

On-line (pre-)selection Requisites for:

- **Jets:** number > 5 , jetId > 2 and $|\eta| < 2.4$
- **Muons:** number > 0 and has softId

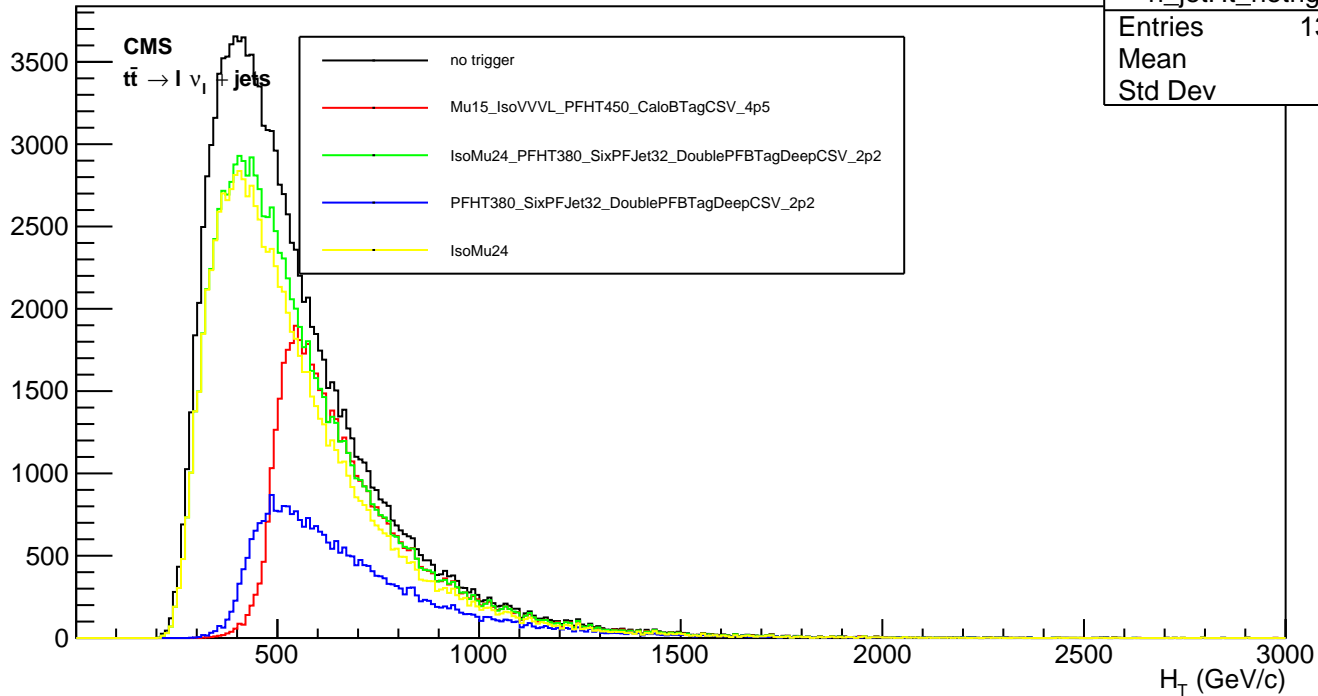
Event Limit: None (see last page)

Off-line (post-)selection Requisites for:

