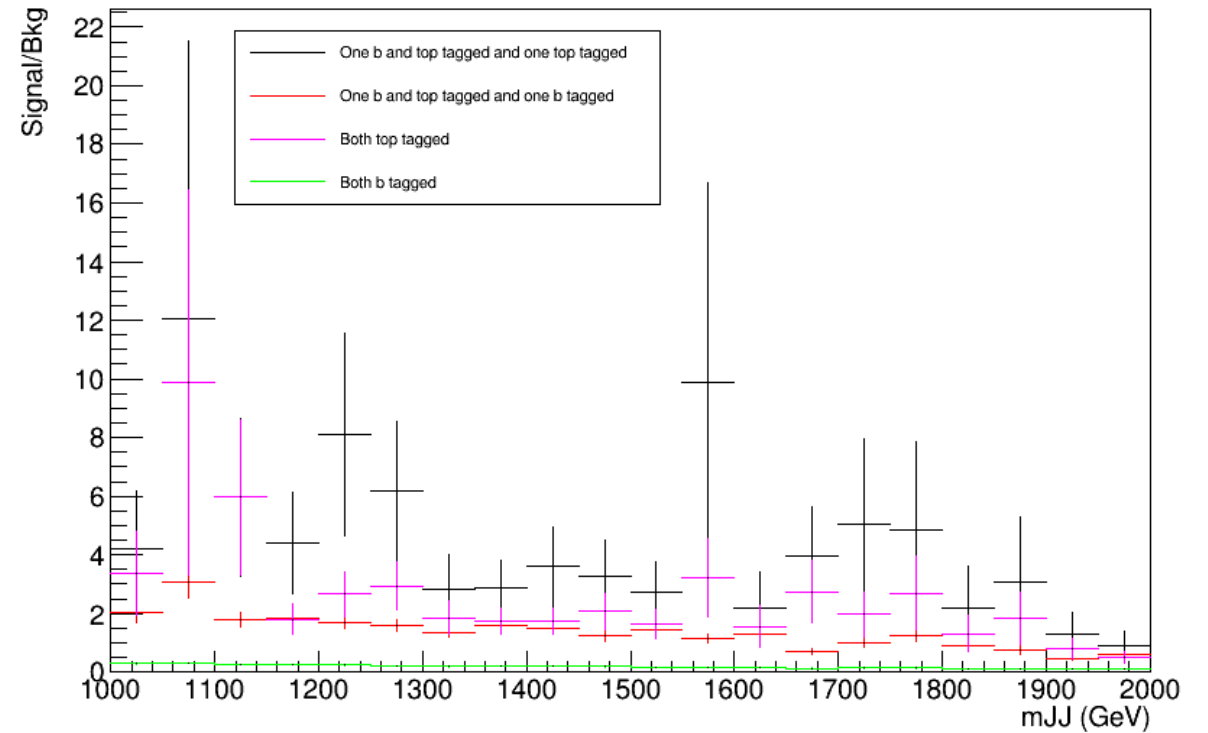
Signal Mtt Sample Over Bkg (Categories 2-5)

Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (Categories 2-5)

Signal Over Background





