

Trigger Efficiencies from 2015D

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Introduction

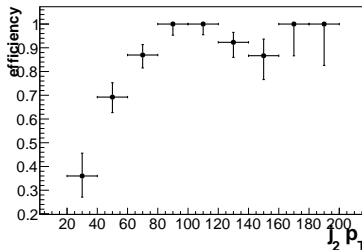
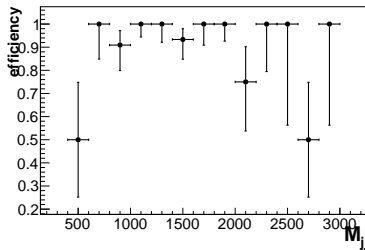
Overview

- ▶ 50ns data trigger efficiencies shown previously
- ▶ Golden JSONs from 2015D 25ns data have come out in the last couple of weeks
- ▶ $\sim 225.57 \text{ pb}^{-1}$ of 25ns data processed
- ▶ Updated trigger efficiencies will be shown today

Trigger Efficiencies - first iteration

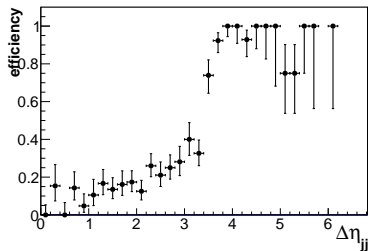
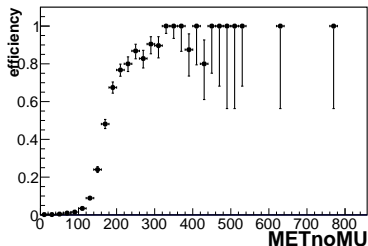
- ▶ Trigger: HLT_DiPFJet40_DEta3p5_MJJ600_PFMETNoMu140
- ▶ Measure efficiency as a function of each variable
- ▶ Started by cutting on all other variables at trigger threshold
- ▶ MET and jet 2 p_T turn ons found to cause inefficiency in other variables
 - Cuts tightened to: Jet 1 and 2 $p_T > 80$ GeV, METnoMu > 300 GeV, $\Delta\eta_{jj} > 3.5$, $M_{jj} > 600$ GeV

Trigger efficiencies



- ▶ Jet 2 p_T turn on is quite slow, 95% efficient only at 80 GeV
 - For the same trigger cut in run 1 the 95% efficient point was ~ 50 GeV
 - Jets are pfCHS from miniAOD with PF jet ID and old PU ID applied

Trigger efficiencies

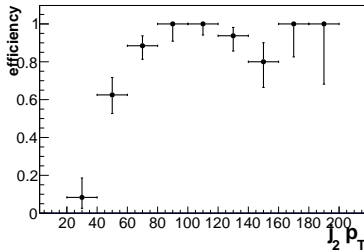


- ▶ METnoMu turn on has “shelf” at ~ 200 GeV before becoming fully efficient at 300 GeV
- ▶ List of MET filters is that recommended by JetMET, HBHE filter recipe old as that on twiki leads to exception

Jet pt investigation

- Measure efficiency separately for different jet configurations:
 - Both central, j2 forward j1 central, j1 forward j2 central, both forward

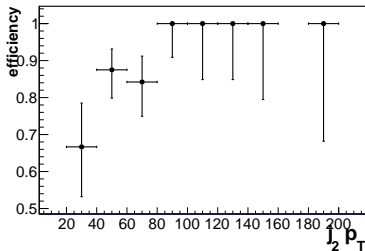
Both central



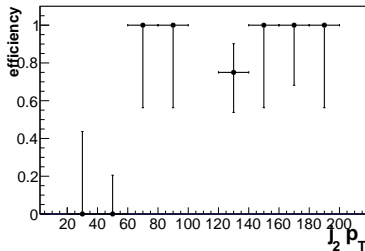
Jet pt investigation

- ▶ Measure efficiency separately for different jet configurations:
 - Both central, j2 forward j1 central, j1 forward j2 central, both forward
- ▶ Central defined as $|\eta| < 3$

j2 forward j1 central



j1 forward j2 central



Jet pt investigation

- ▶ No events with both forward
 - Unsurprising as MET only considers central region
- ▶ Conclusions of η dependence study limited by statistics
 - No obvious pattern

Summary

- ▶ Trigger efficiencies from 25ns data shown:
 - MET shelf and slow jet 2 p_T turn on interesting
 - $\Delta\eta_{jj}$ and M_{jj} turn ons good
- ▶ We will continue to process data as it comes in to improve turn on curves

Backup