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

no trigger

Number of Events per 10 GeV/c



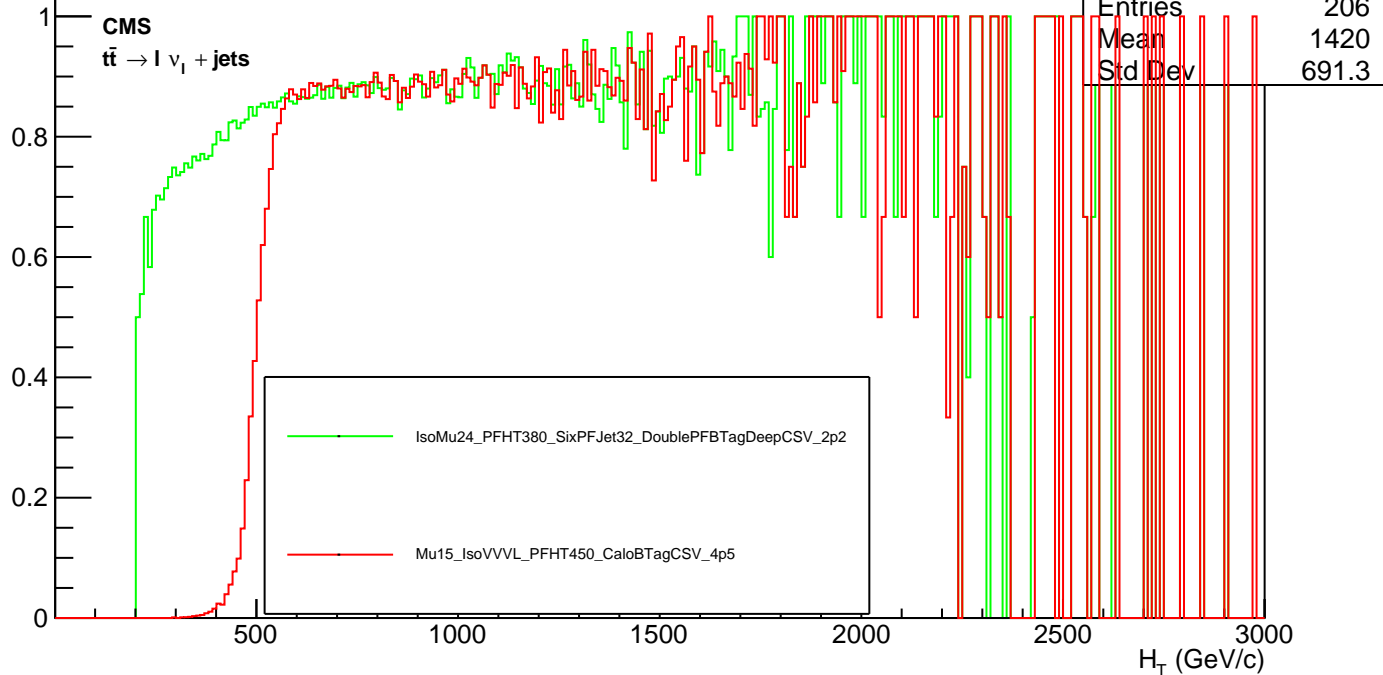
h_jetHt_notrigger

Entries	130959
Mean	542.6
Std Dev	227.8

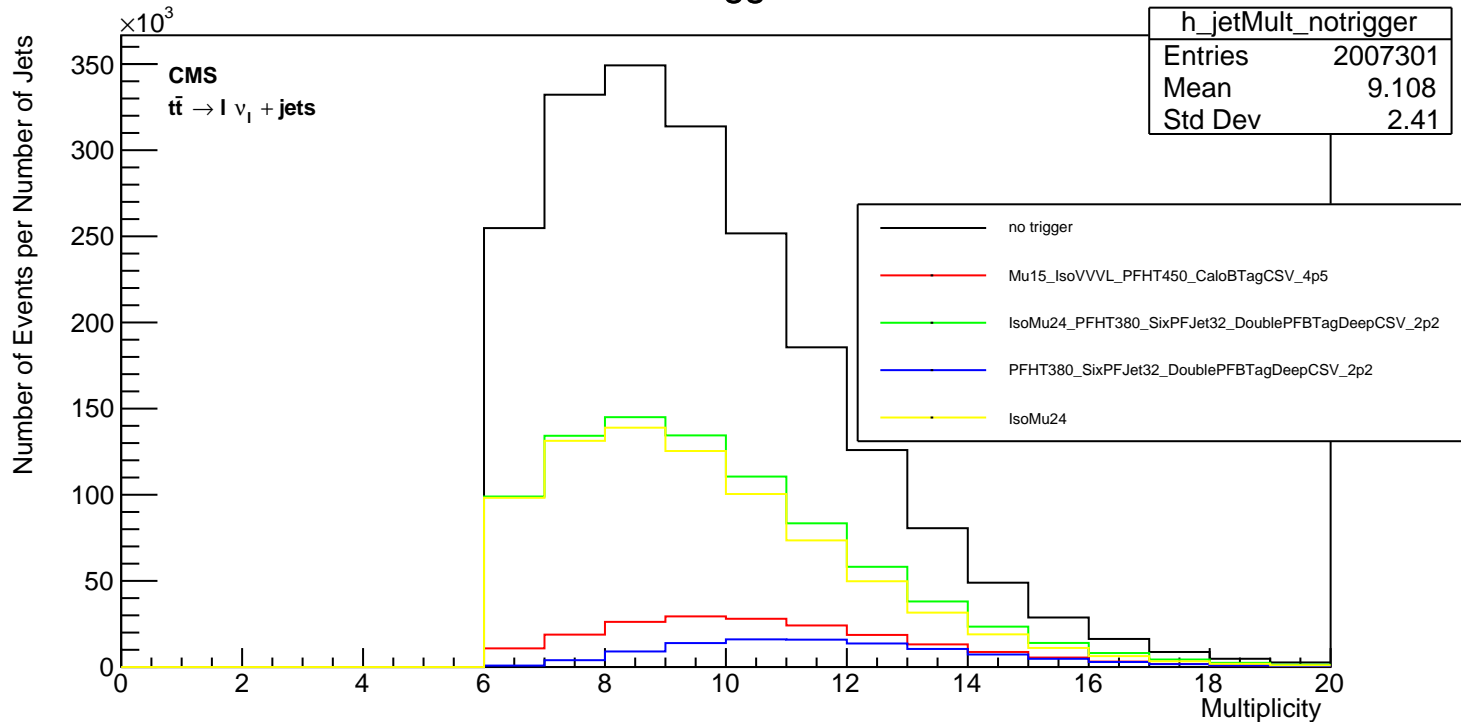
IsoMu24_PFH380_SixPFJet32_DoublePFBTagDeepCSV_2p2