# Signal over Bkg for mJJ (reco)

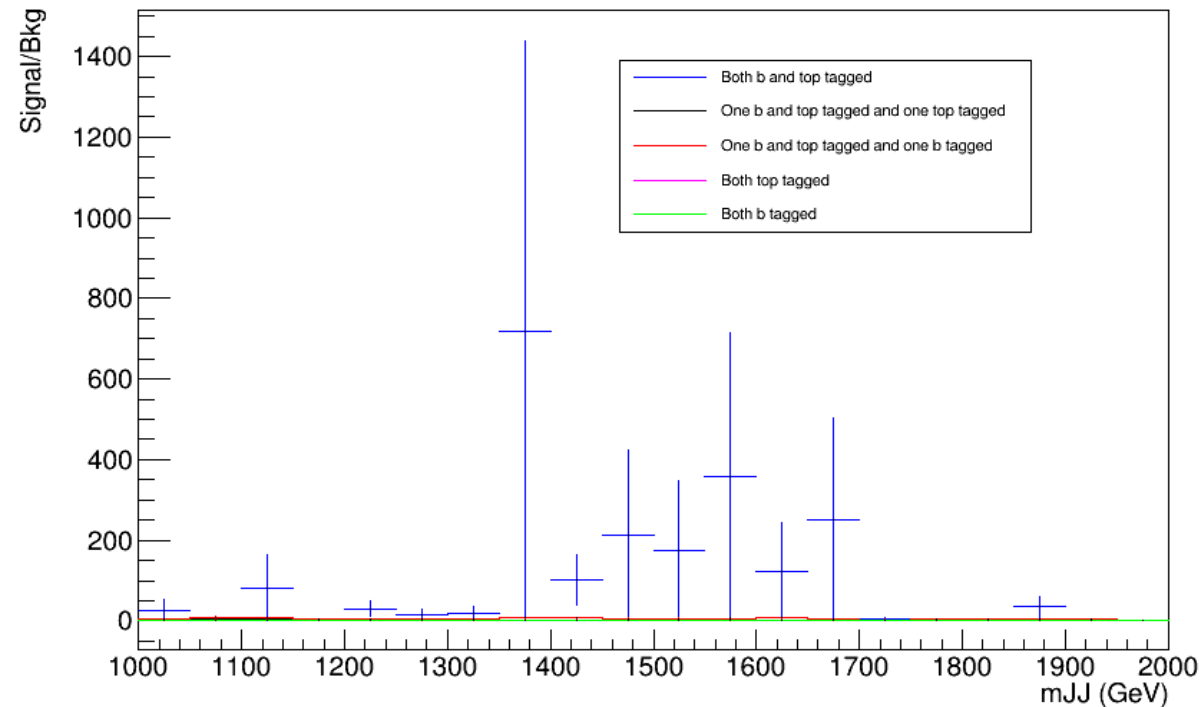
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**Top tagger cut :** 0.6

