

### On-line (pre-)selection Requisites for:

- **Jets:** number  $> 5$
- **Muons:** number  $> 0$
- **Electrons:** number  $> 0$

**Event Limit:** None (see last page)

### Off-line (post-)selection Requisites for:

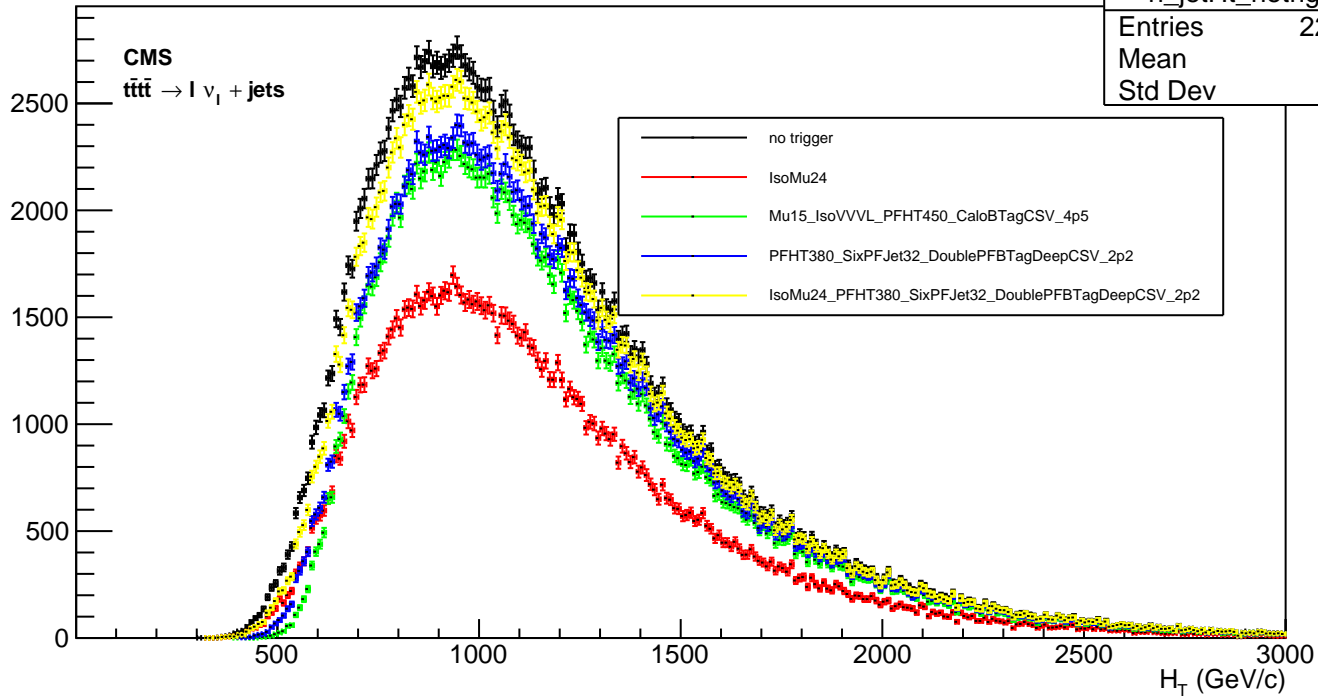
- **Jets:**  $\text{jetId} > 2$ ,  $p_T > 30$  and  $|\eta| < 2.4$  (for at least 6)  
 $\text{btagDeepFlavB} > 0.7489$  (for at least one jet)
- **Muons:** has tightId,  $|\eta| < 2.4$  and  $\text{miniPFRellso\_all} < 0.15$  (for at least 1)

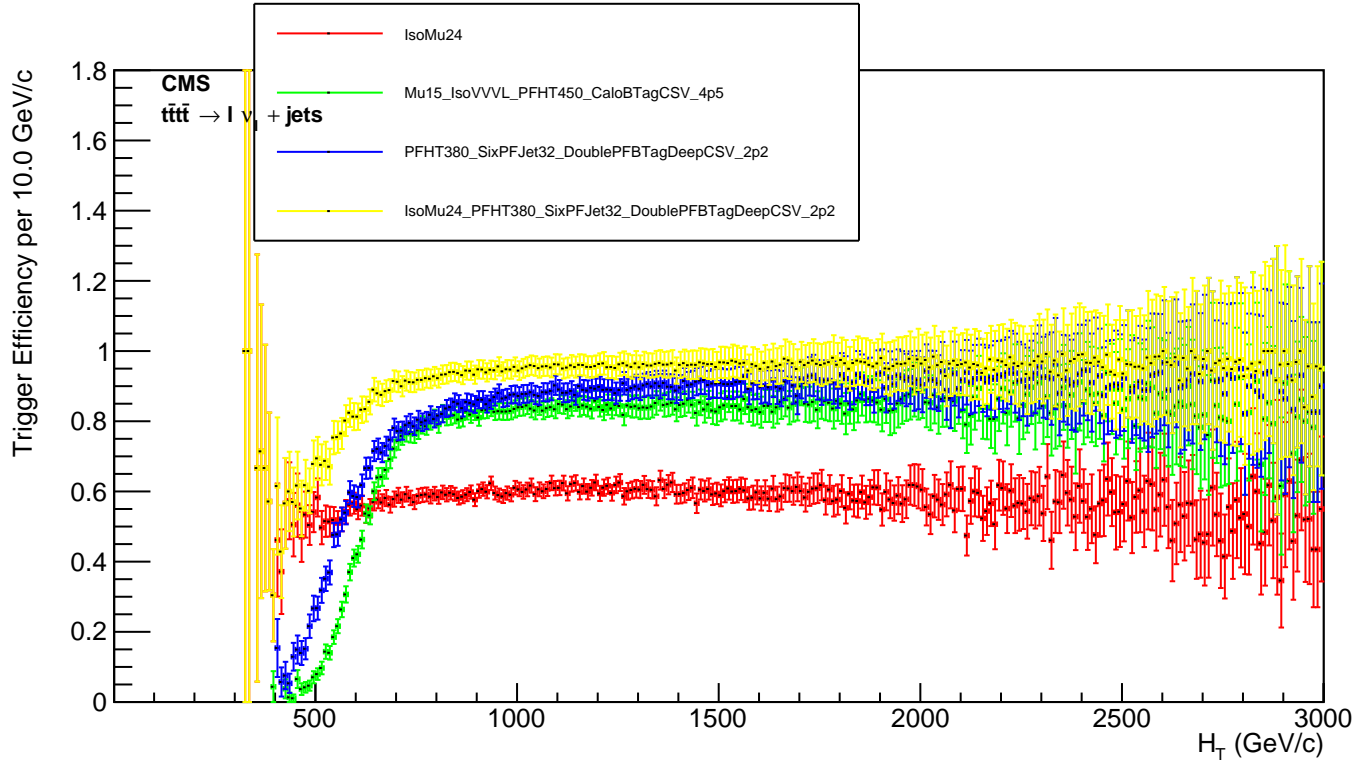
no trigger

Number of Events per 10 GeV/c

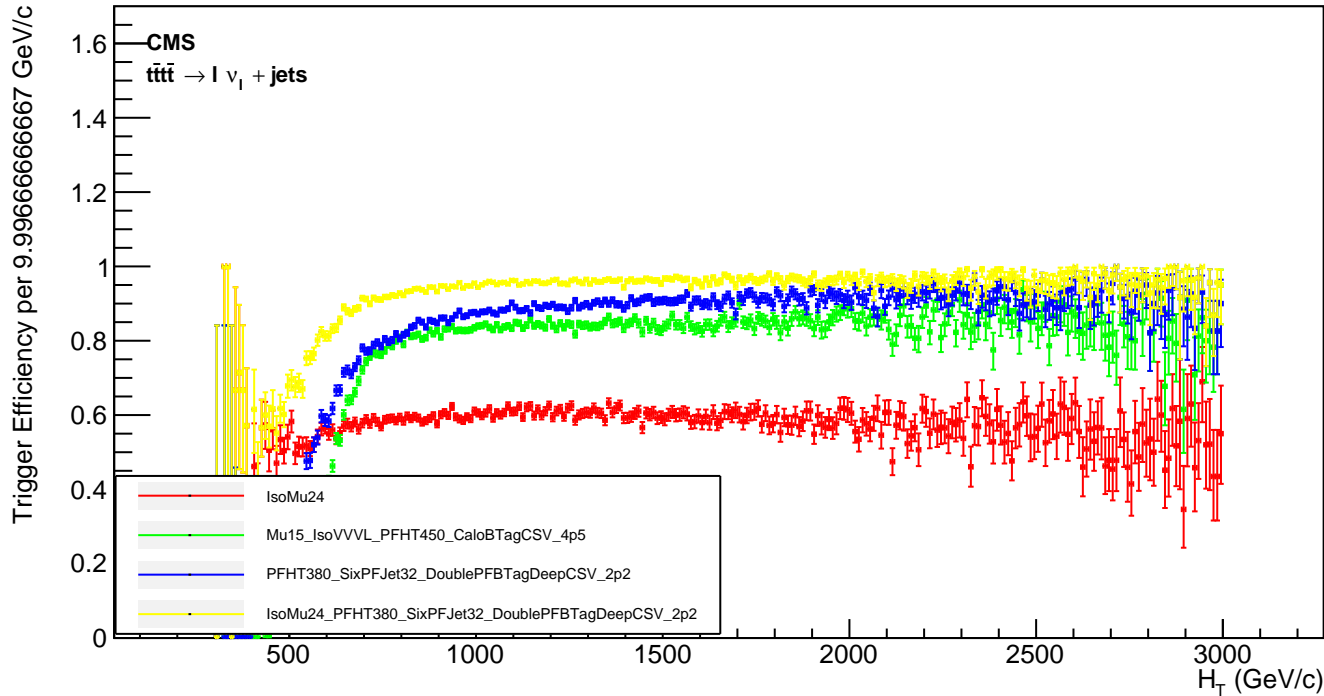
**CMS**  
 $t\bar{t}\bar{t}\bar{t} \rightarrow l \nu_l + \text{jets}$