Number of Events per 10 GeV/c

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



no trigger

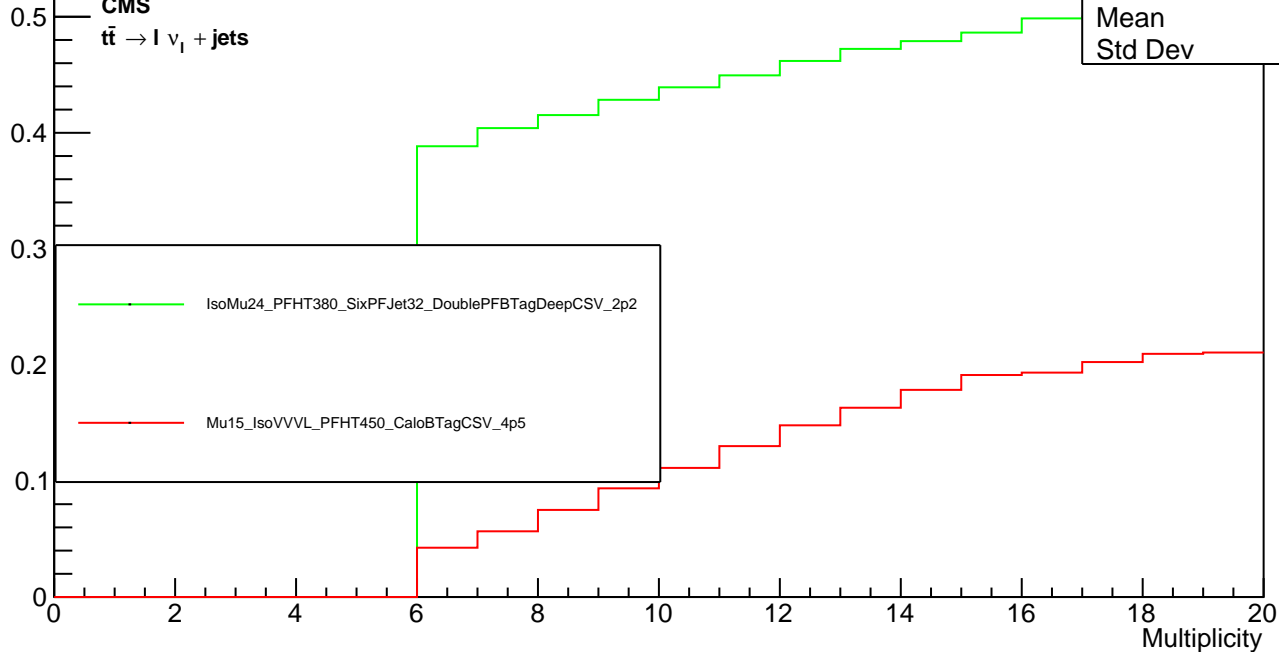


IsoMu24_PFH380_SixPFJet32_DoublePFBTagDeepCSV_2p2

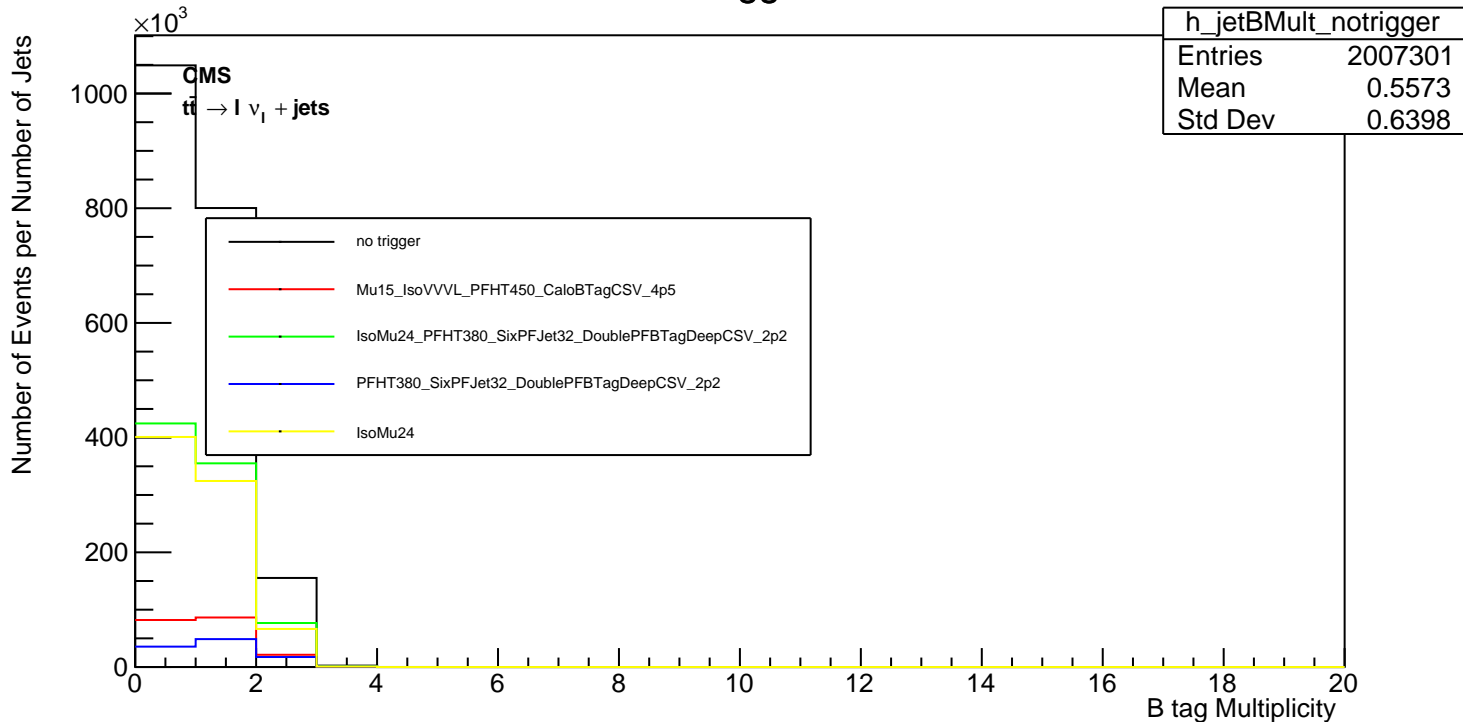
Number of Events per Number of Jets

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

h_jetMultiRatioIsoMu24_PFH380_SixPFJet32_DoublePFBTagDeepCSV_2p2	
Entries	6
Mean	13.34
Std Dev	3.999



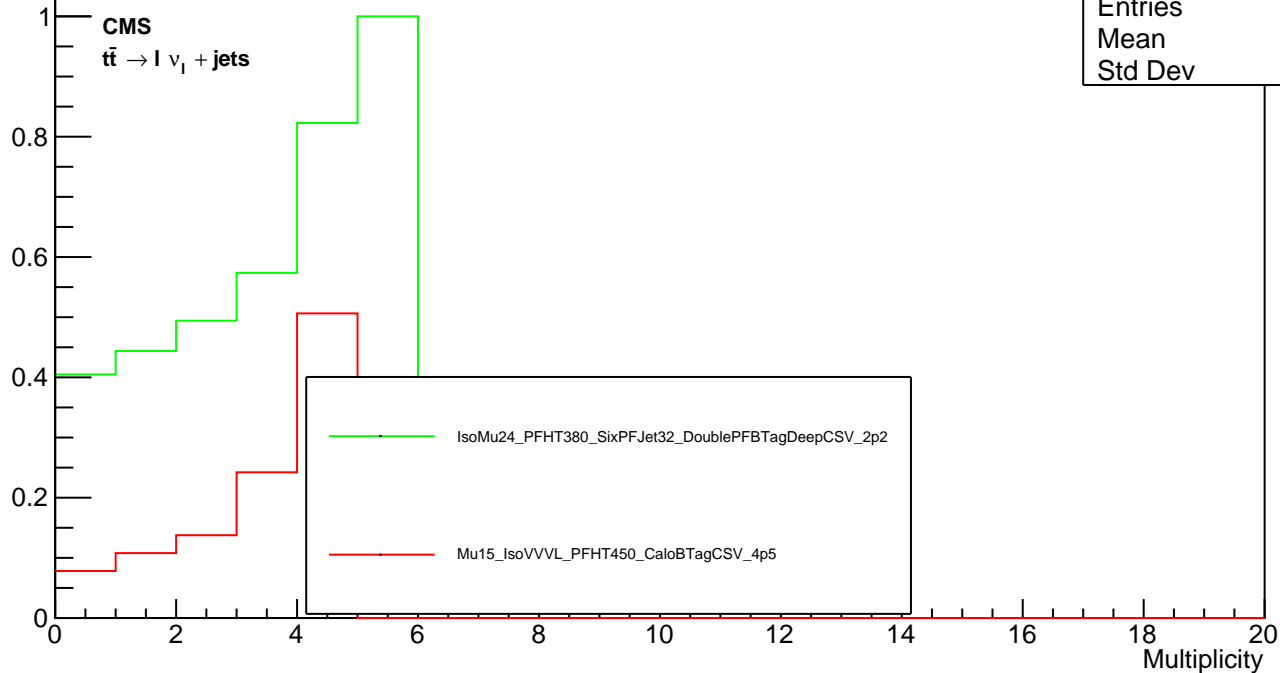
no trigger



IsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

Number of Events per Number of Jets

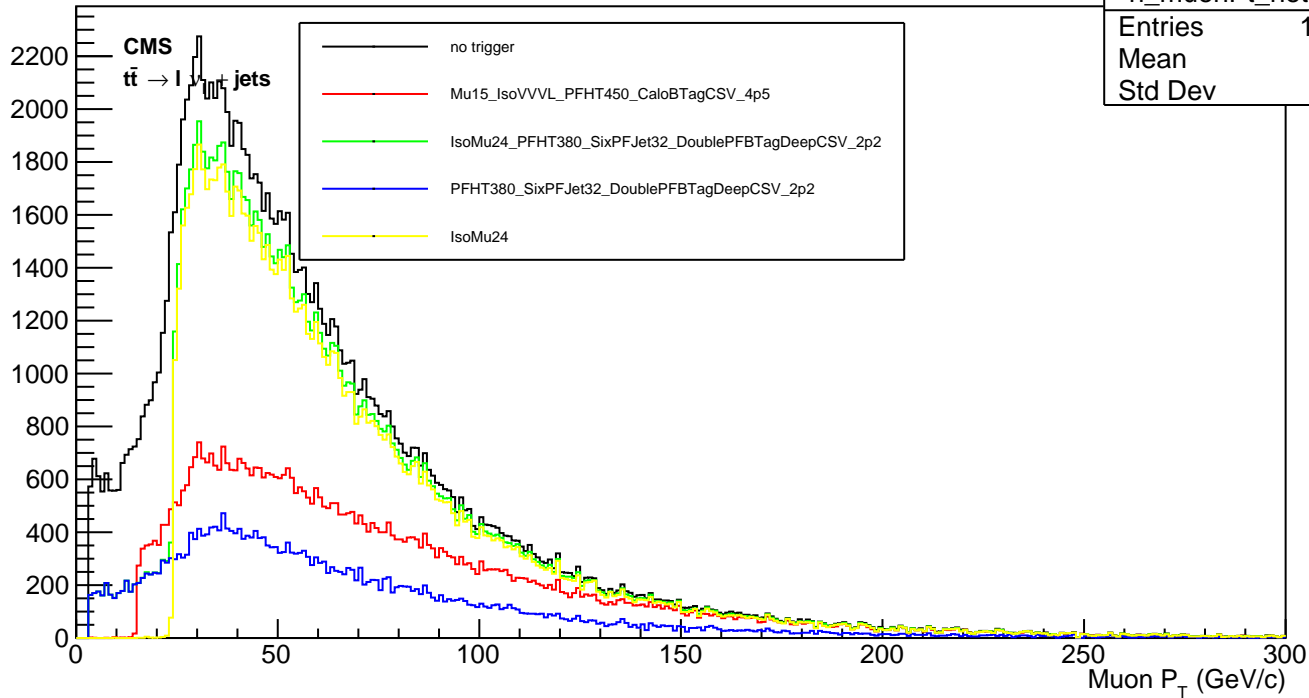
CMS
 $t\bar{t} \rightarrow l \nu_l + \text{jets}$