**B-tagging:** Medium working point

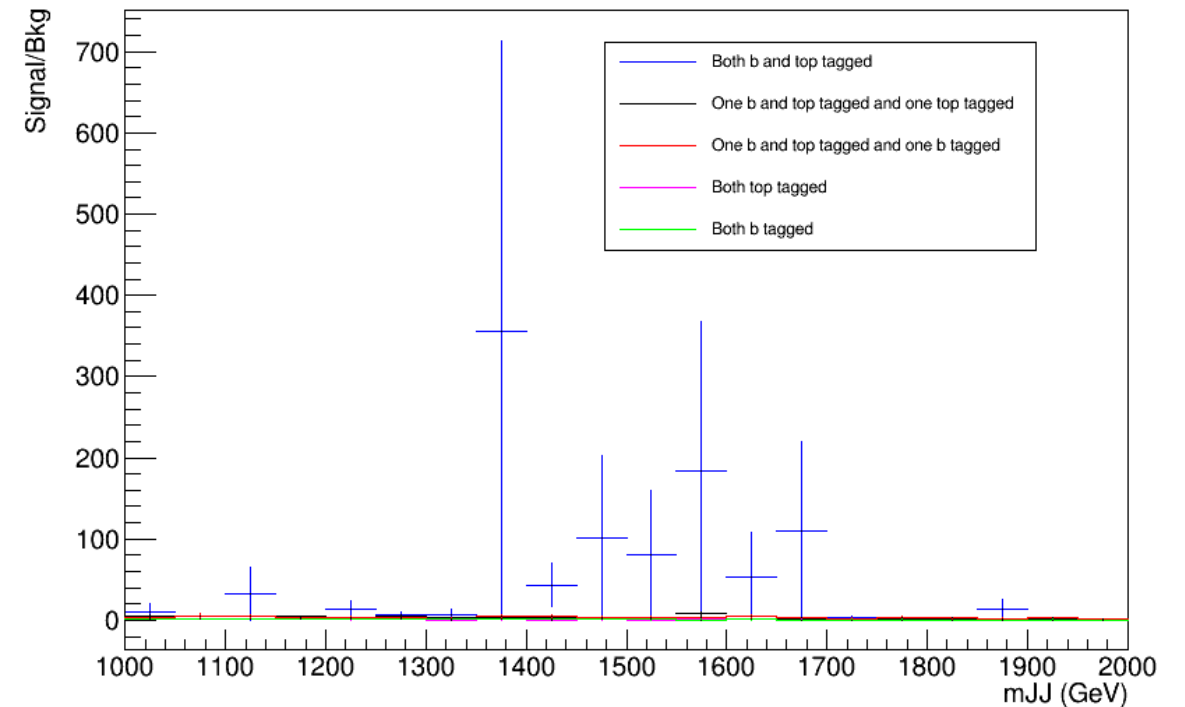
Signal Mtt Sample Over Bkg (All Categories)

Signal Mtt over Background



nominal TT\_TuneCUETP8M2T4\_13TeV-powherg-pythia8  