h_jetHt_notrigger	
Entries	227479
Mean	1148
Std Dev	414.9

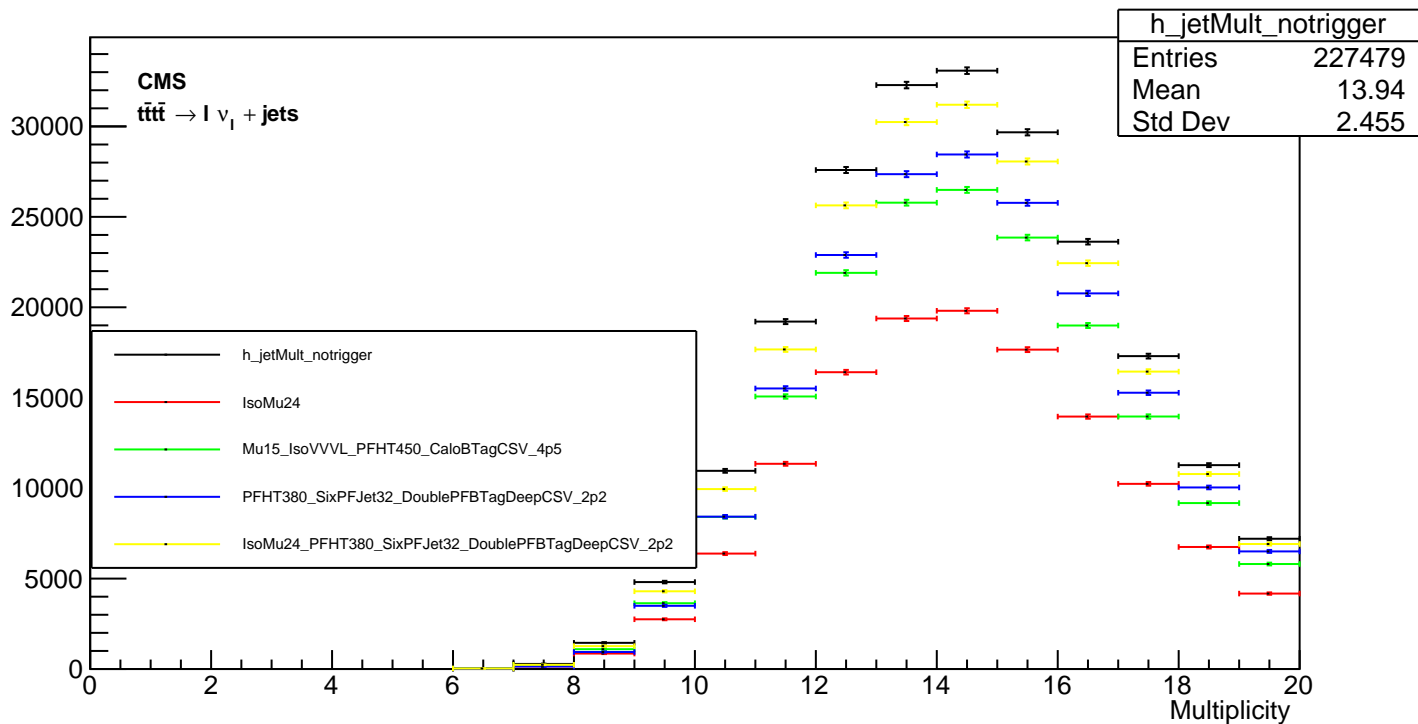


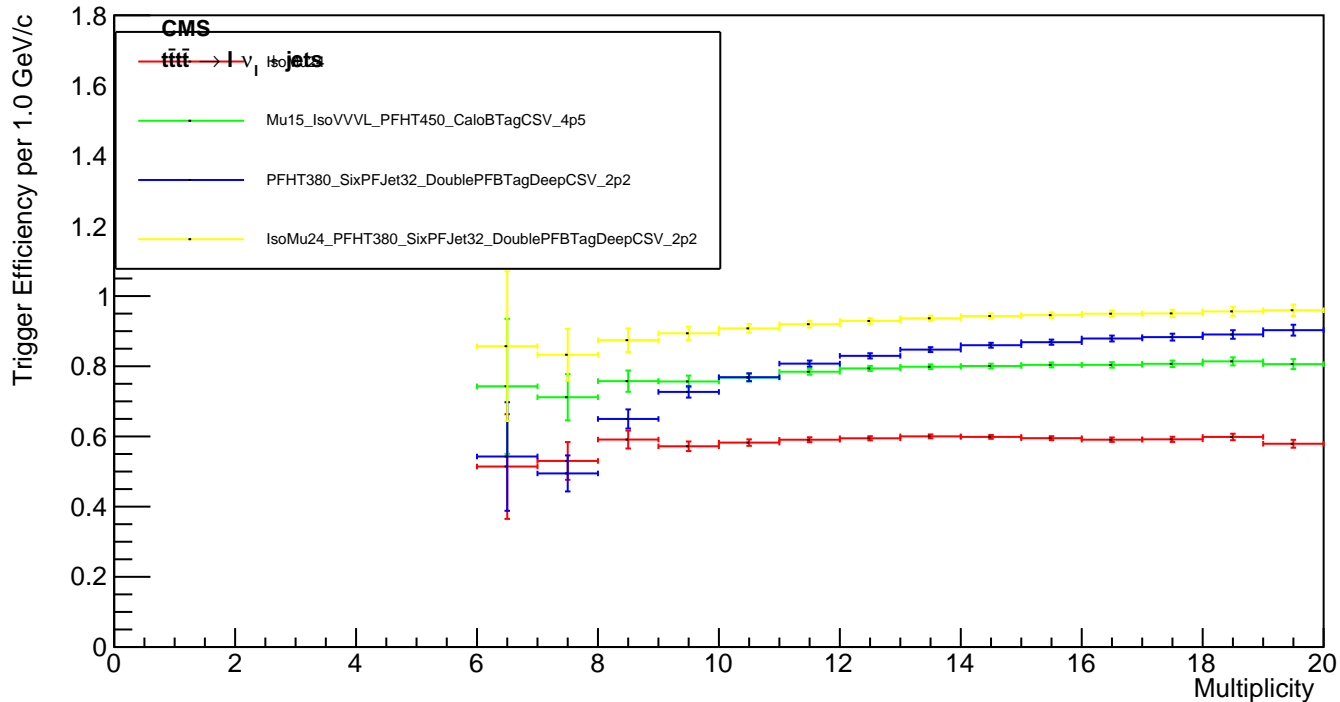


# IsoMu24

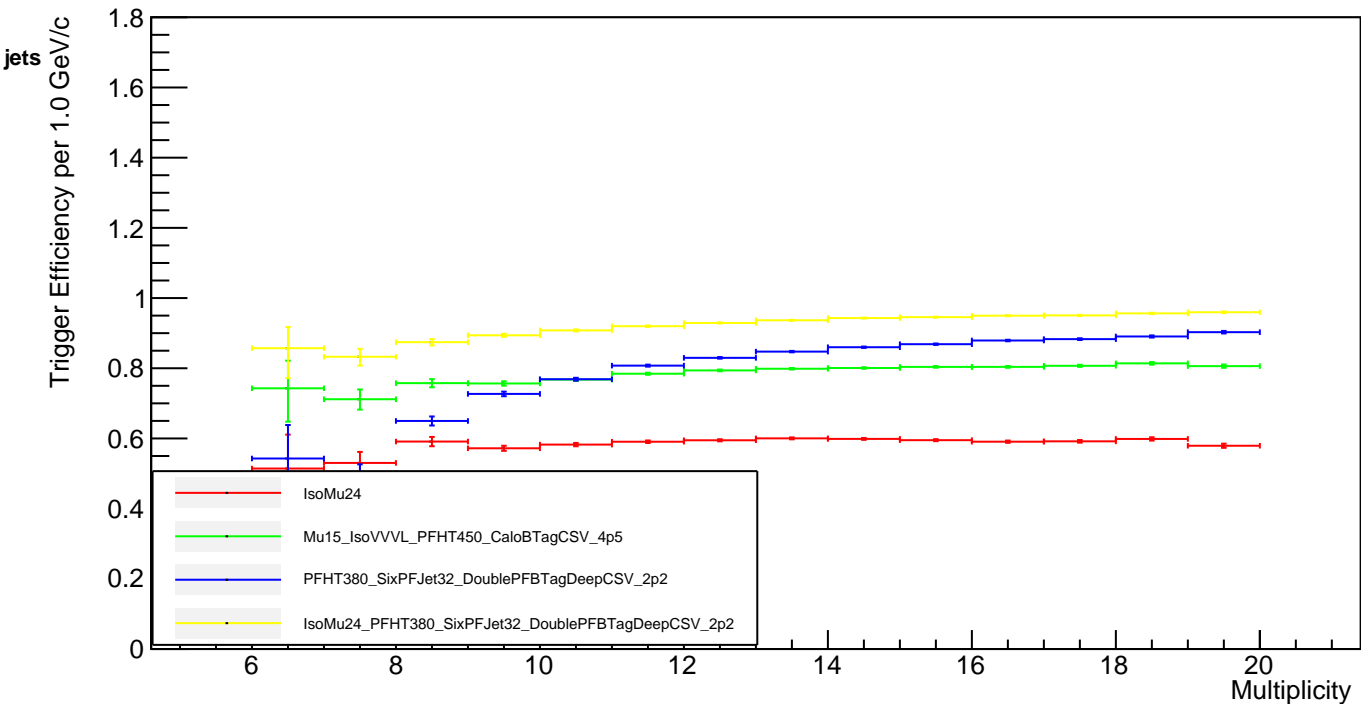


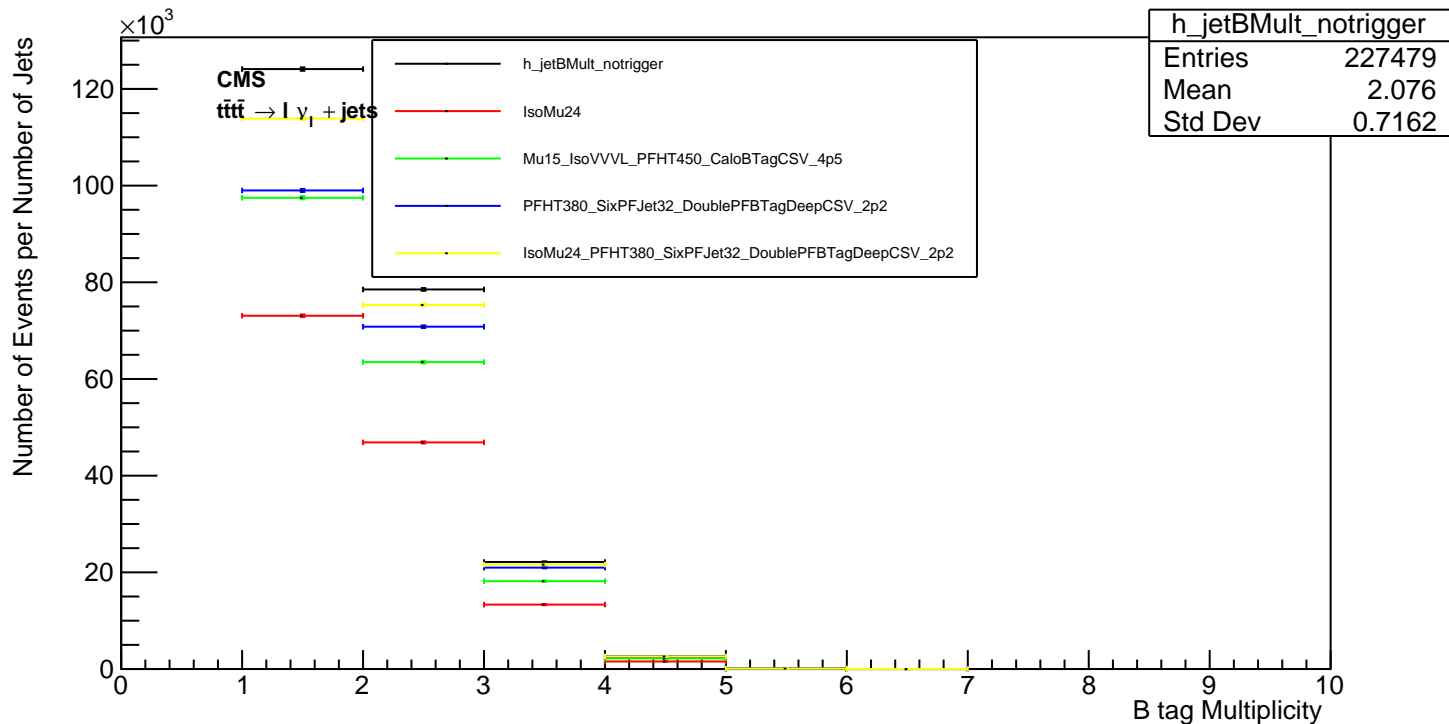
Number of Events per Number of Jets



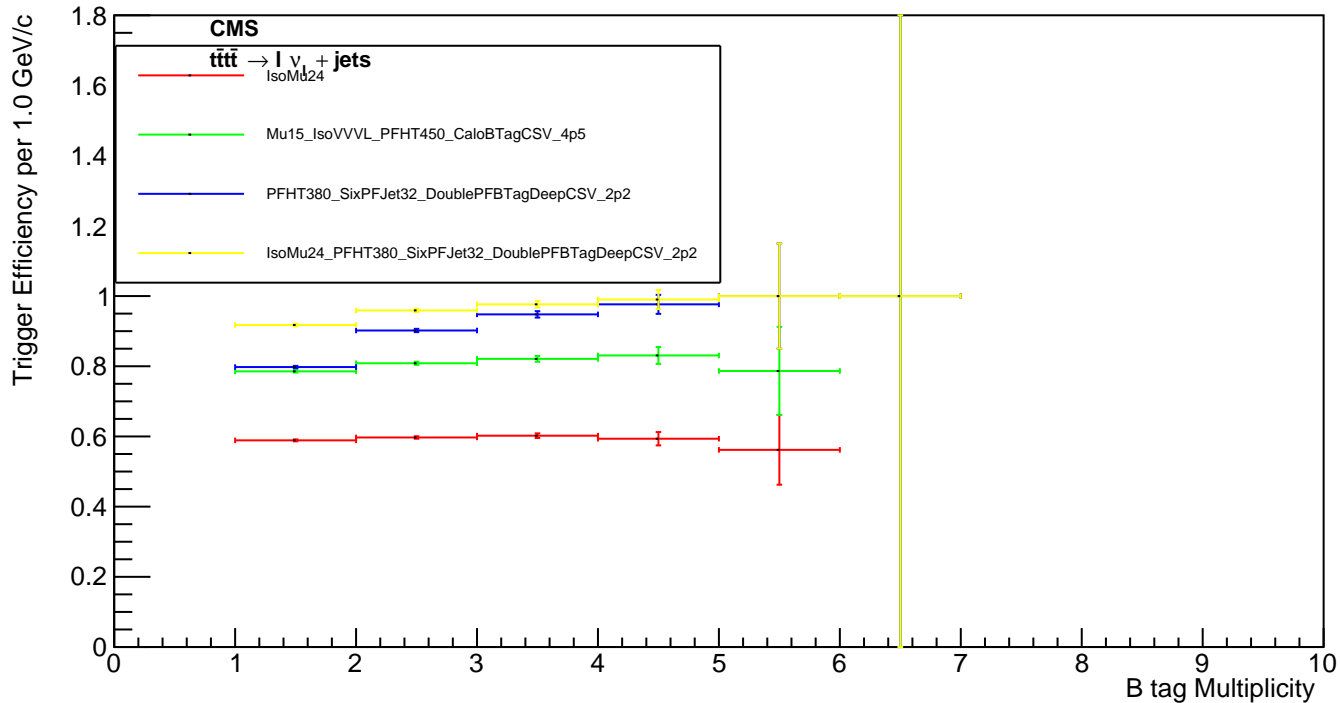


# IsoMu24

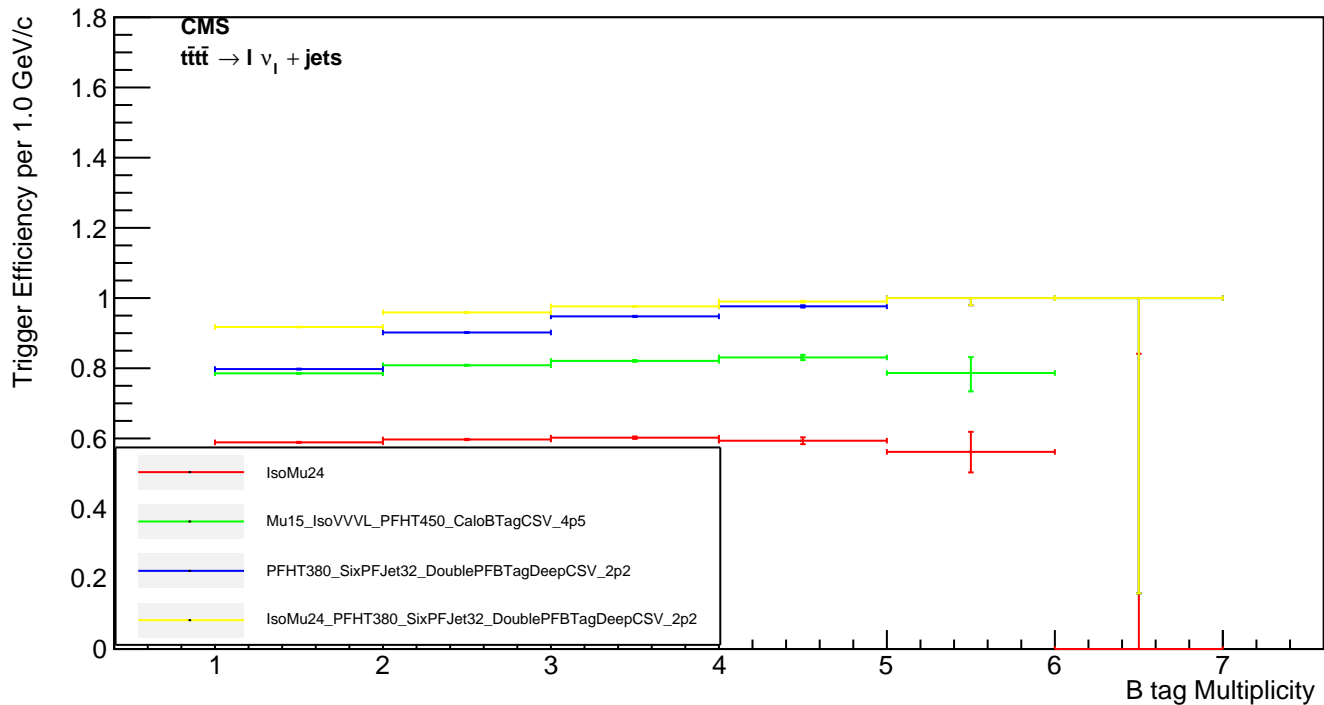