Entries	4
Mean	3.561
Std Dev	1.693

no trigger

Number of Events per 1 GeV/c

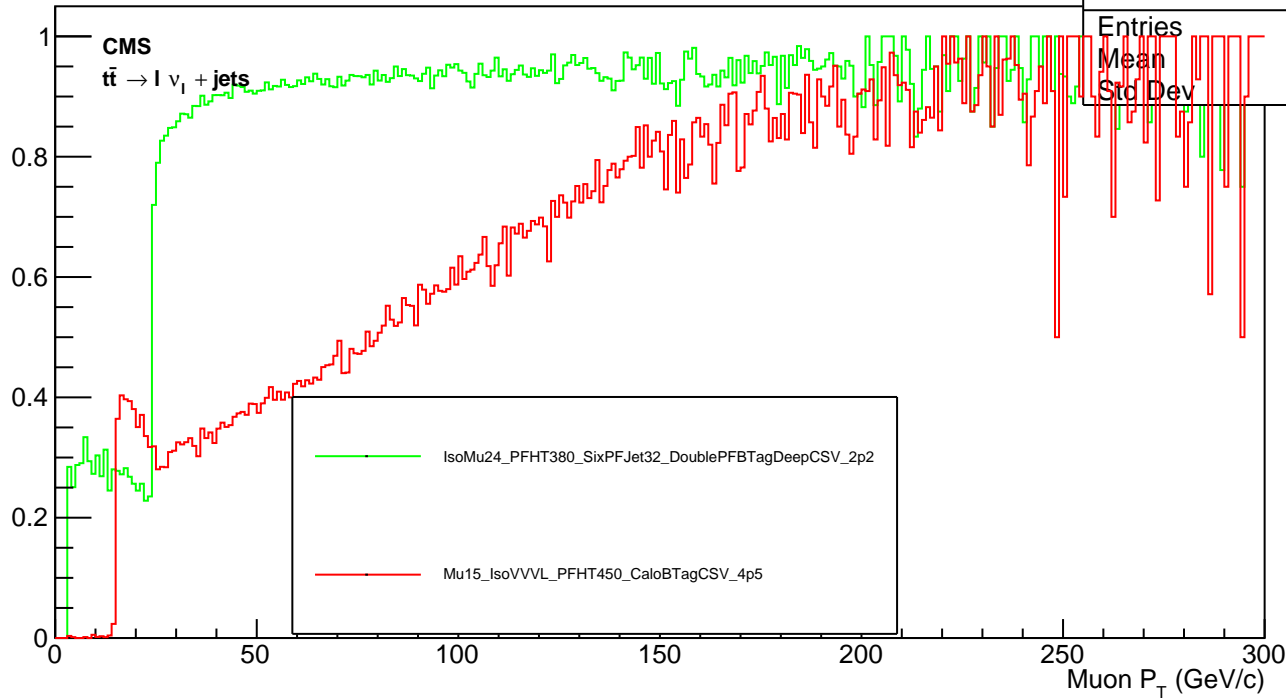


h_muonPt_notrigger

Entries	130959
Mean	60.19
Std Dev	41.82

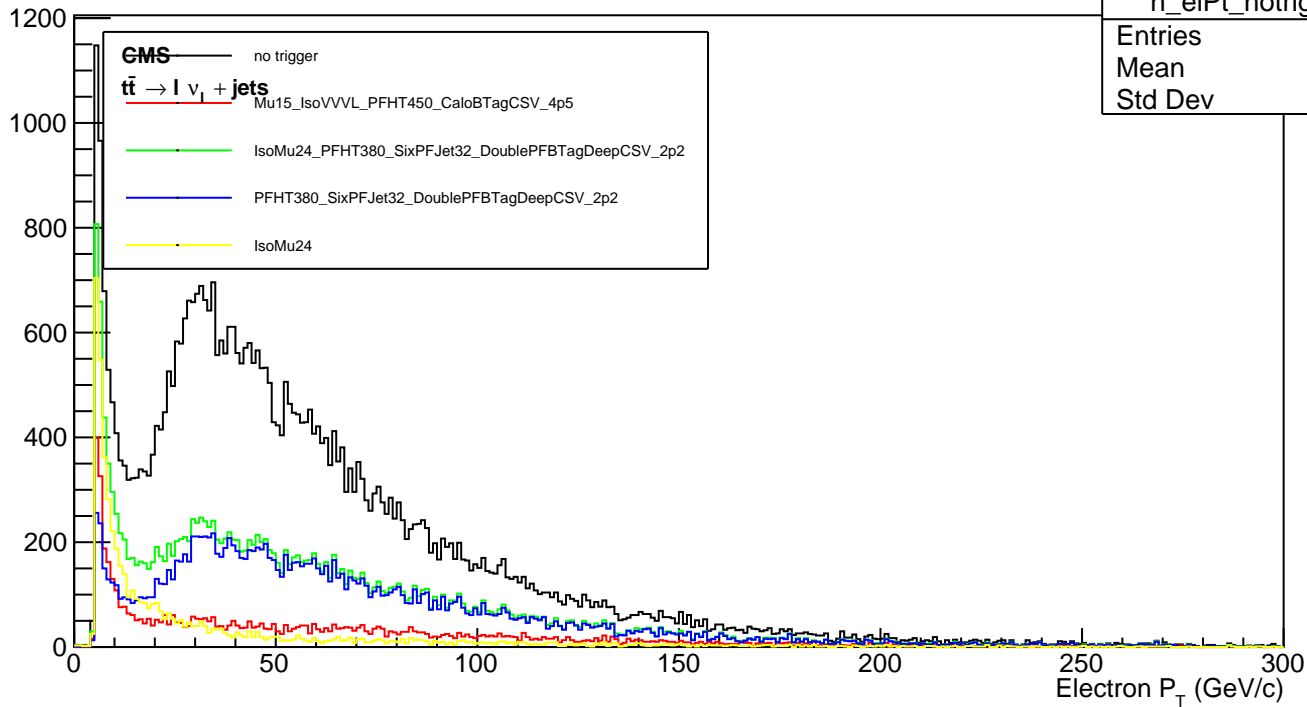
IsoMu24_PFH380_SixPFJet32_DoublePFBTagDeepCSV_2p2