Over Bkg (All Categories)

Signal Over Background



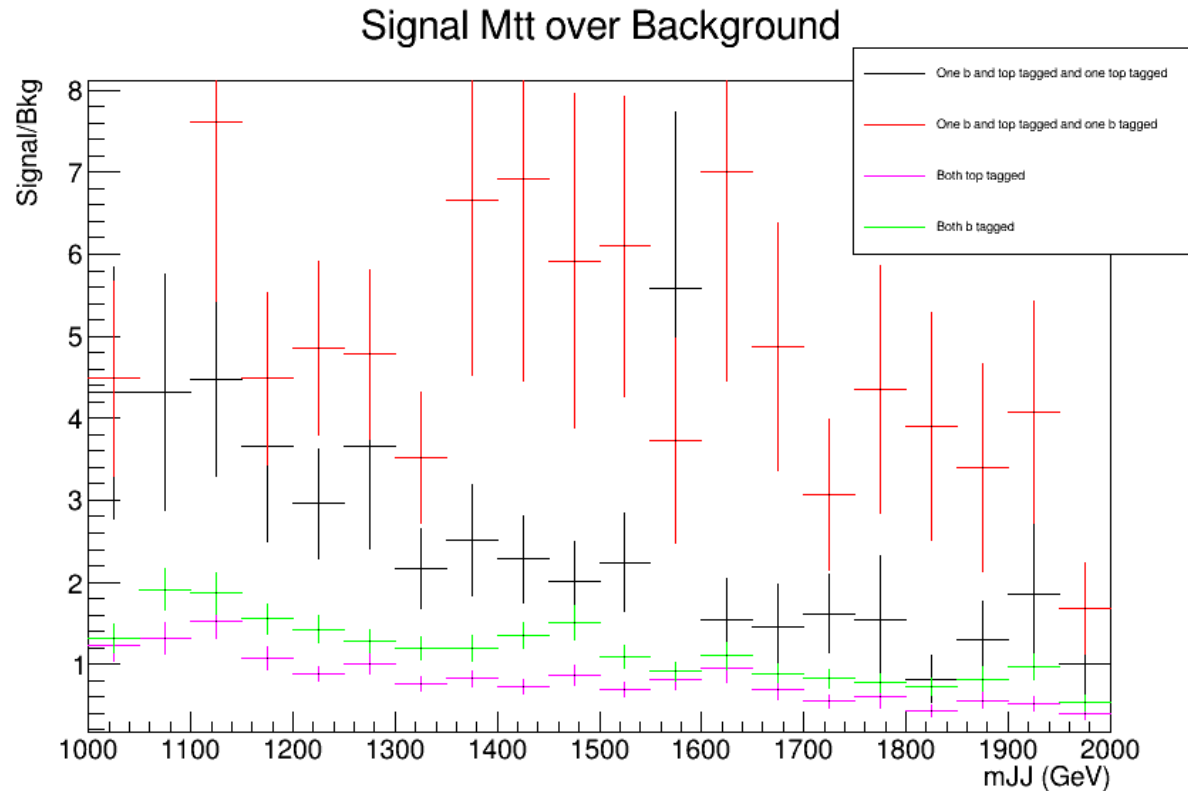
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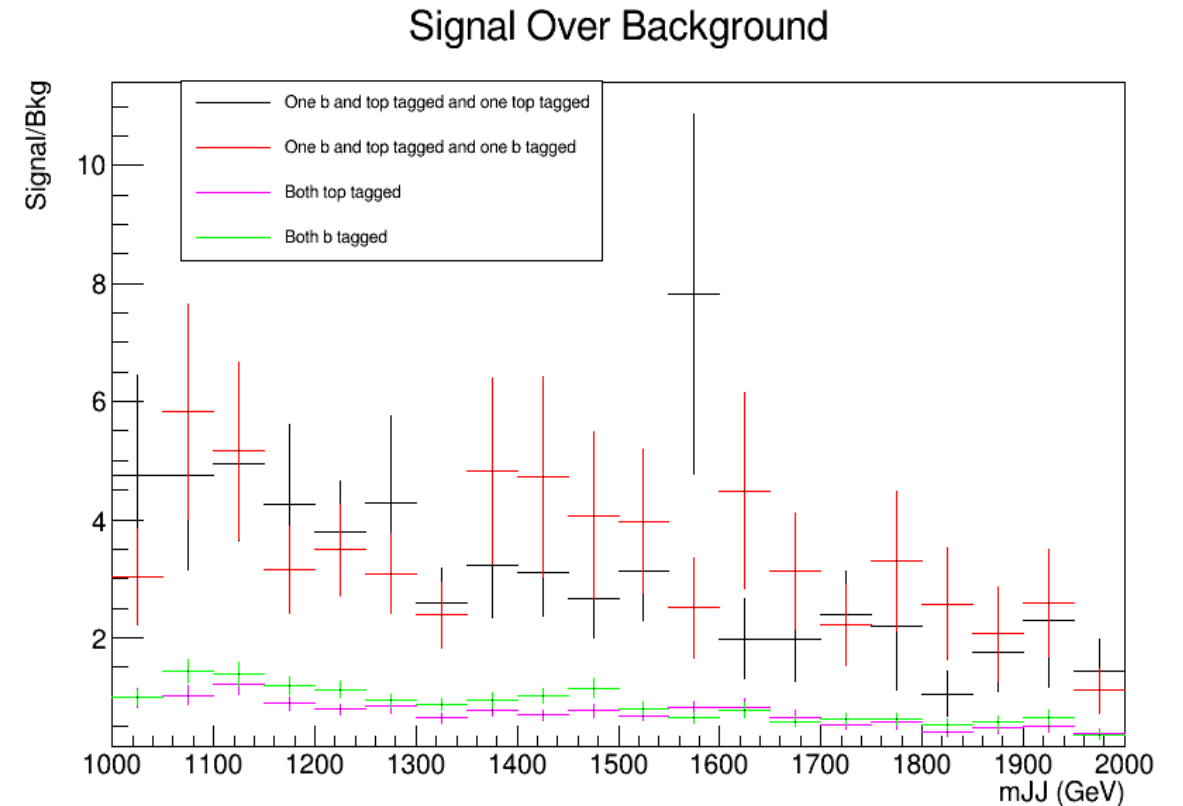