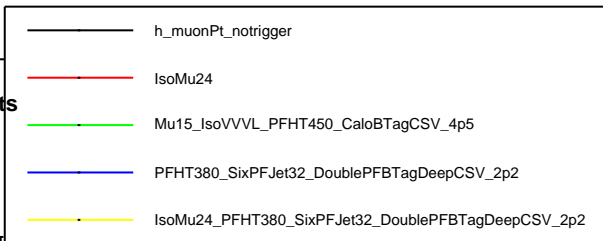


# IsoMu24

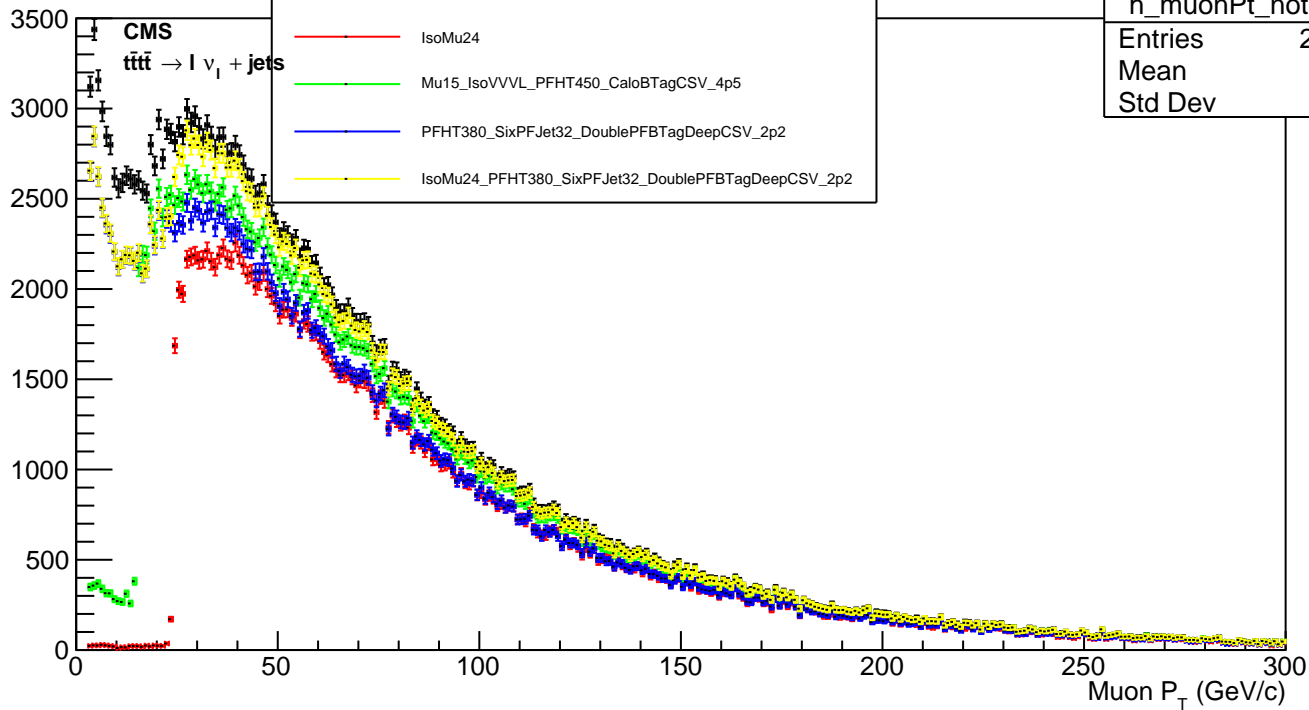


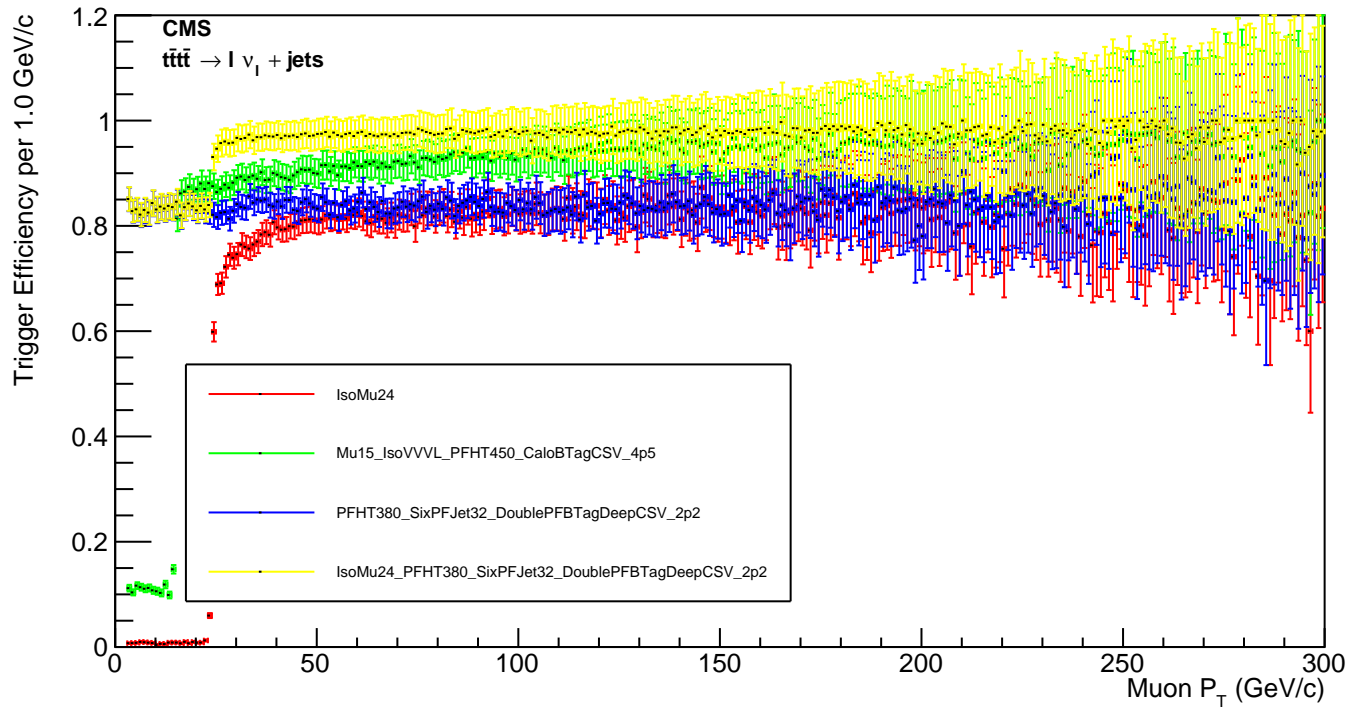
Number of Events per 1 GeV/c

**CMS**  
 **$t\bar{t} \rightarrow l \nu_l + \text{jets}$**

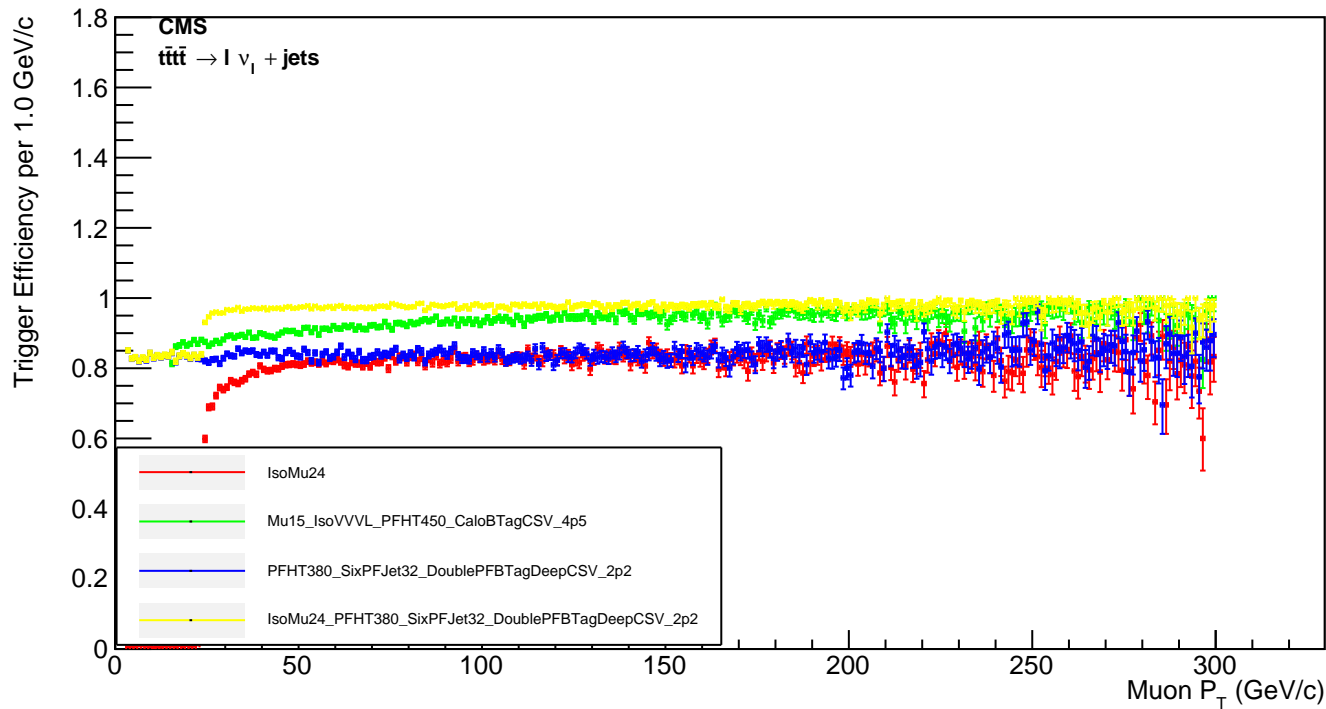


h_muonPt_notrigger	
Entries	278070
Mean	68.25
Std Dev	55.49



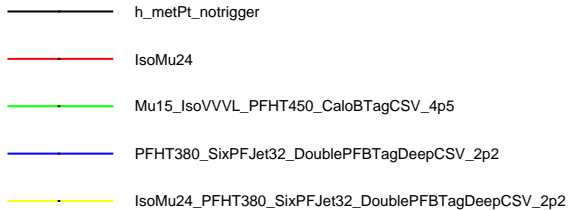