Number of Events per 1 GeV/c



no trigger

Number of Events per 1 GeV/c

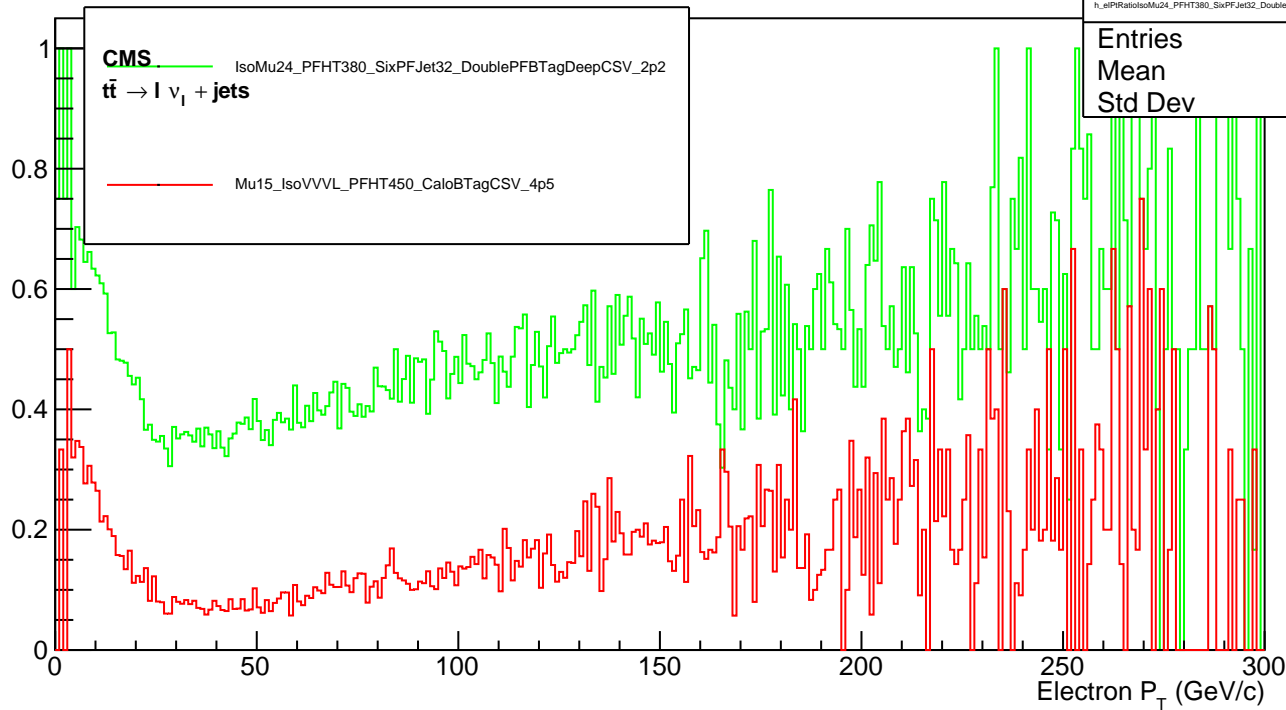


h_elPt_notrigger

Entries	46431
Mean	58.81
Std Dev	44.96

IsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

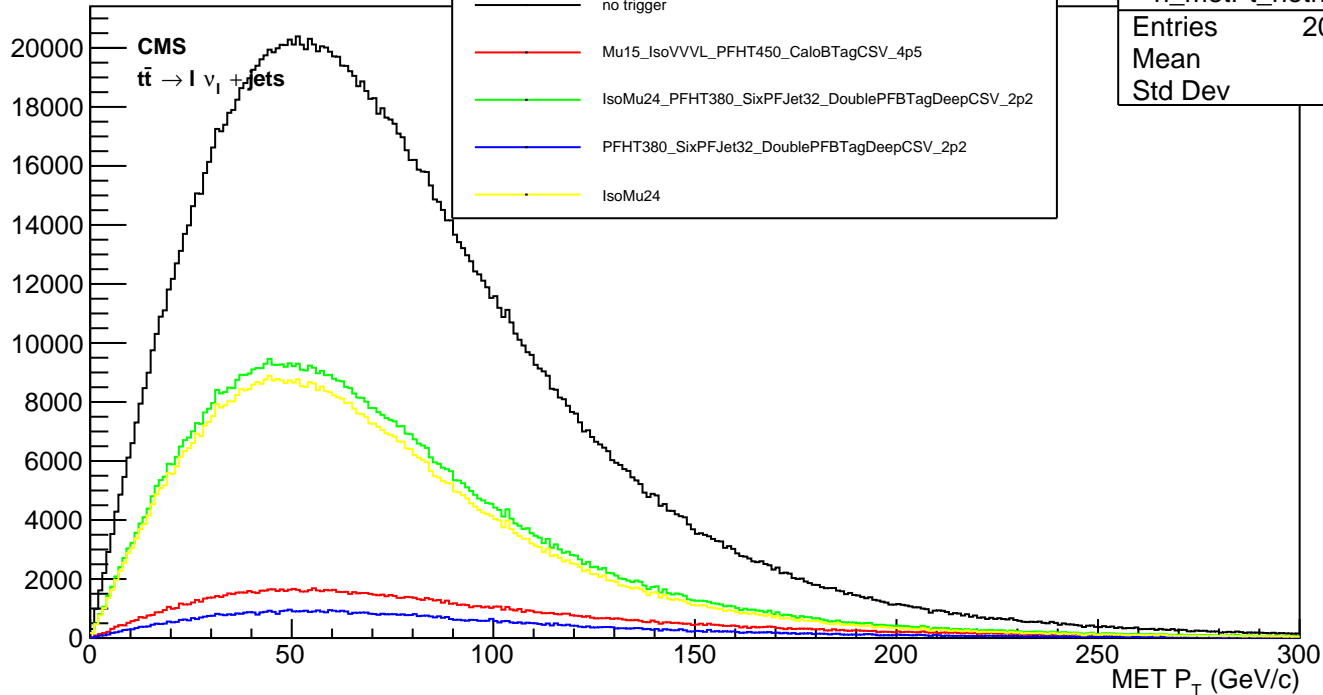
Number of Events per 1 GeV/c



Entries	157
Mean	160.4
Std Dev	87.89

no trigger

Number of Events per 1 GeV/c



h_metPt_notrigger

Entries	2007301
Mean	77.06
Std Dev	47.45

IsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

Number of Events per 1 GeV/c

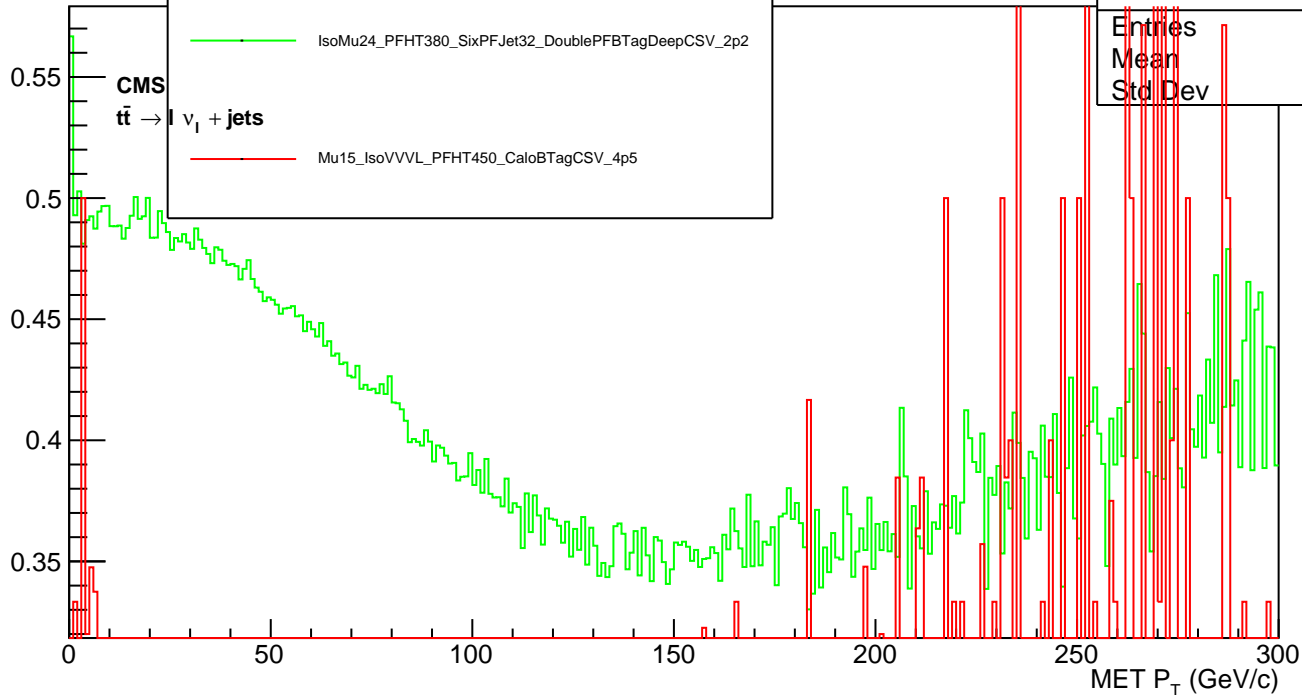
CMS
 $t\bar{t} \rightarrow l \nu_l + \text{jets}$

IsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

Mu15_IsoVVVL_PFHT450_CaloBTagCSV_4p5

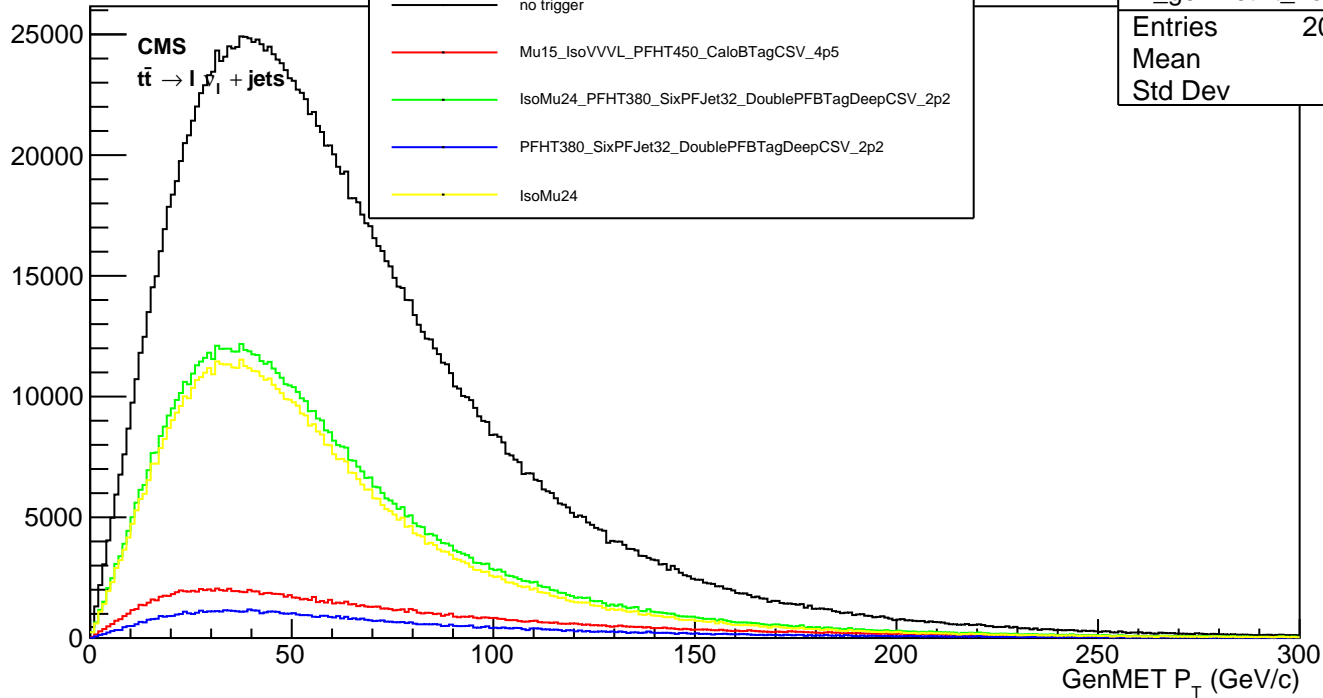
h_metPtRatioIsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