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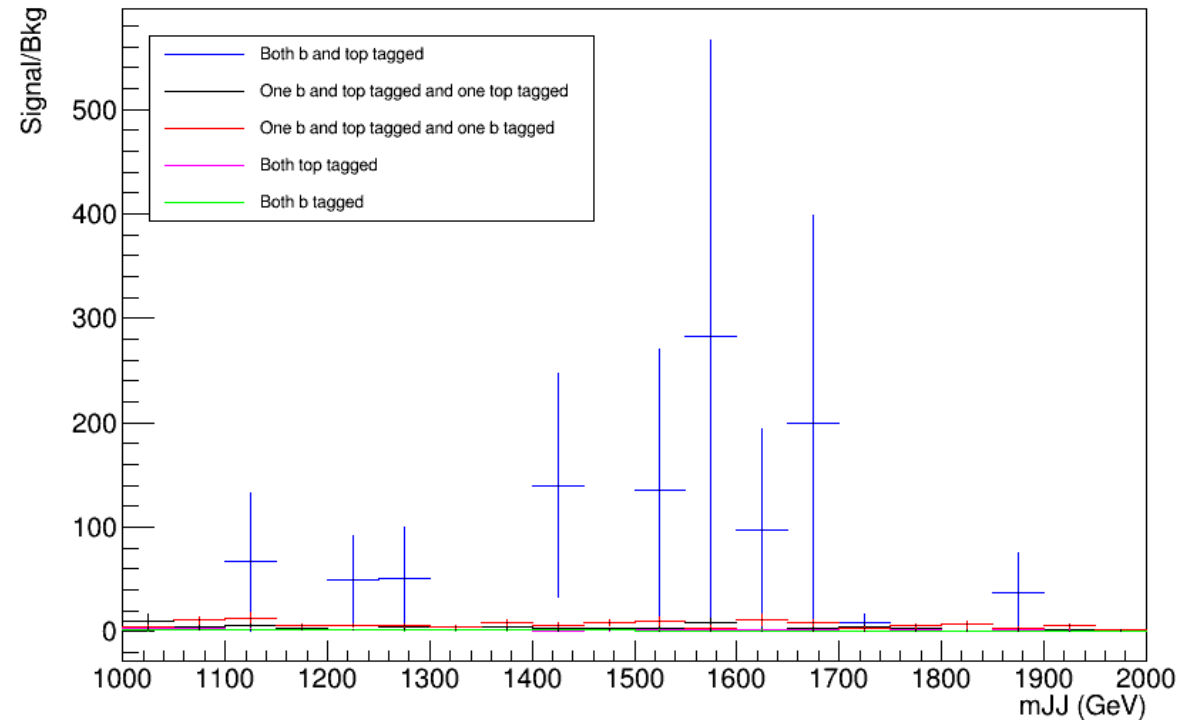
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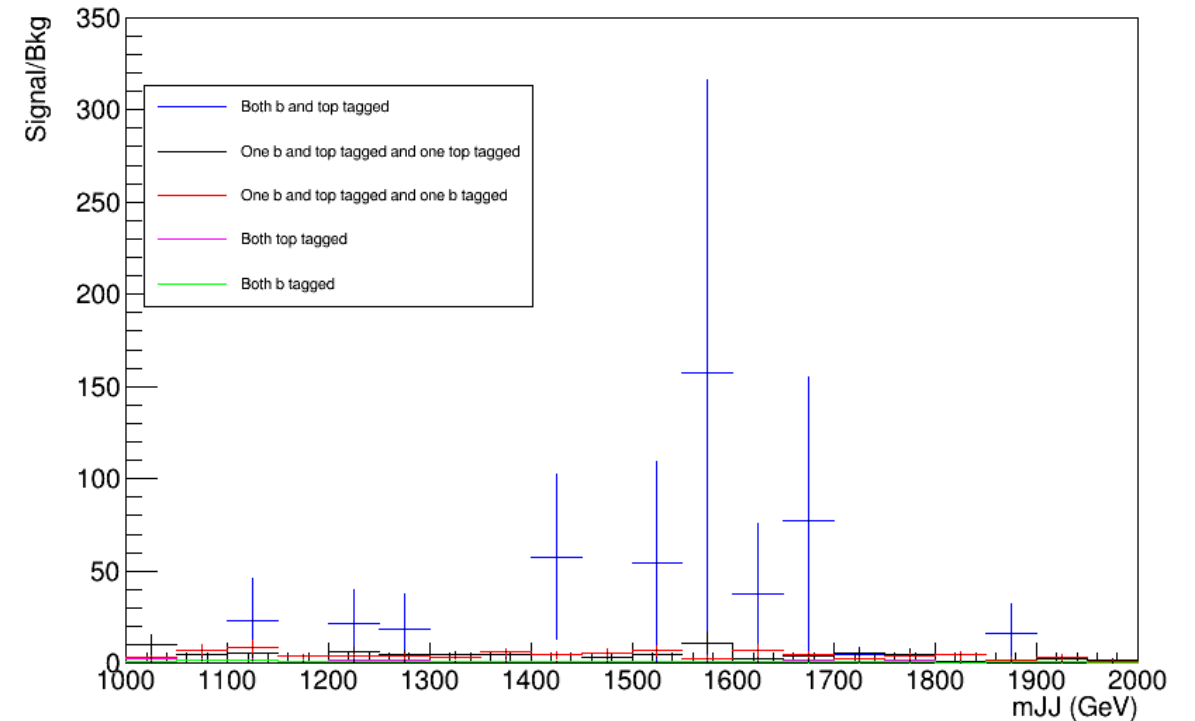