# IsoMu24

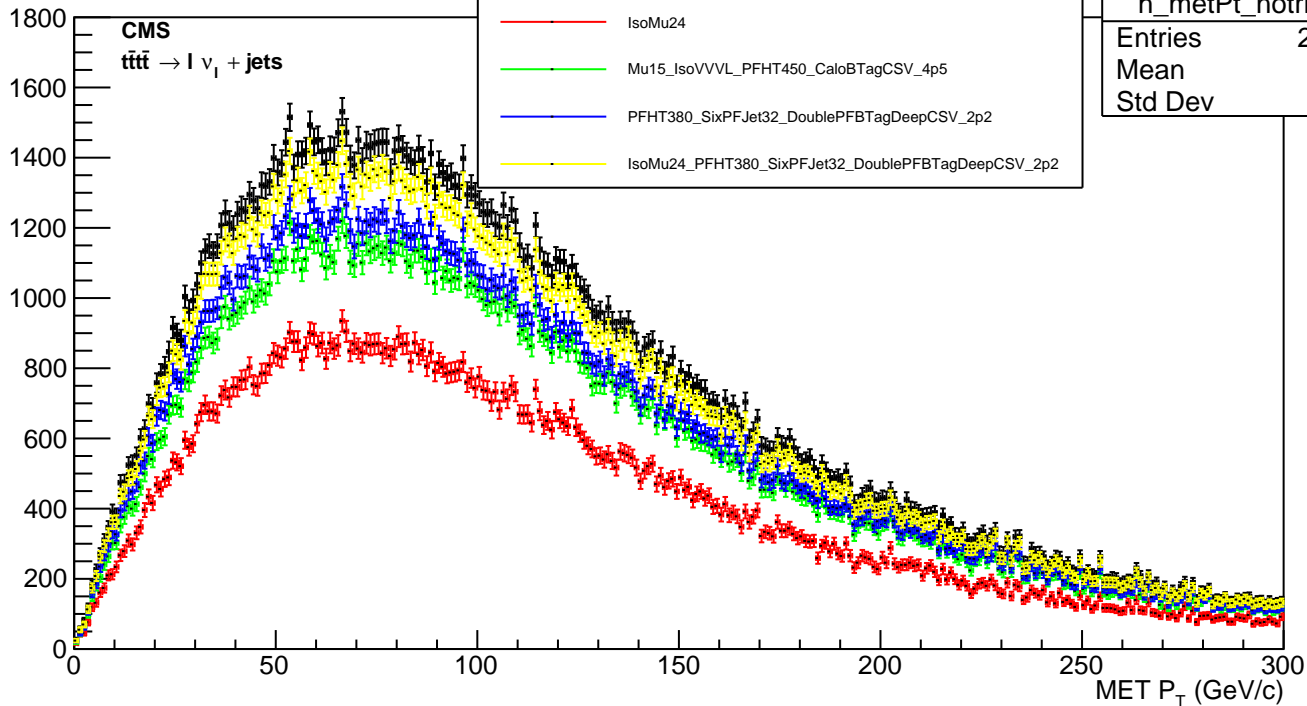


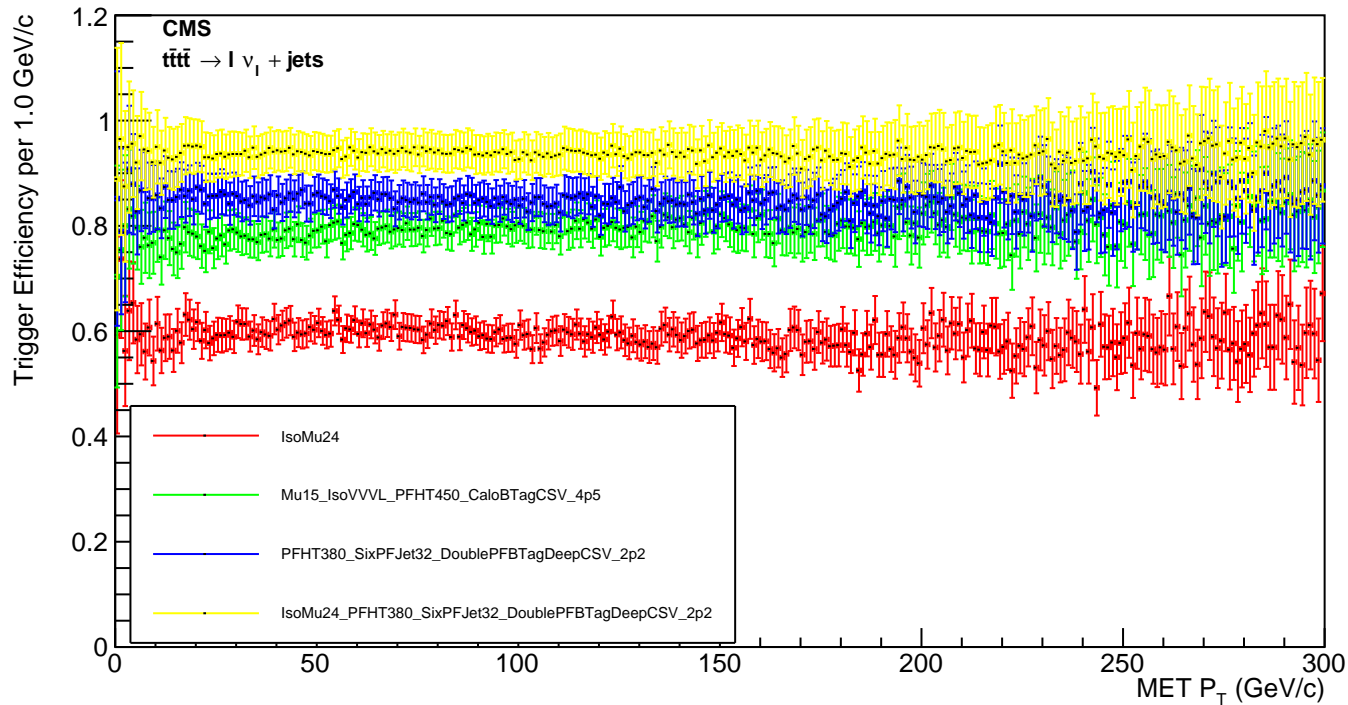
Number of Events per 1 GeV/c

**CMS**  
 **$t\bar{t}\bar{t} \rightarrow l \nu_l + \text{jets}$**

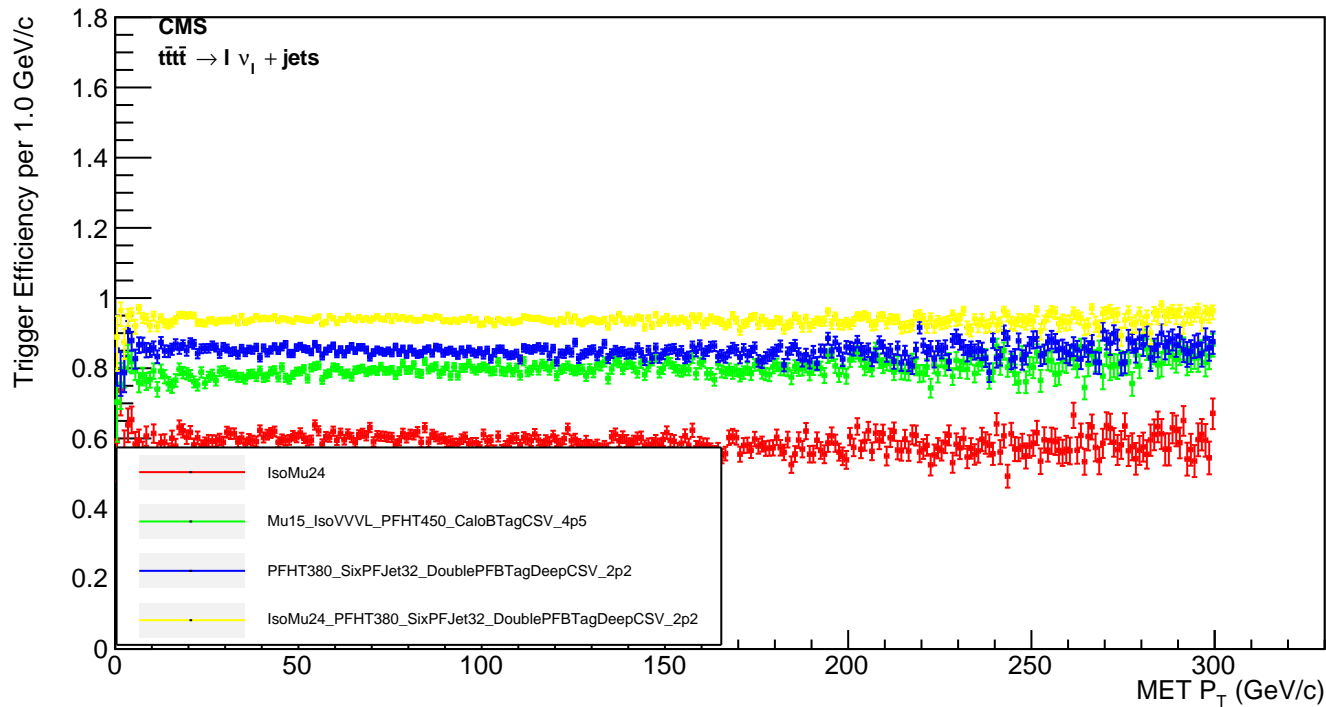


h_metPt_notrigger	
Entries	227479
Mean	110.3
Std Dev	65.61





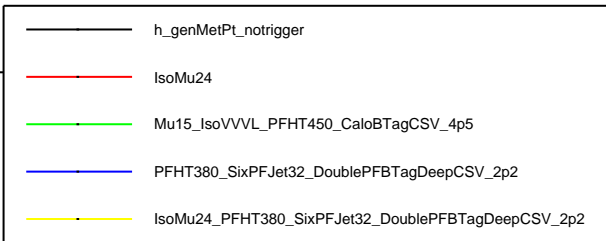
# IsoMu24



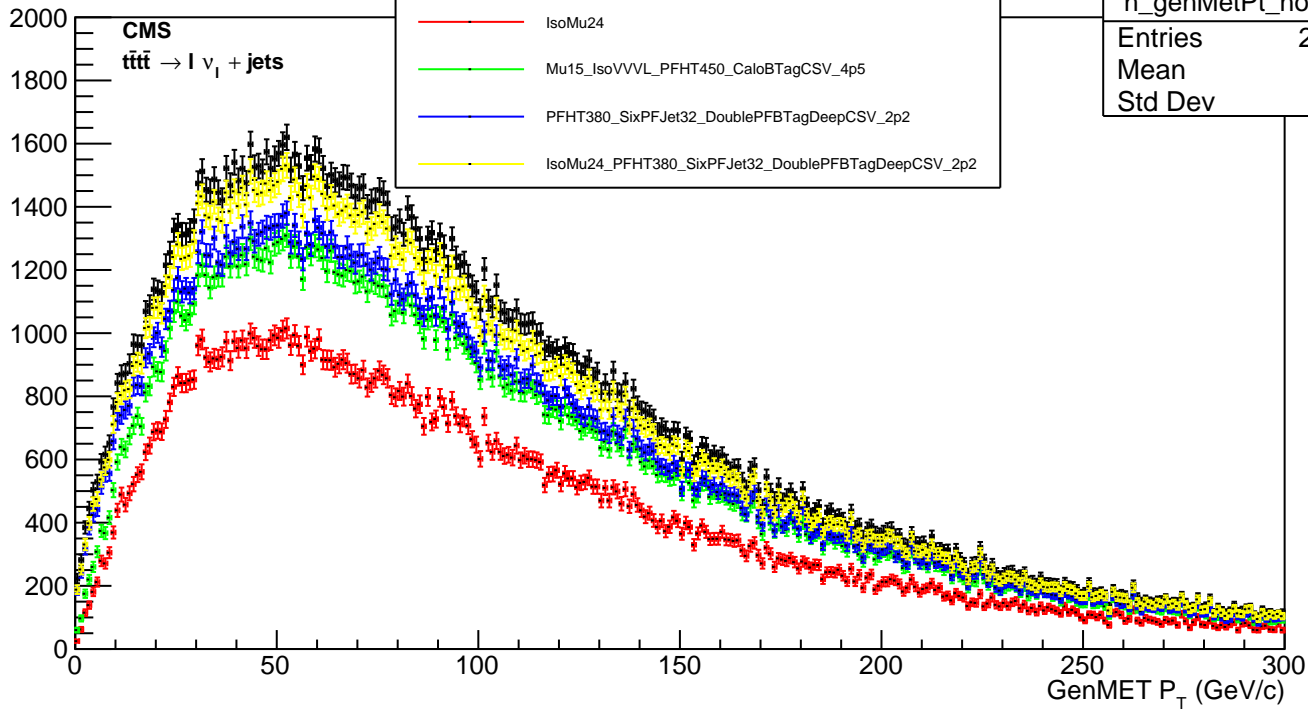