Entries	121
Mean	144.7
Std Dev	89.94



no trigger

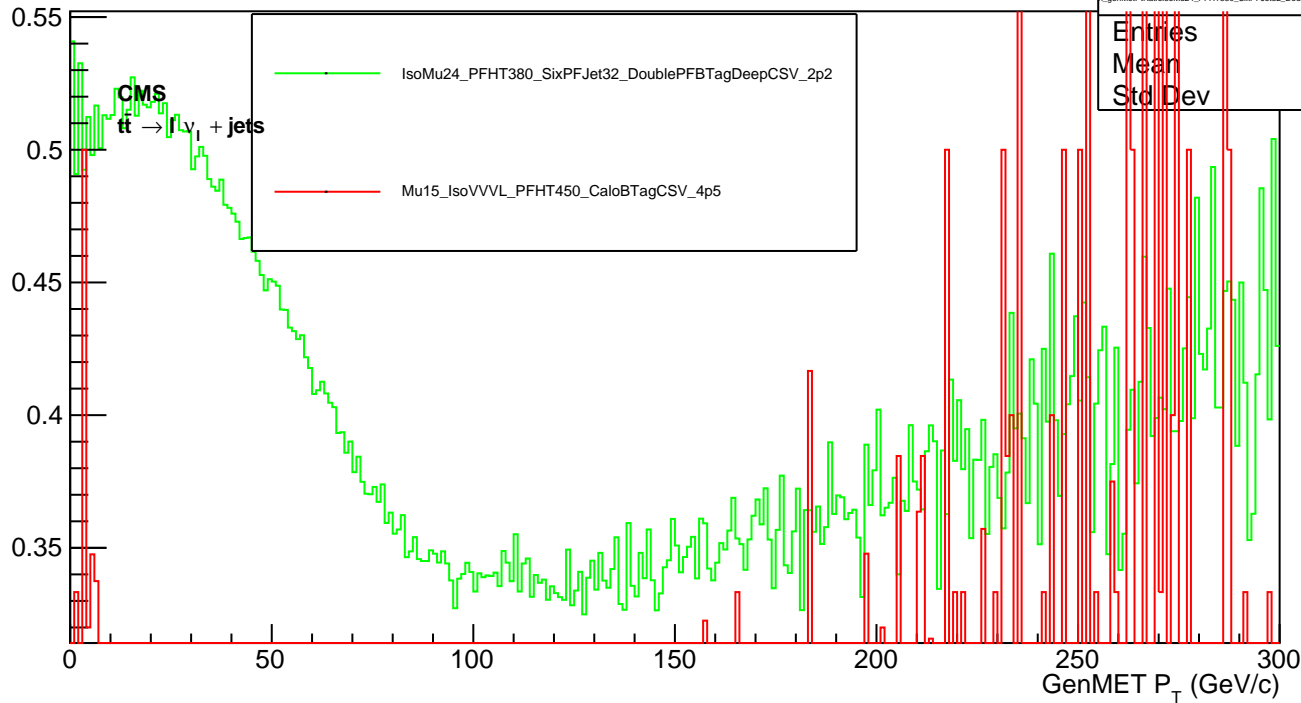
Number of Events per 1GeV/c



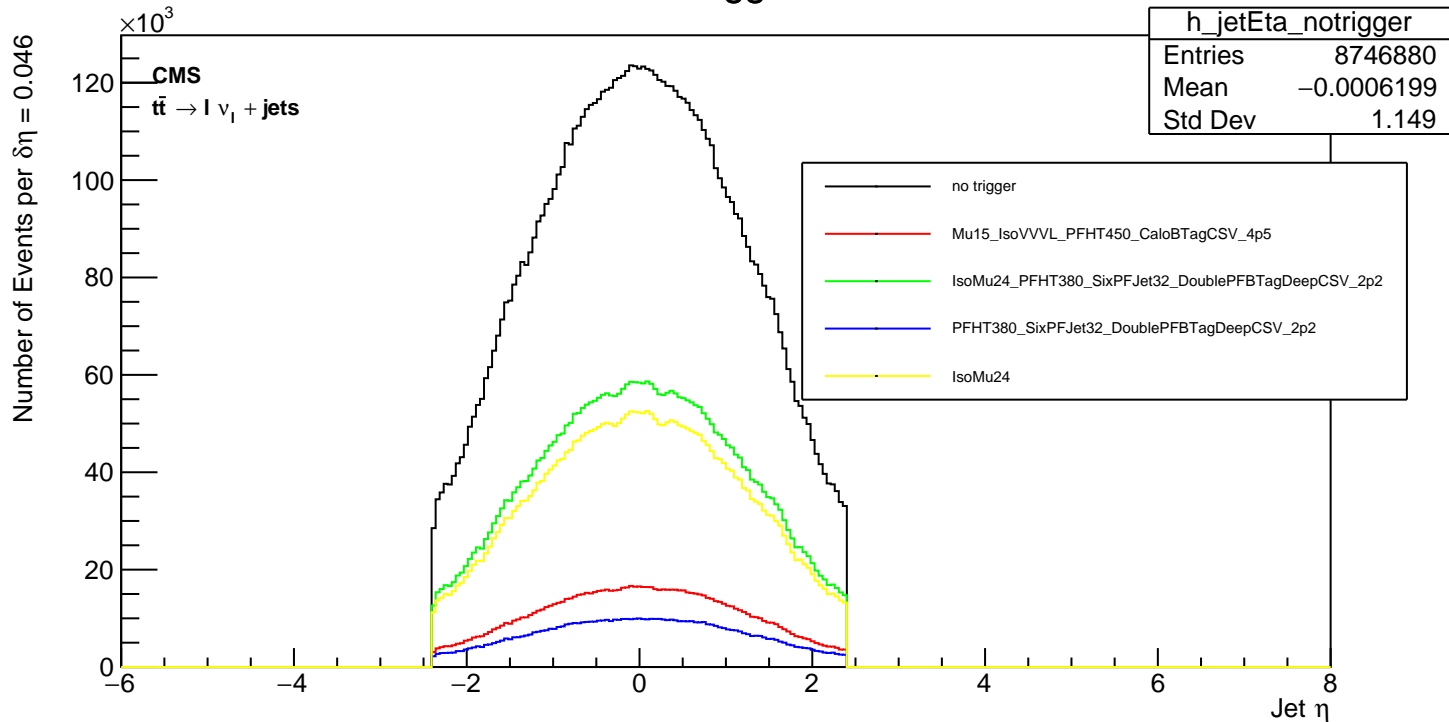
h_genMetPt_notrigger	
Entries	2007301
Mean	65.63
Std Dev	44.23

IsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

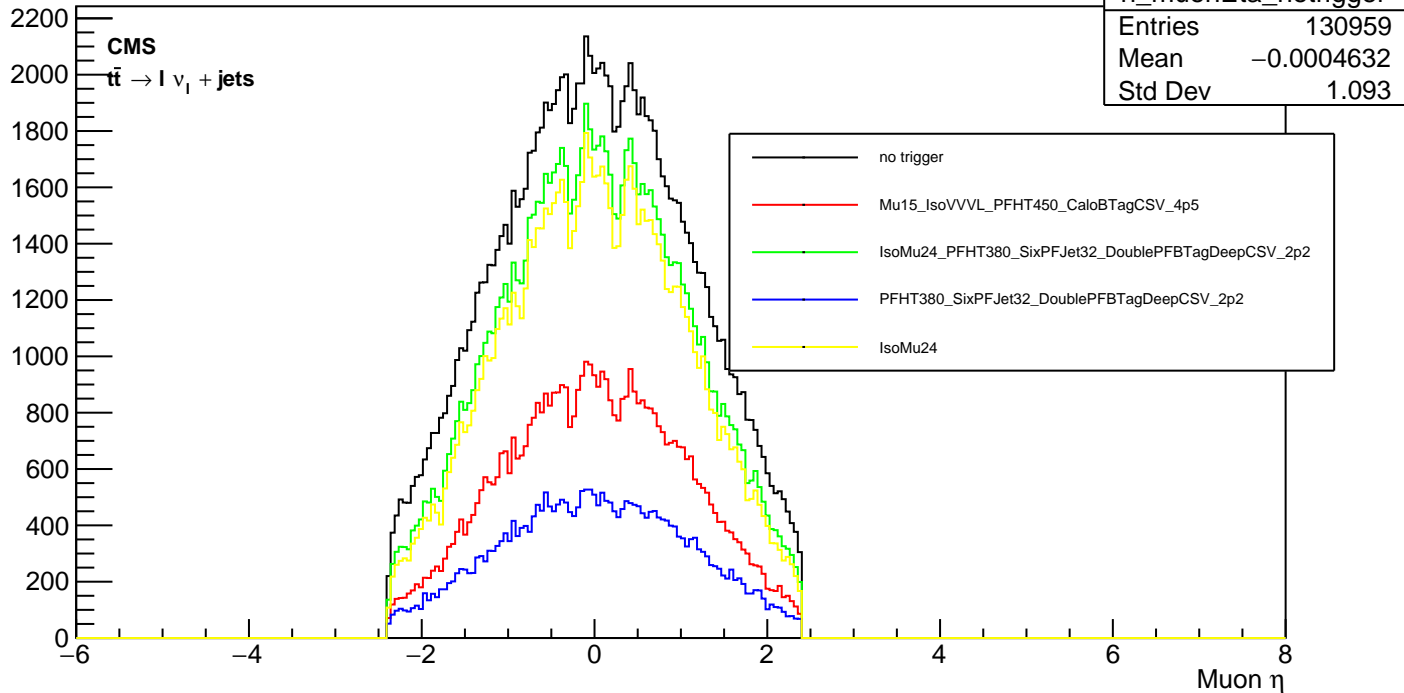
Number of Events per 1 GeV/c



no trigger



no trigger

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

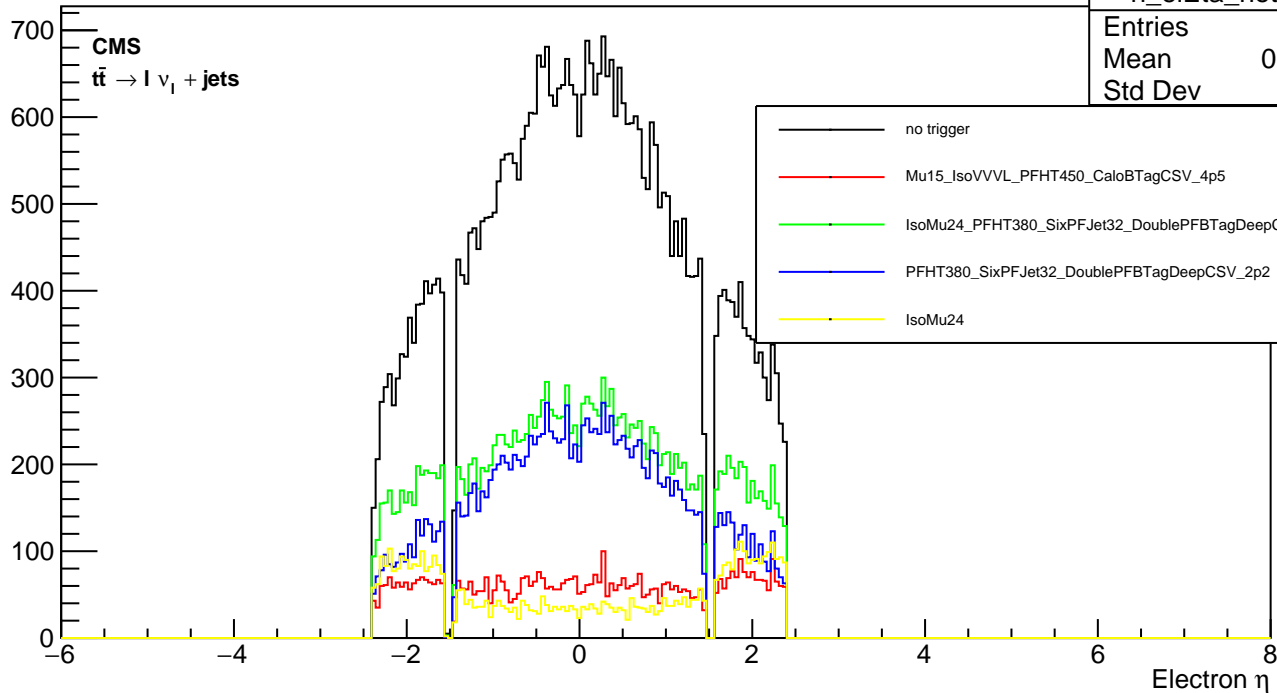
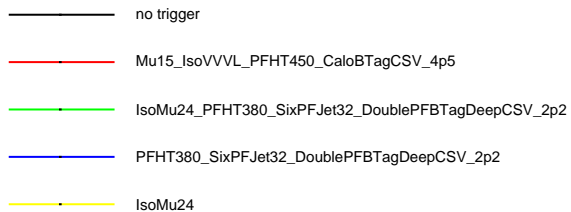
no trigger