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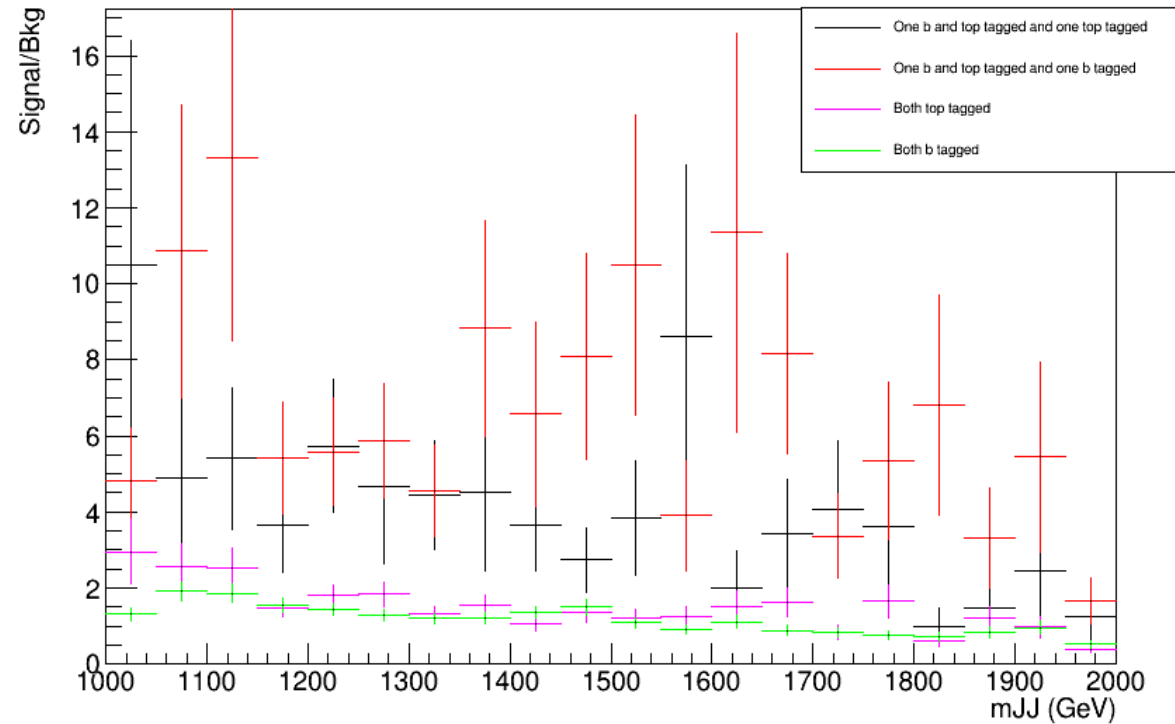
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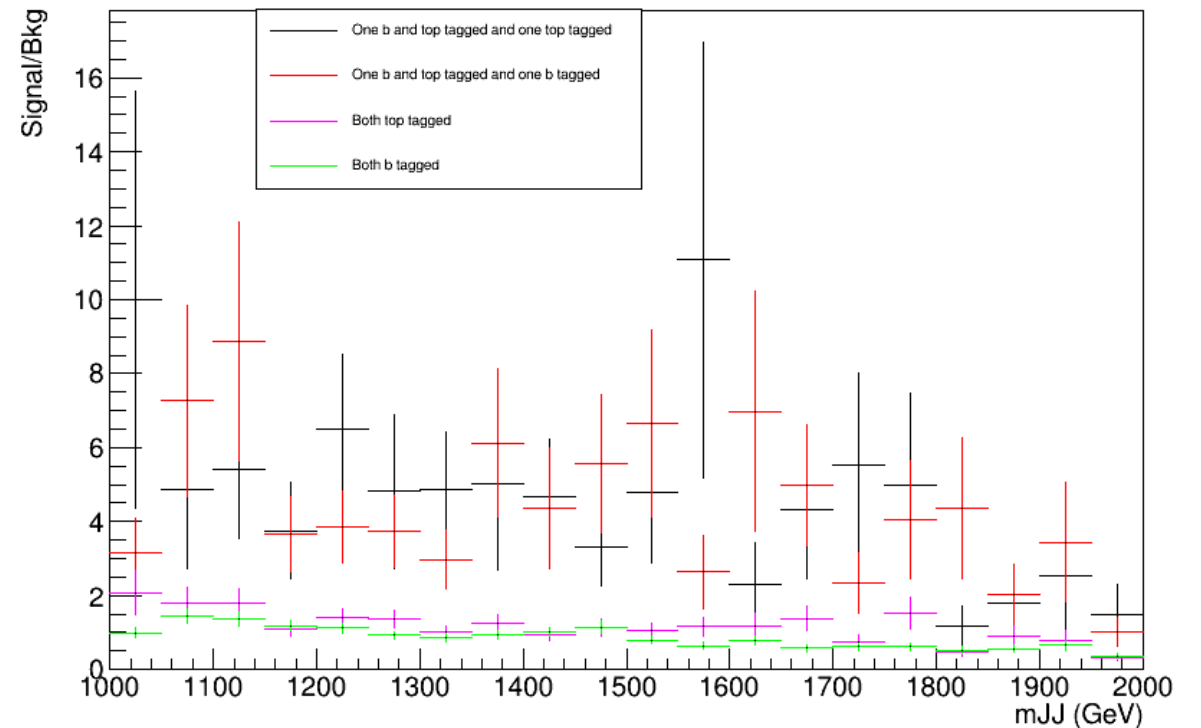