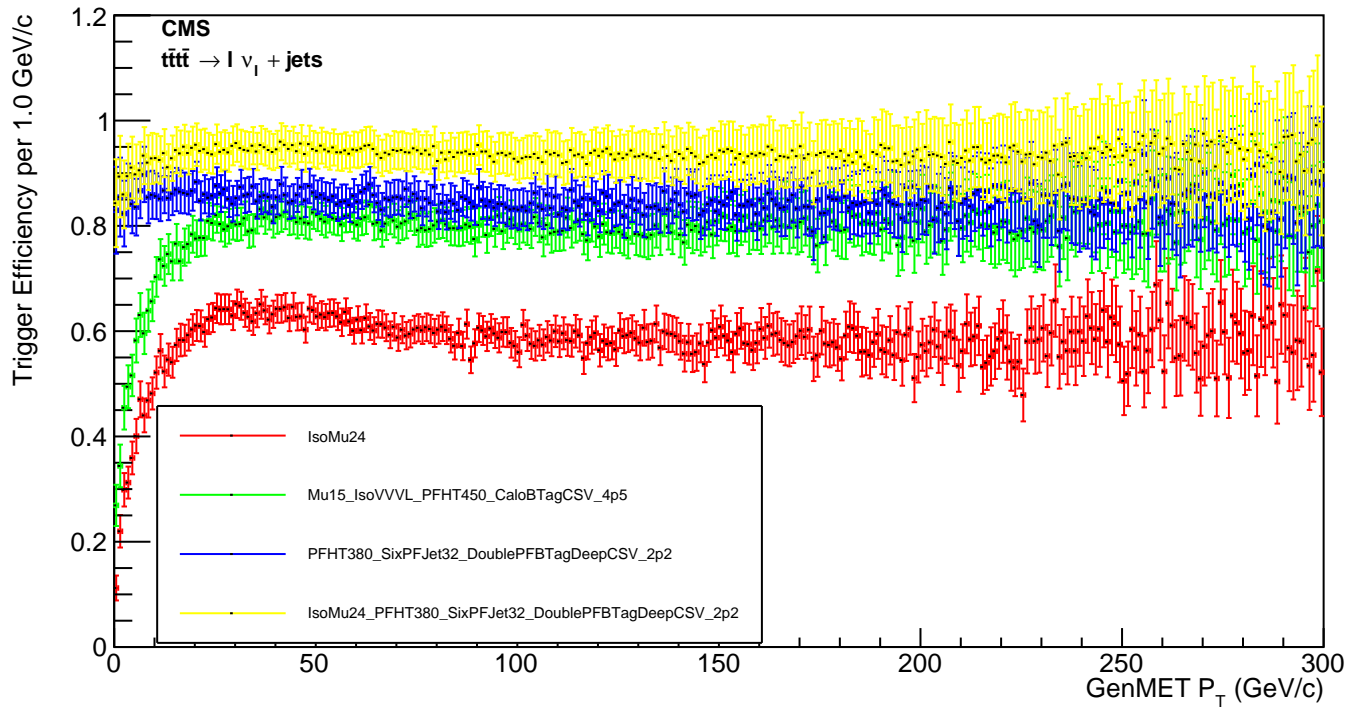
Number of Events per 1GeV/c

**CMS**  
 **$t\bar{t}t\bar{t} \rightarrow l \nu_l + \text{jets}$**

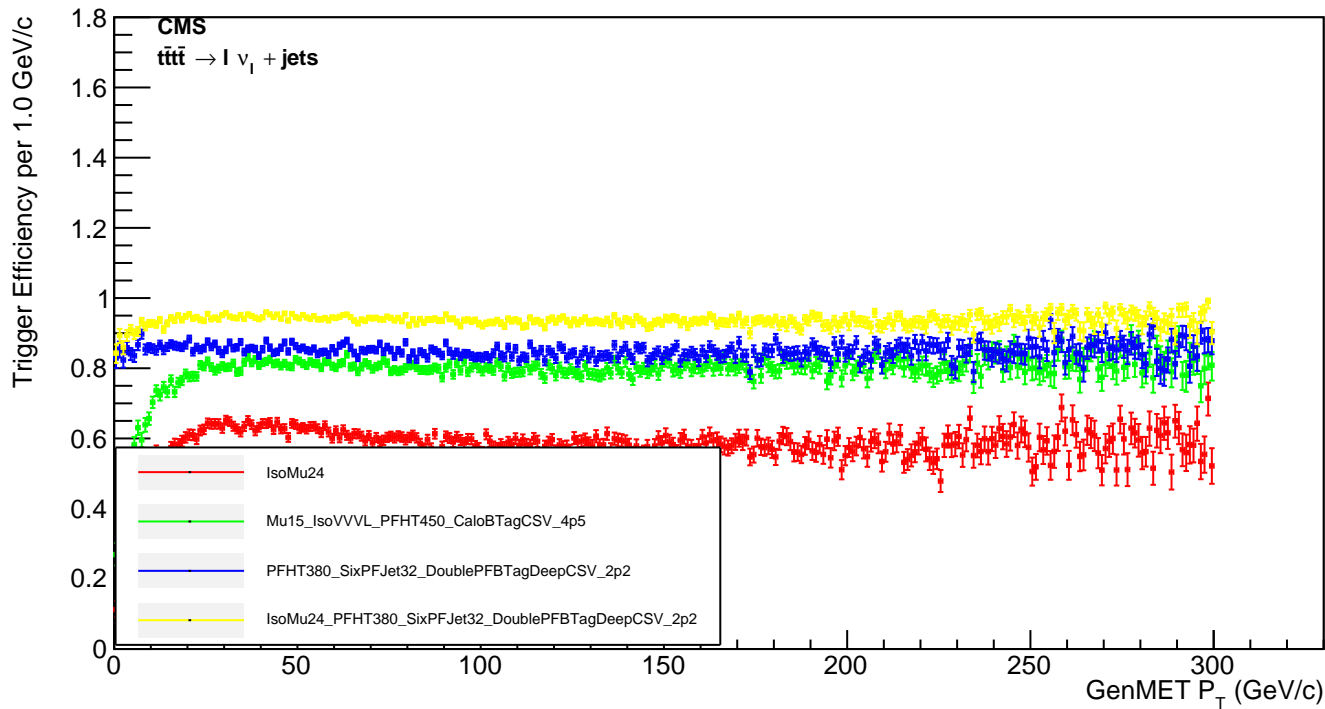


h_genMetPt_notrigger	
Entries	227479
Mean	99.49
Std Dev	65.95

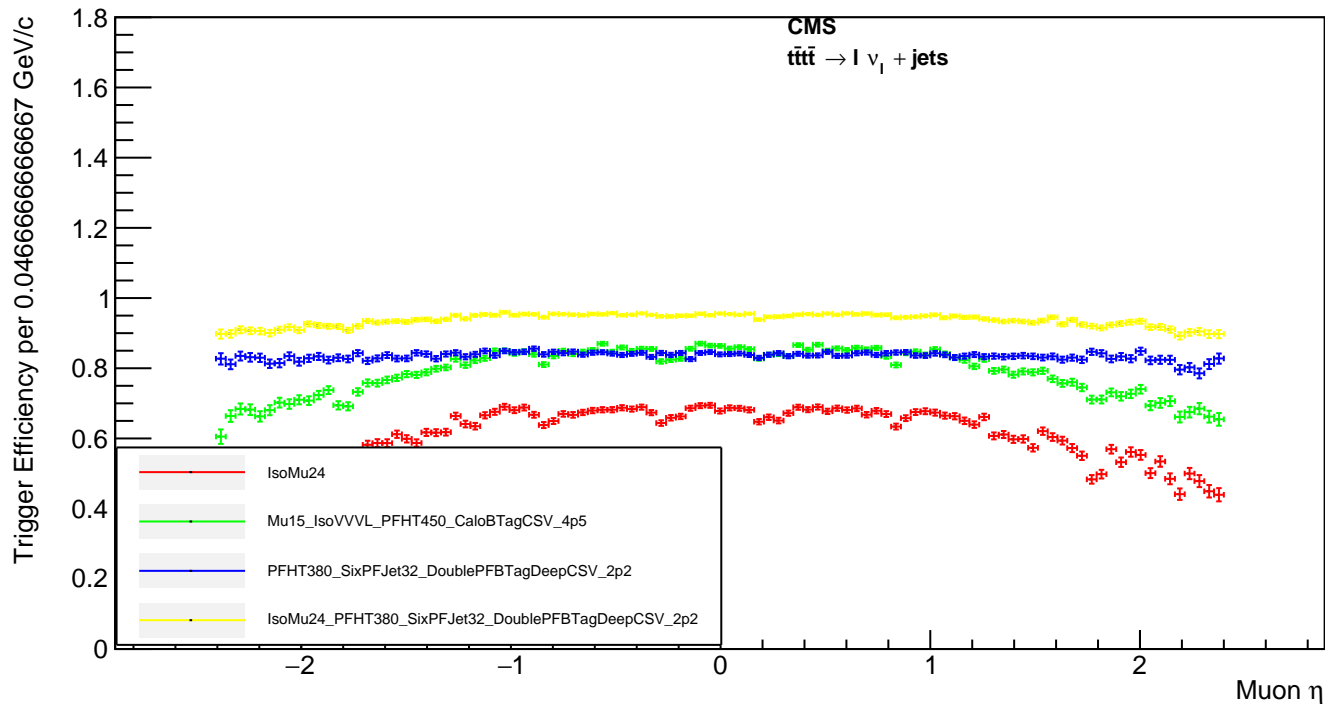




# IsoMu24



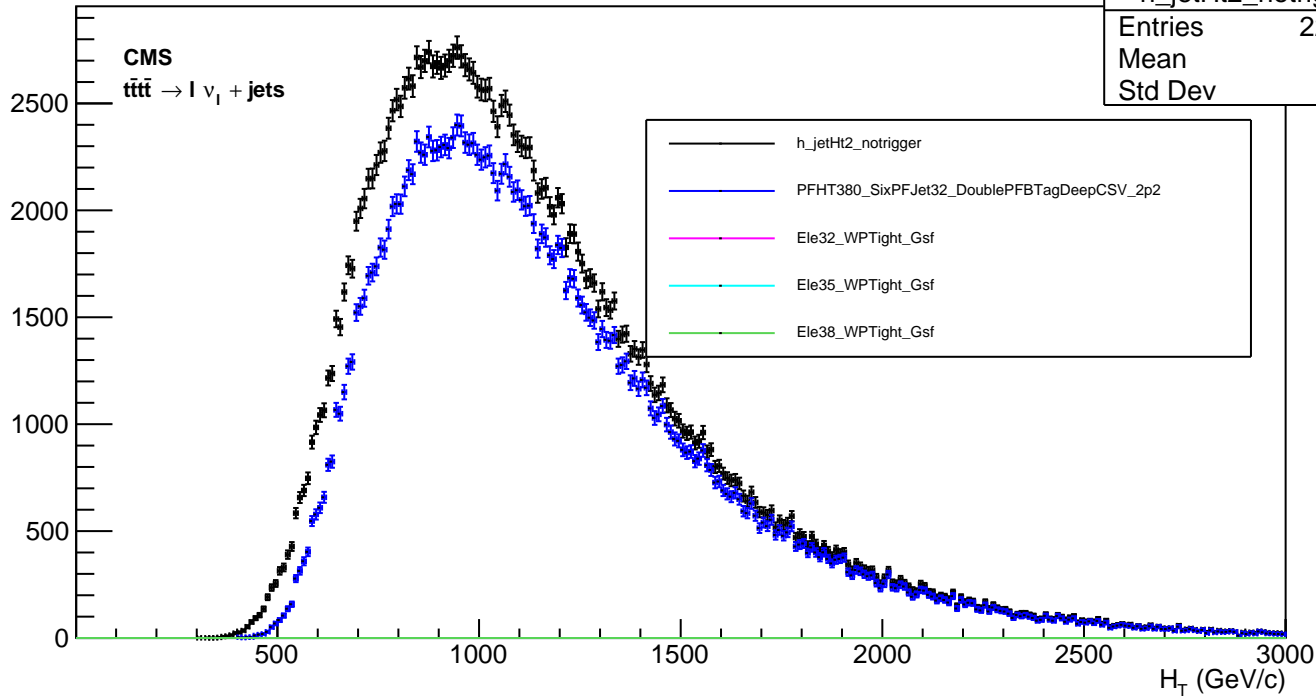
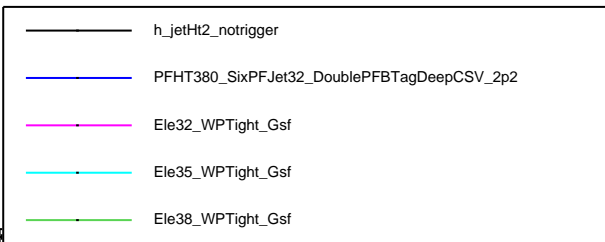
# IsoMu24

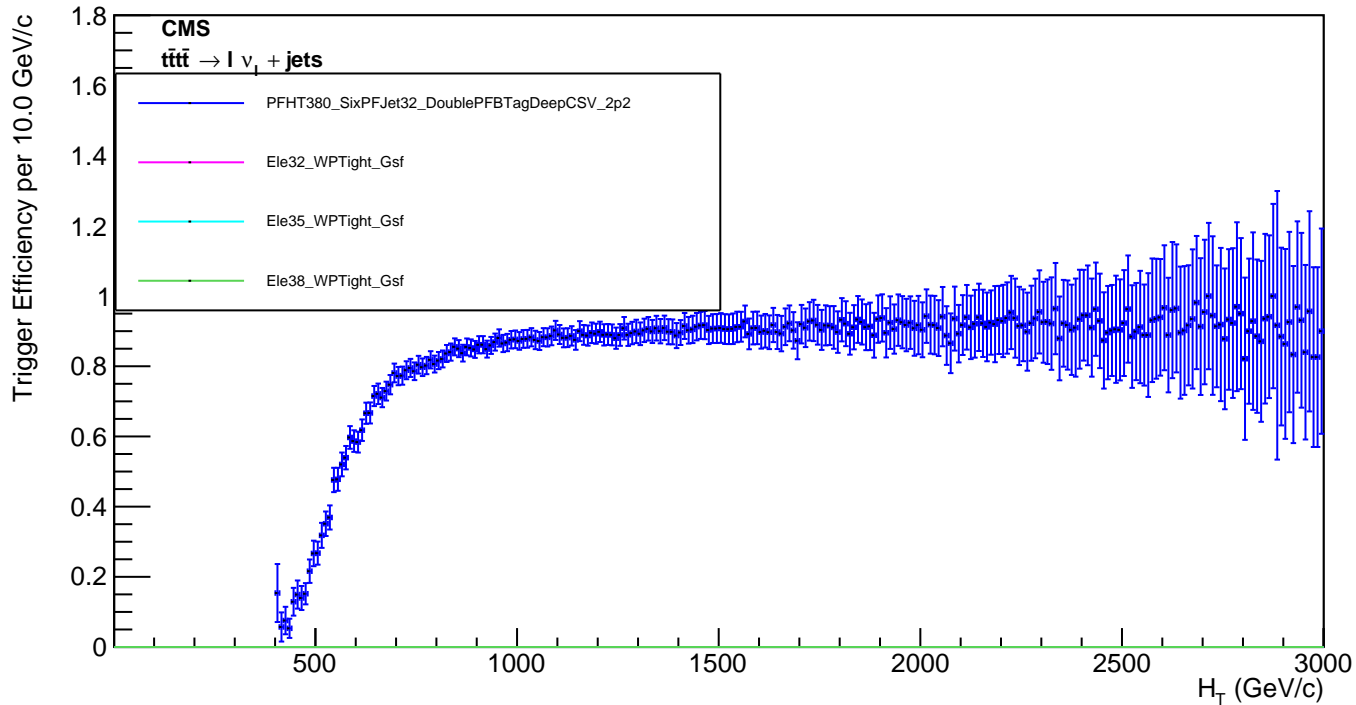


Number of Events per 10 GeV/c

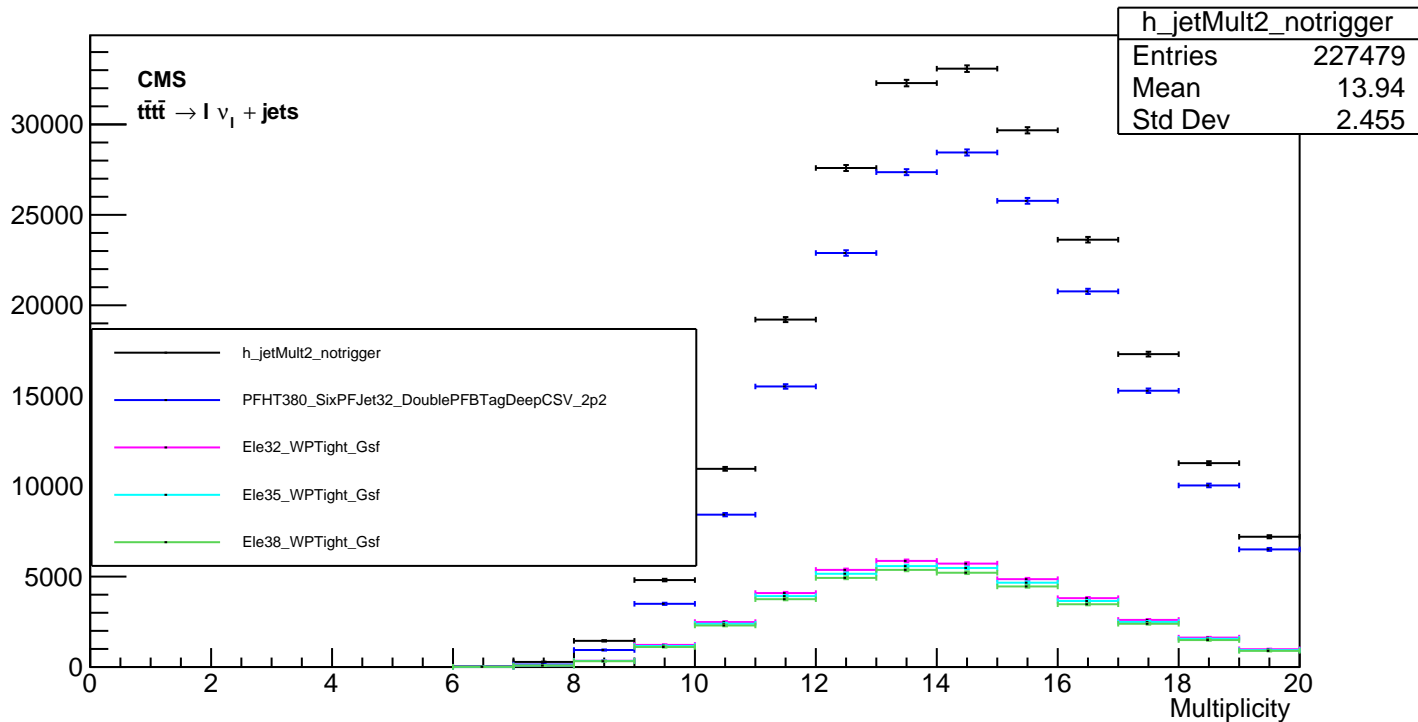
**CMS**  
 **$t\bar{t}t\bar{t} \rightarrow l \nu_l + \text{jets}$**

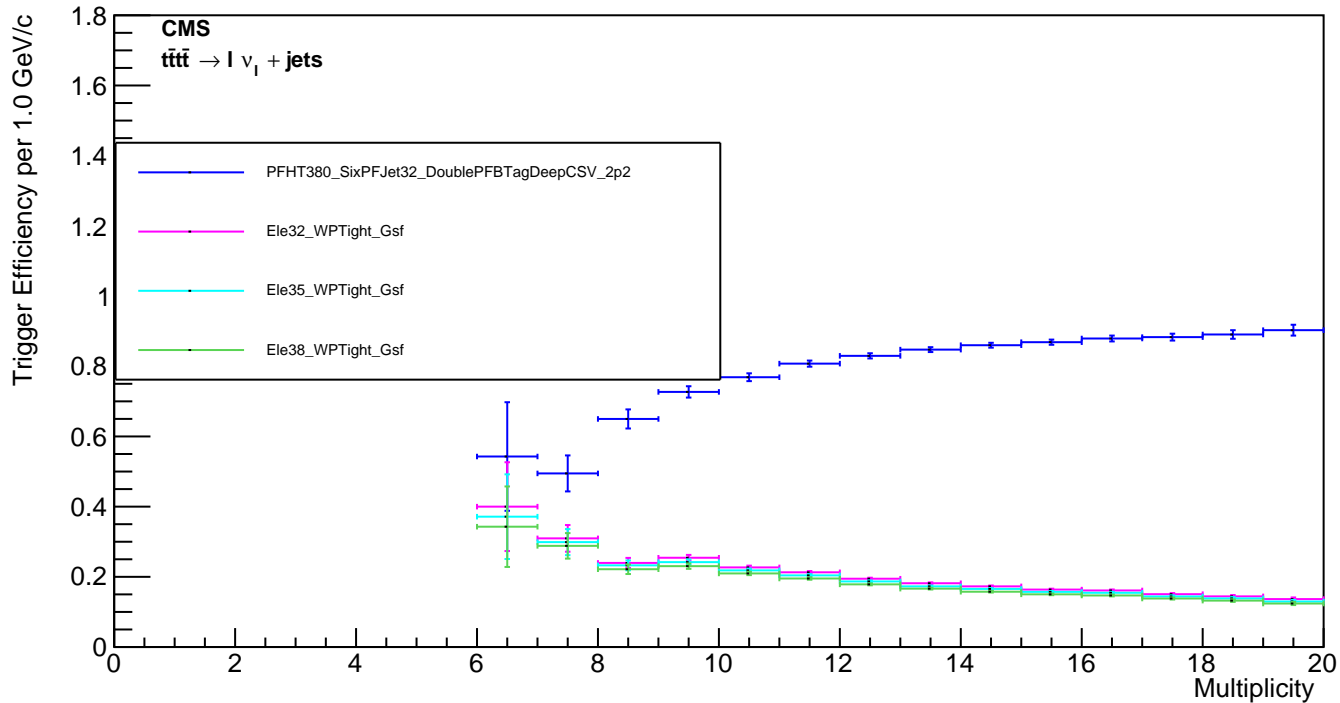
h_jetHt2_notrigger	
Entries	227479
Mean	1148
Std Dev	414.9