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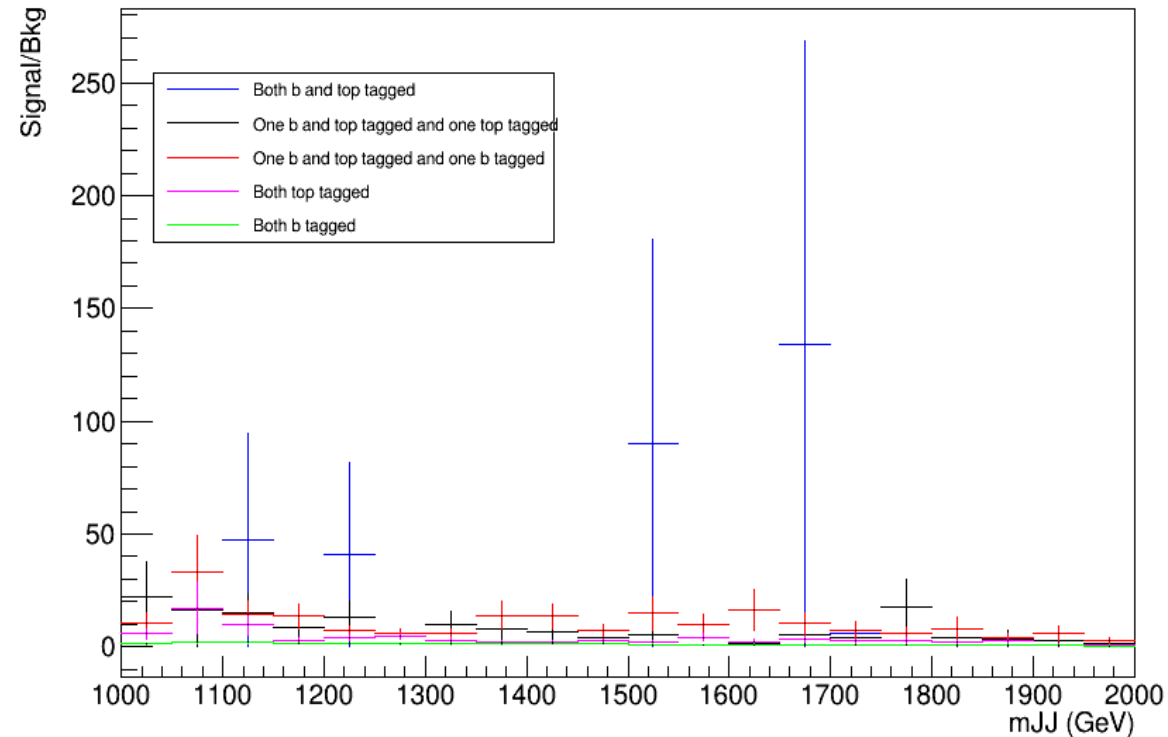
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