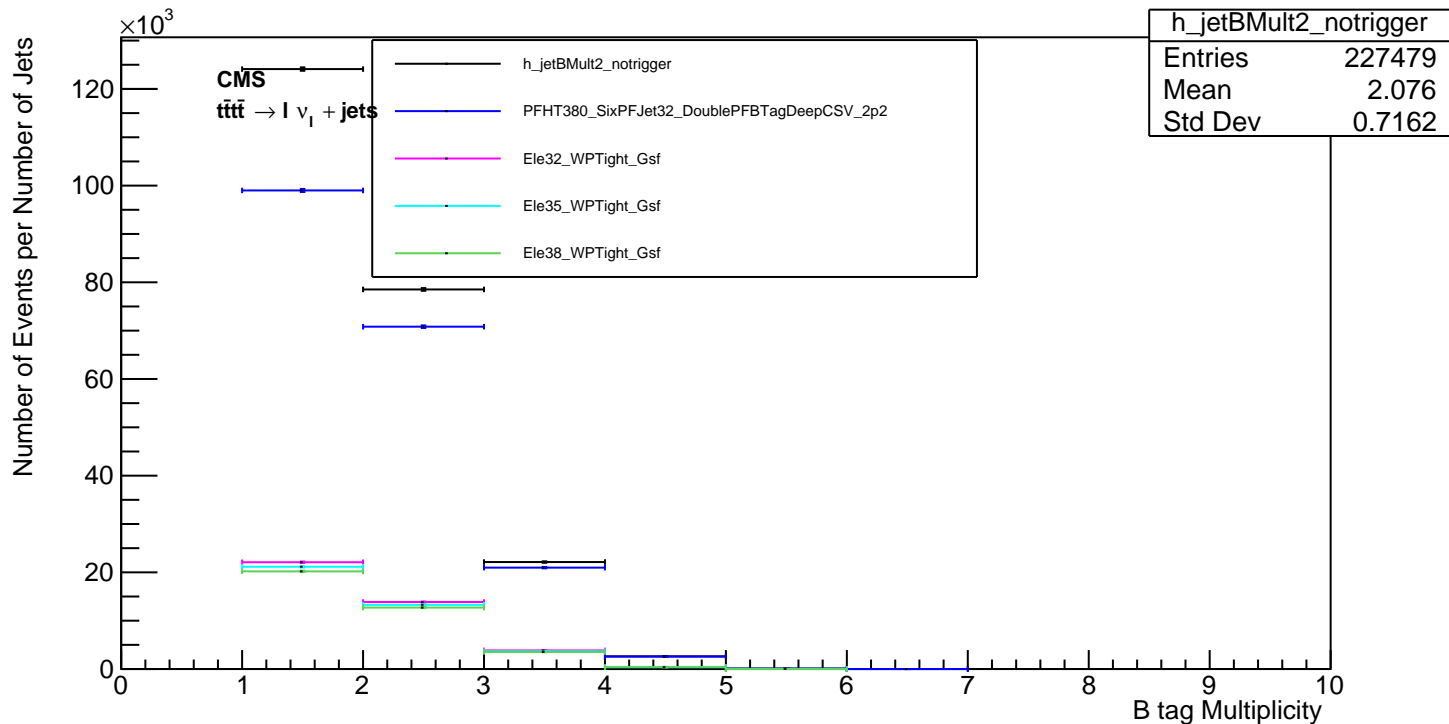


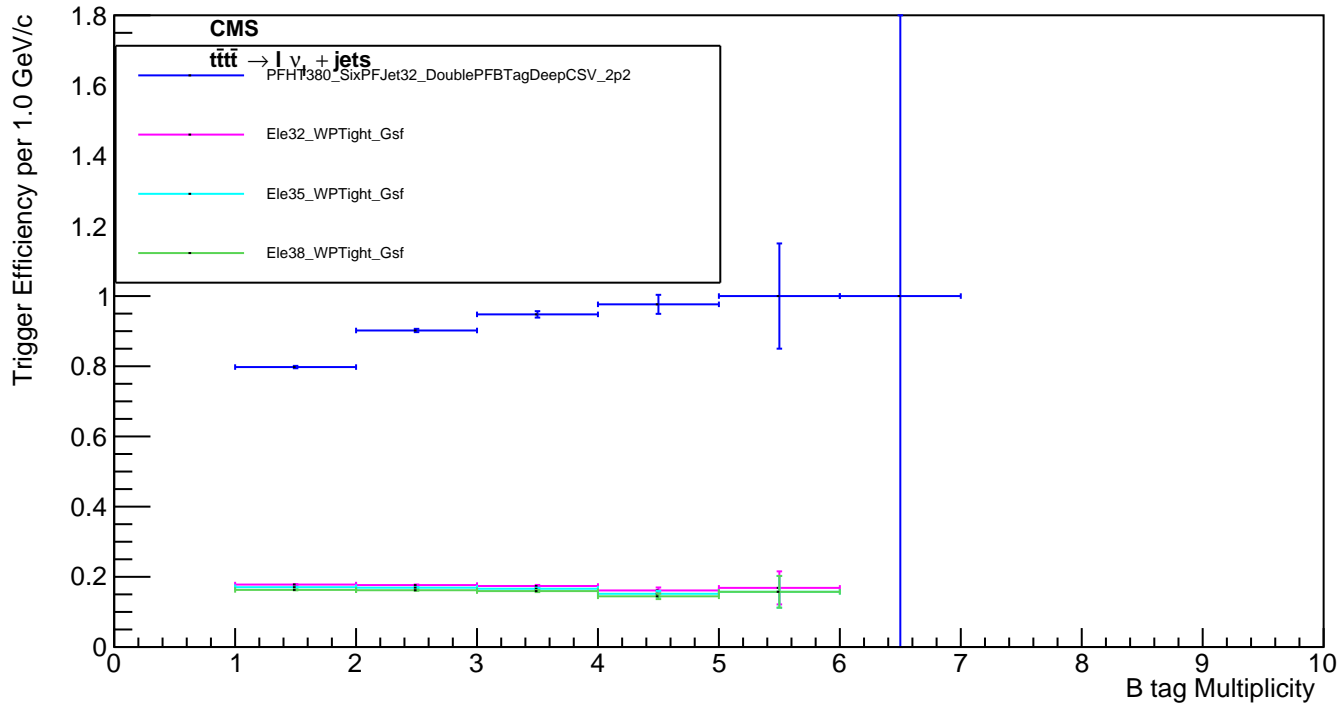
Number of Events per Number of Jets





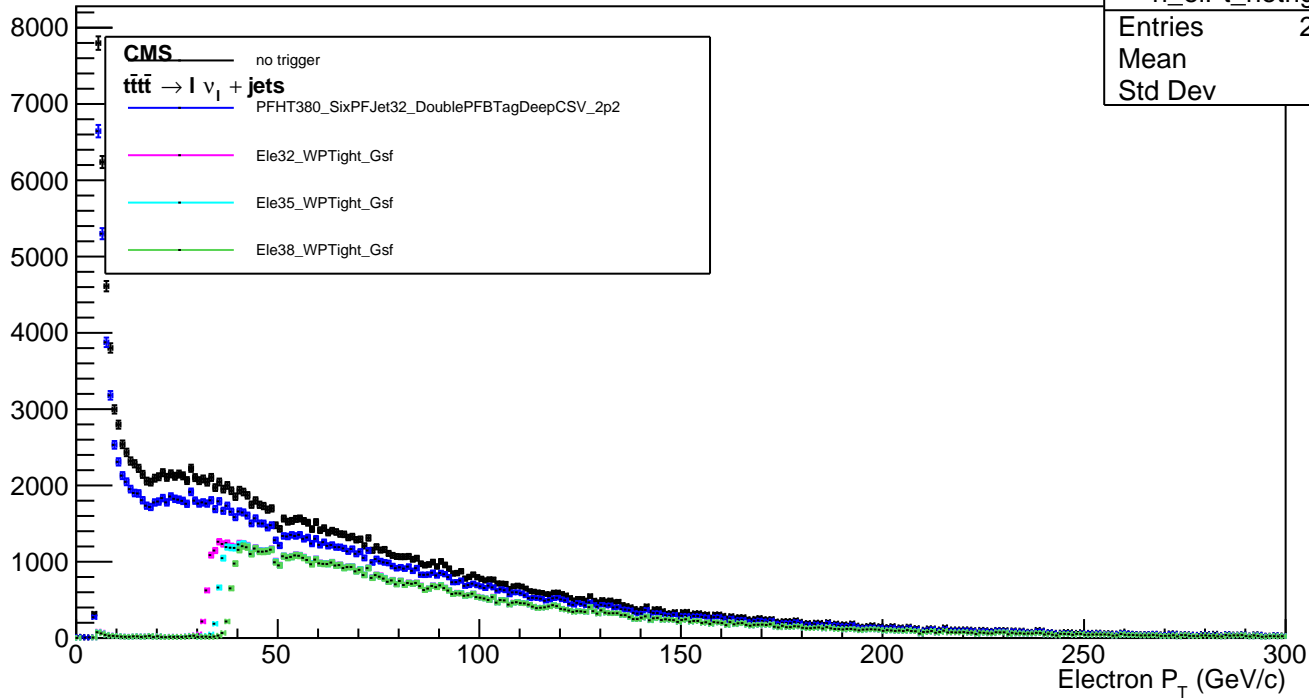






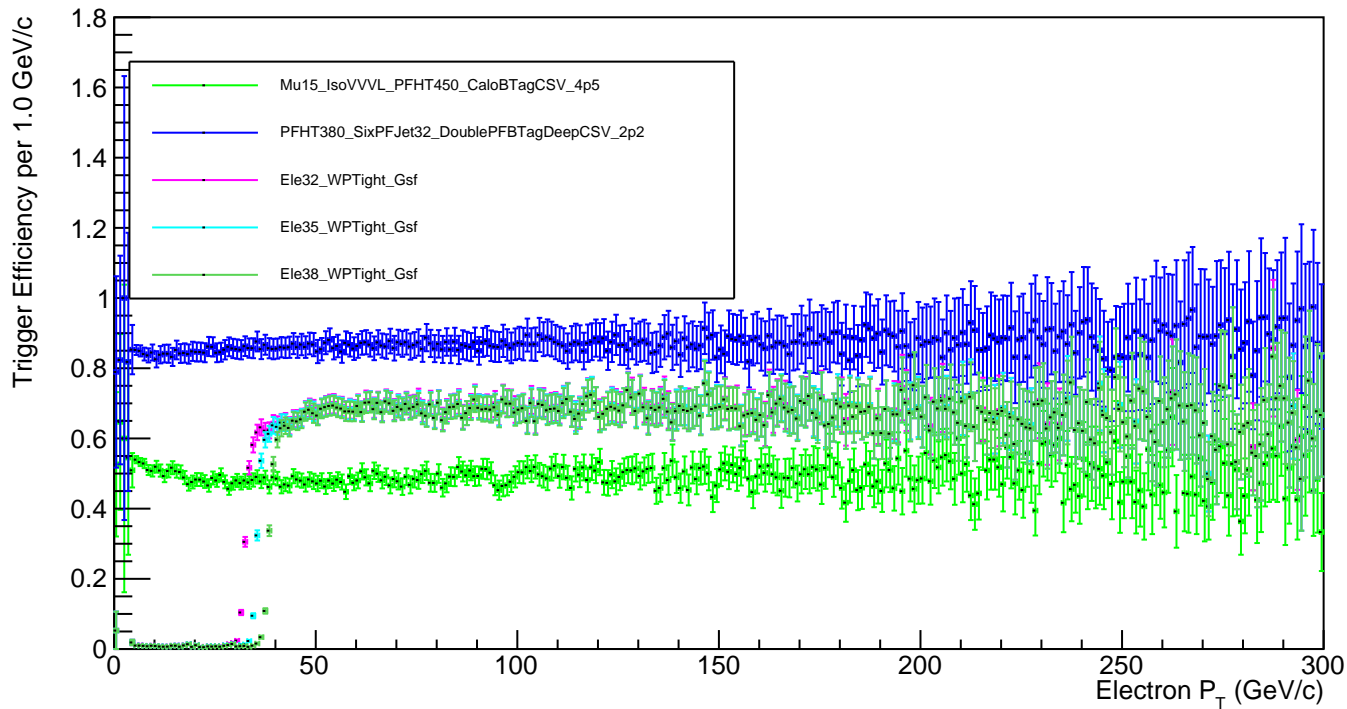
no trigger

Number of Events per 1 GeV/c



h\_elPt\_notrigger

Entries	216015
Mean	65.26
Std Dev	56.73

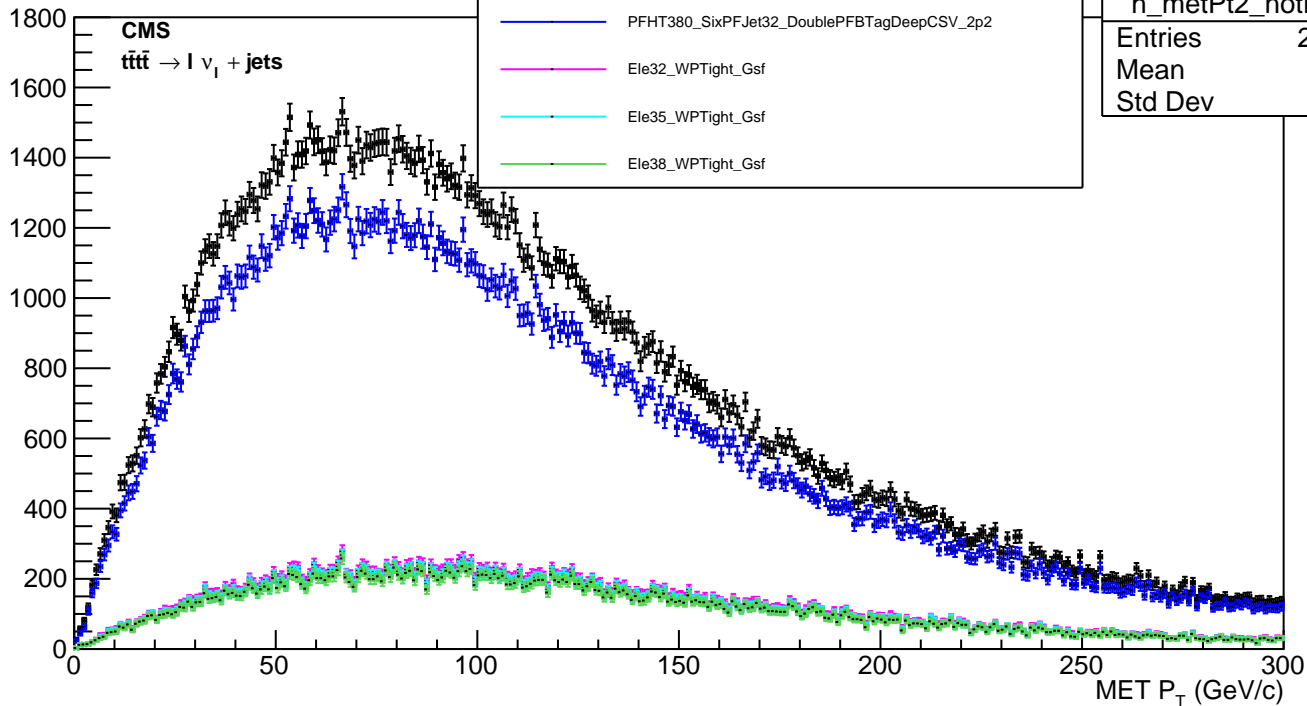


Number of Events per 1 GeV/c

**CMS**  
 $t\bar{t}\bar{t} \rightarrow l \nu_l + \text{jets}$

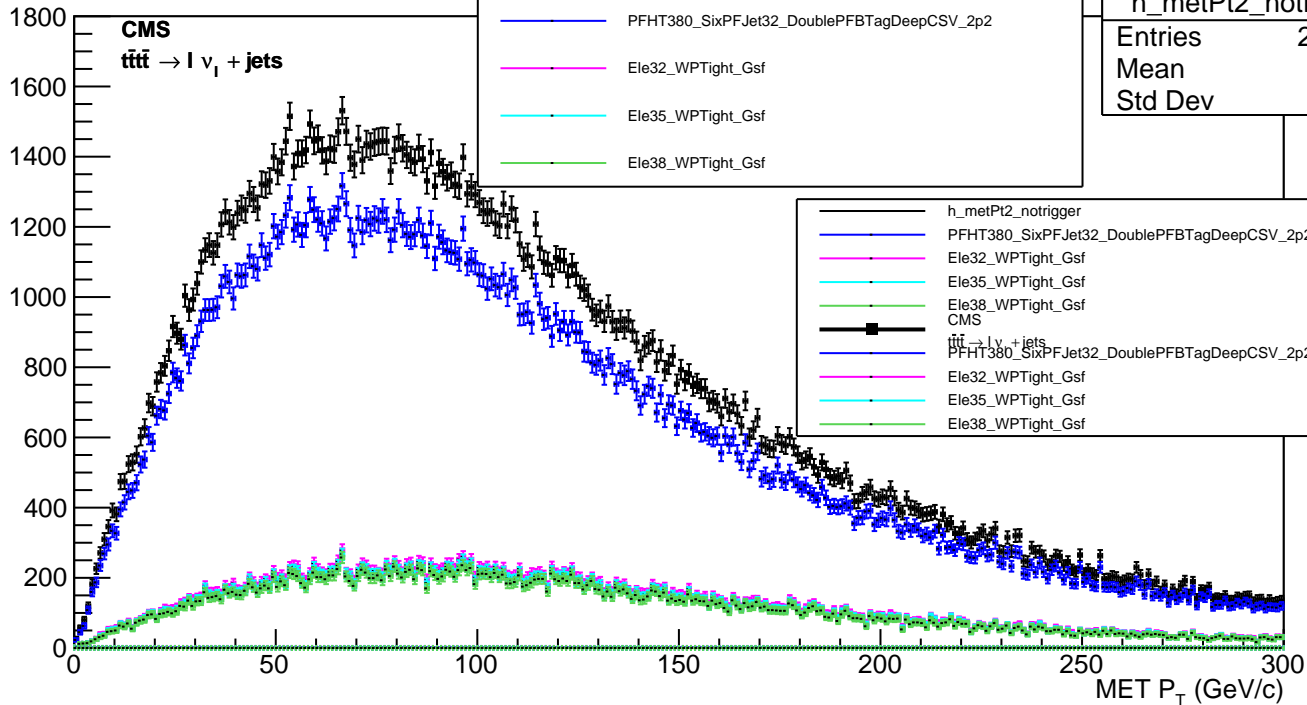
- h\_metPt2\_notrigger
- PFHT380\_SixPFJet32\_DoublePFBTagDeepCSV\_2p2
- Ele32\_WPTight\_Gsf
- Ele35\_WPTight\_Gsf
- Ele38\_WPTight\_Gsf

h_metPt2_notrigger	
Entries	227479
Mean	110.3
Std Dev	65.61



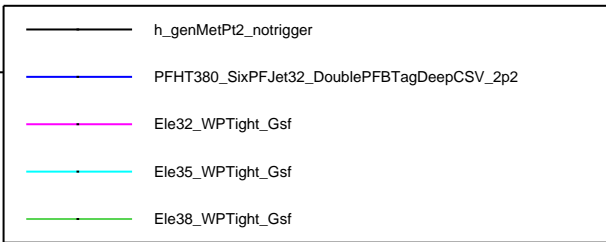
Number of Events per 1 GeV/c

**CMS**  
 **$t\bar{t}t\bar{t} \rightarrow l \nu_l + \text{jets}$**

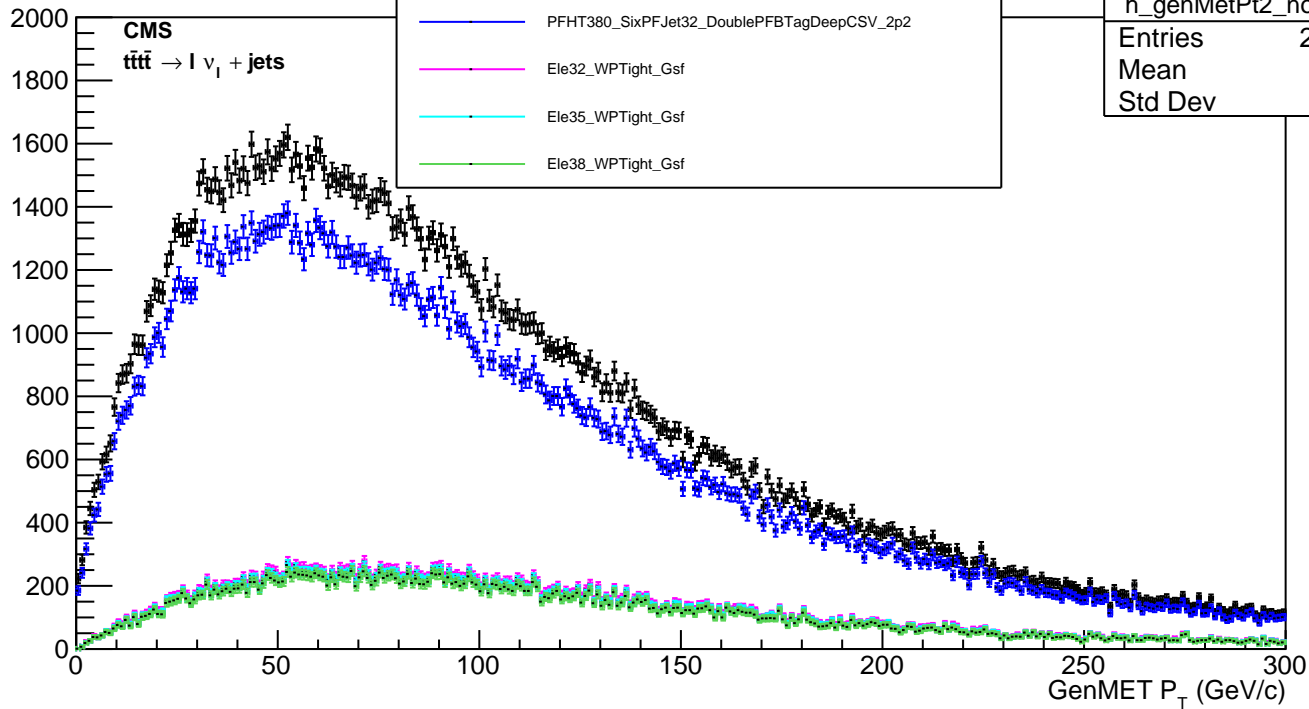


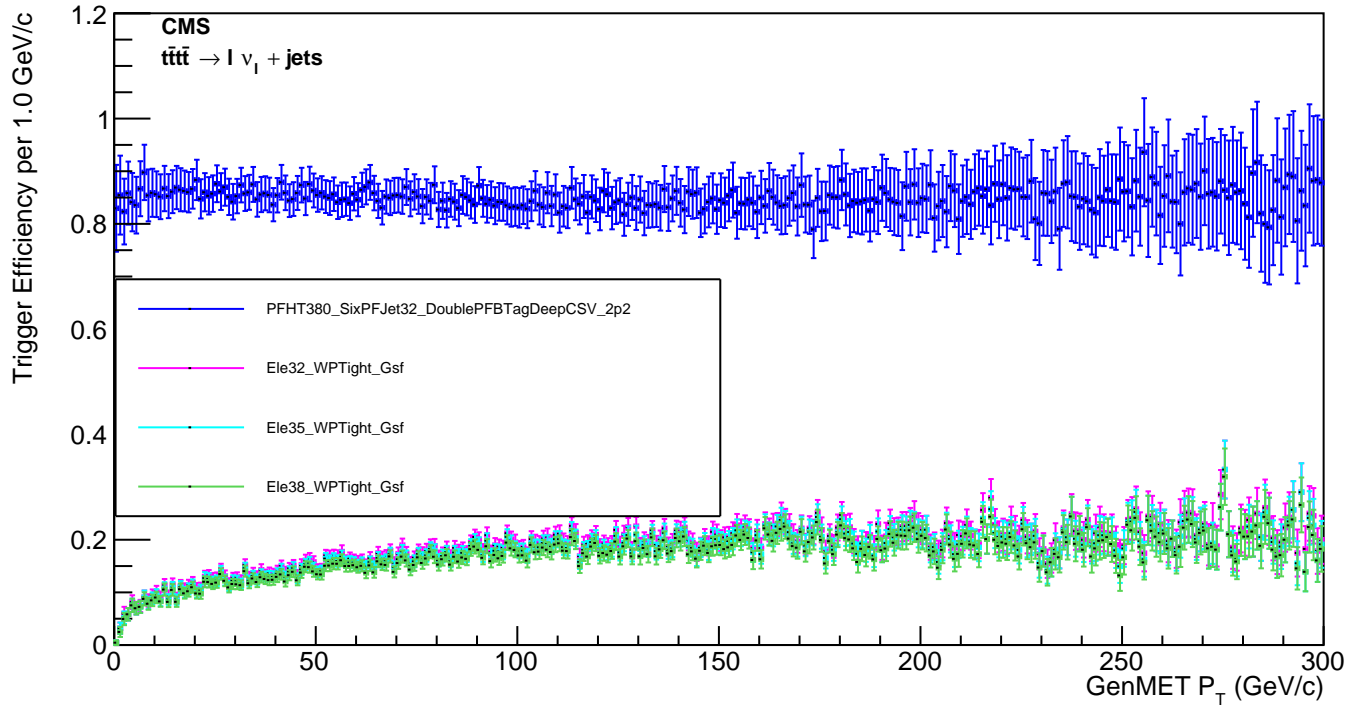
Number of Events per 1GeV/c

**CMS**  
 **$t\bar{t}\bar{t}t \rightarrow l \nu_l + \text{jets}$**



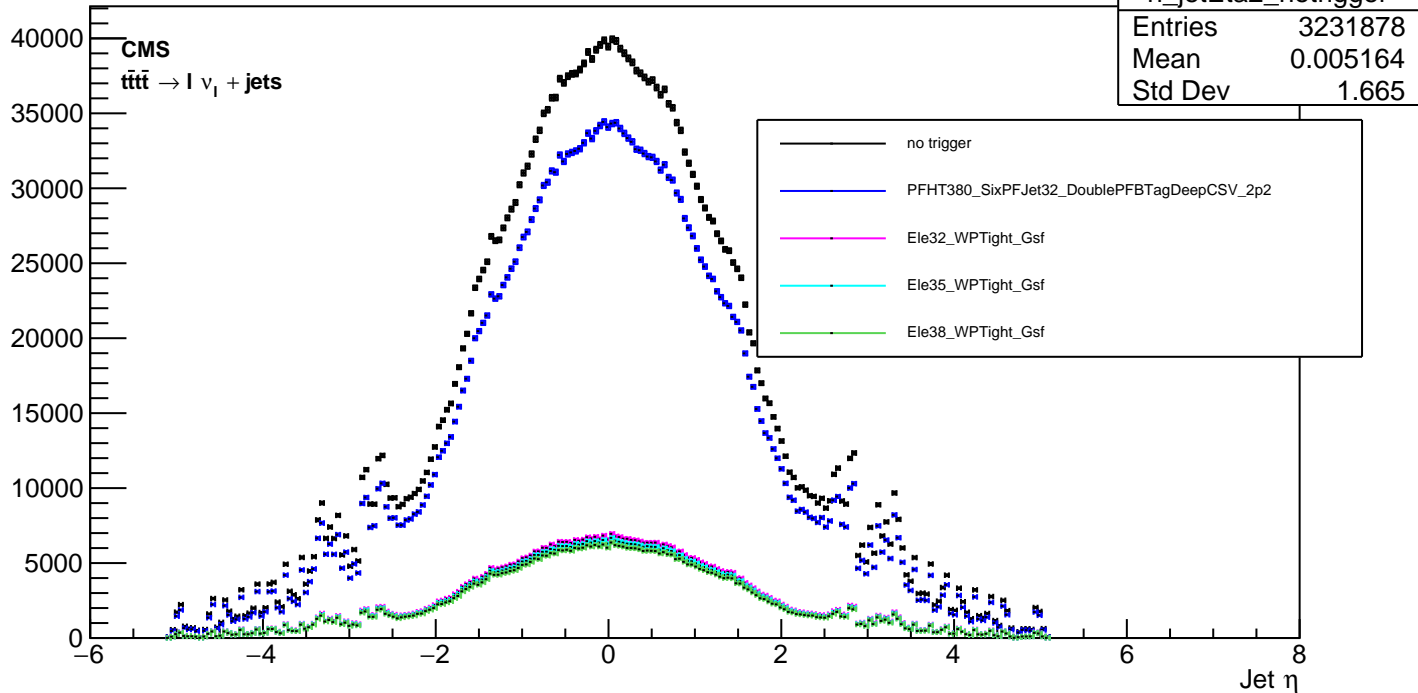
h_genMetPt2_notrigger	
Entries	227479
Mean	99.49
Std Dev	65.95



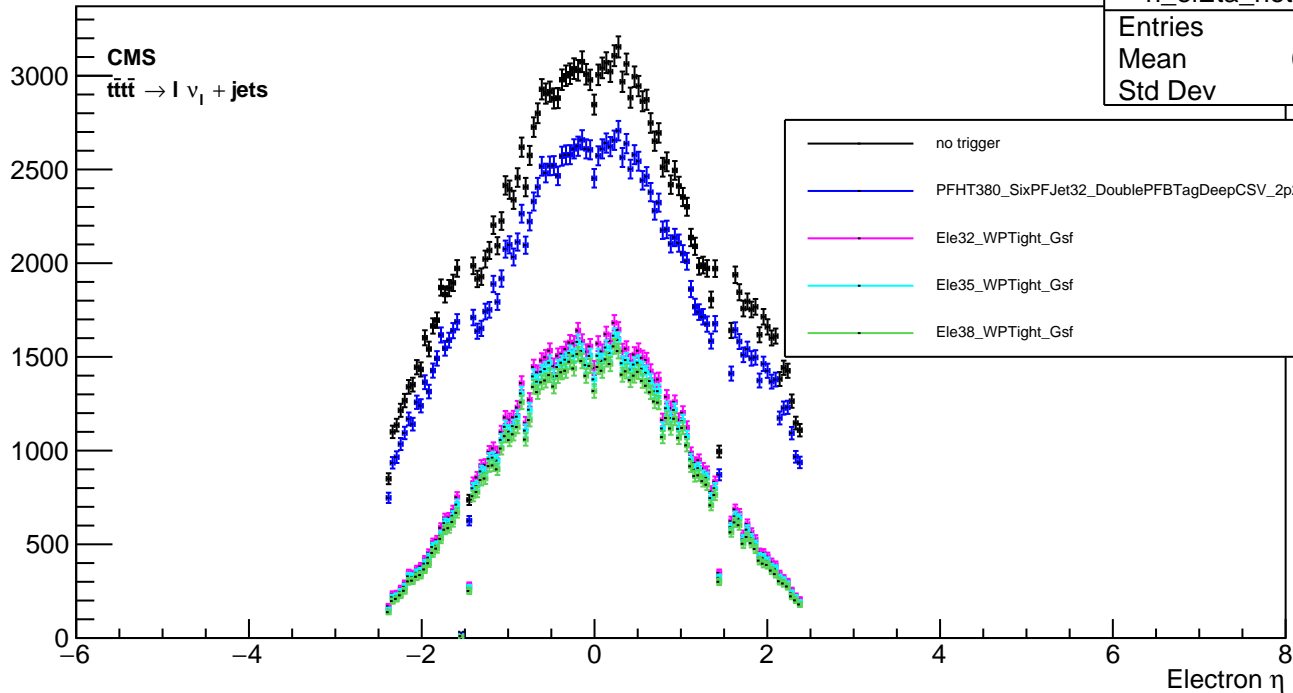




## no trigger

Number of Events per  $\delta\eta = 0.046$ 

## no trigger

Number of Events per  $\delta\eta = 0.046$ 

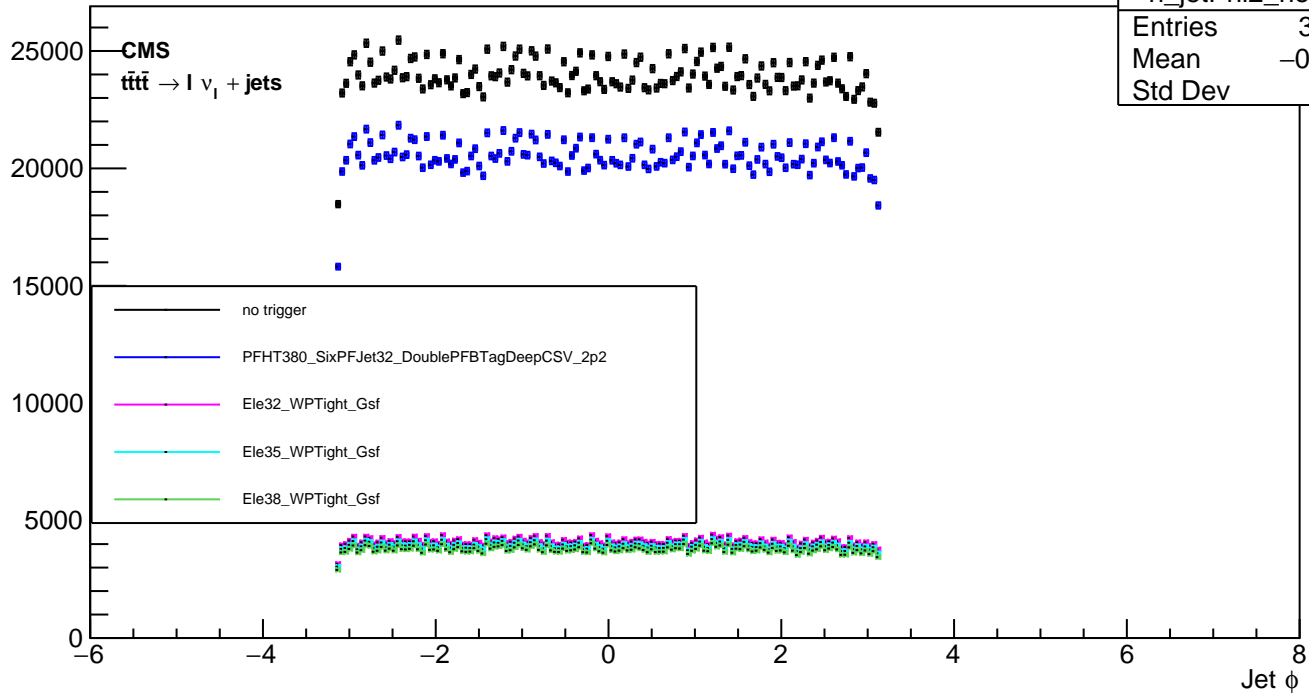
h\_elEta\_notrigger

Entries 216015

Mean 0.01269

Std Dev 1.196

## no trigger

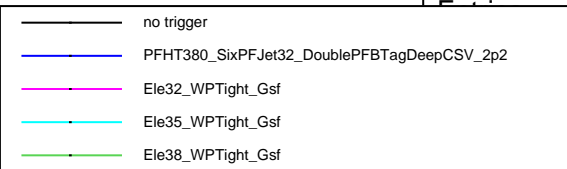
Number of Events per  $\delta\phi = 0.046$ 

no trigger

Number of Events per  $\delta\phi = 0.046$

CMS

$t\bar{t}t\bar{t} \rightarrow l \nu_l + \text{jets}$



h\_elPhi\_notrigger

216015

-0.01194

1.811