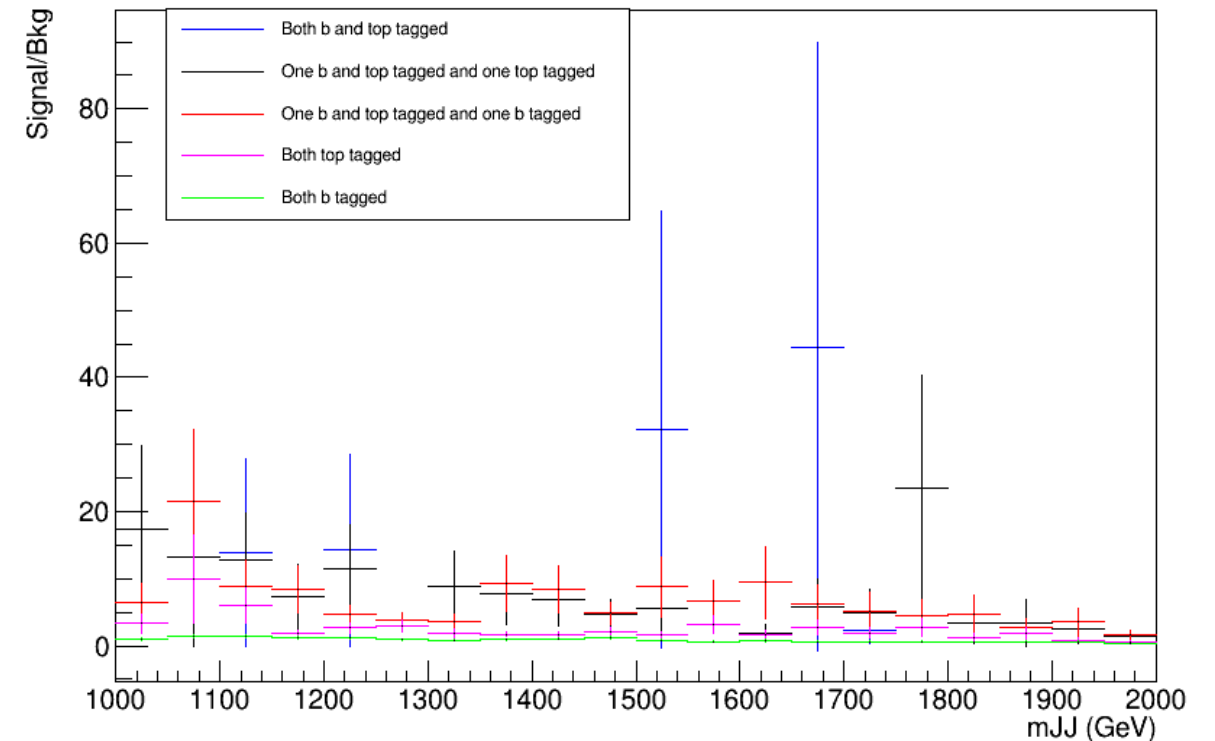
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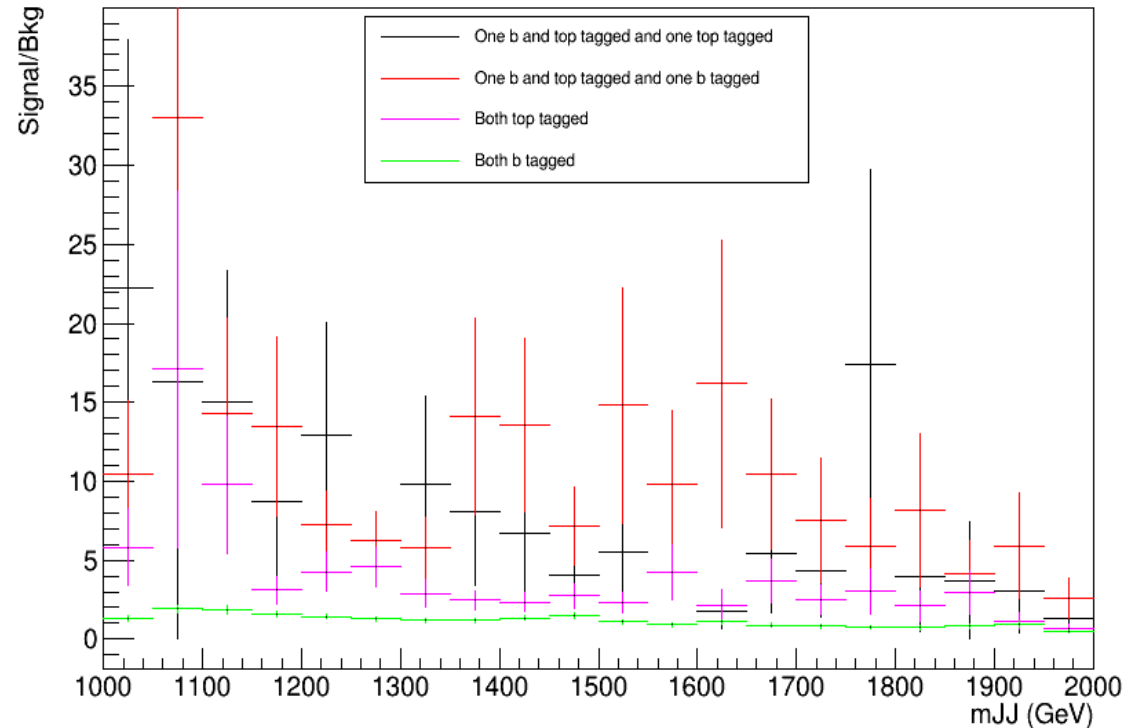
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