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

CMS

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

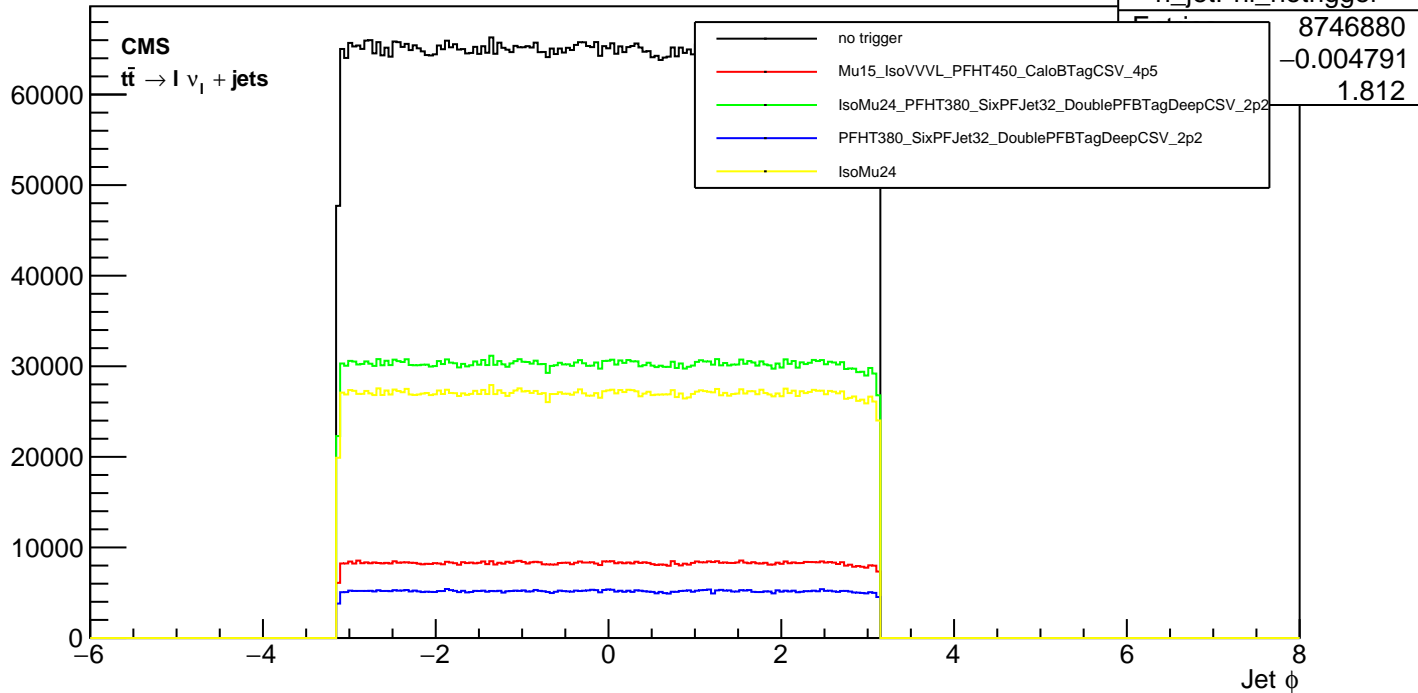
h_eEta_notrigger	
Entries	46431
Mean	0.007146
Std Dev	1.201



no trigger

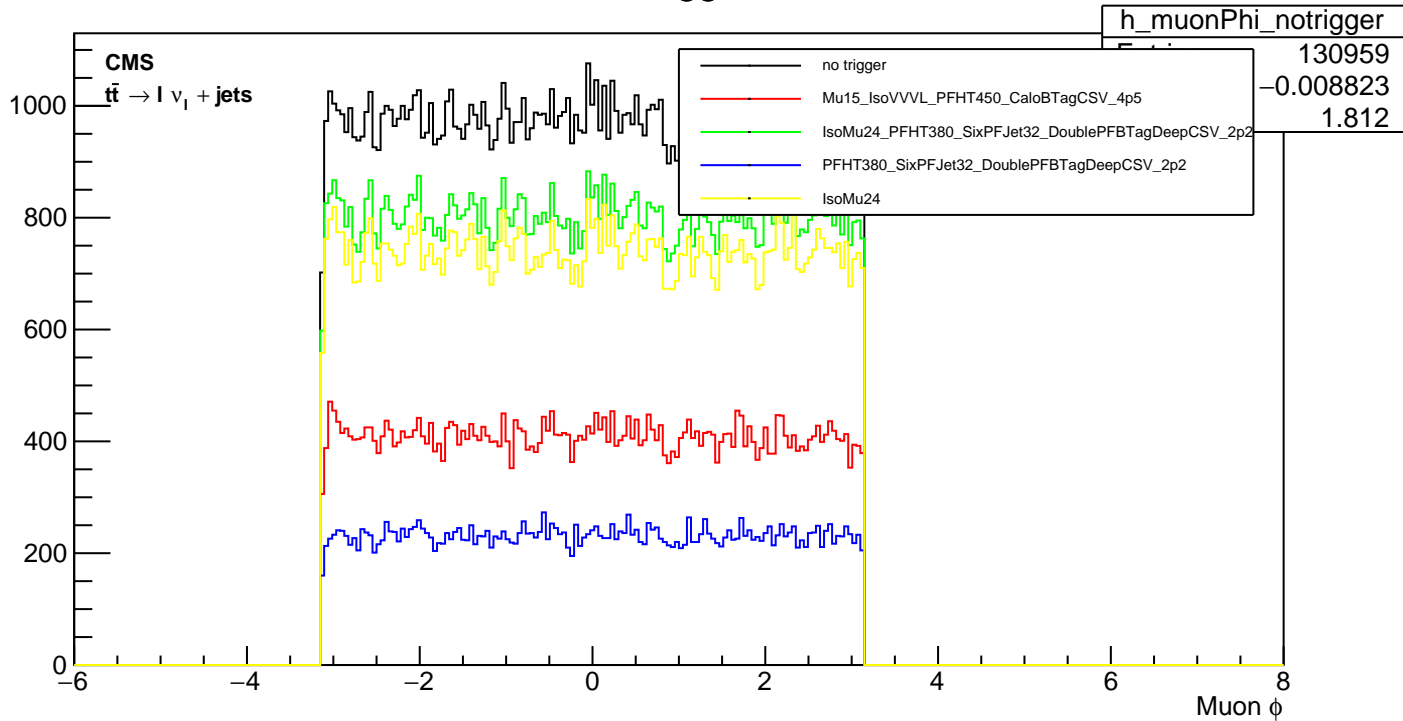
Number of Events per $\delta\phi = 0.046$

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



no trigger

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

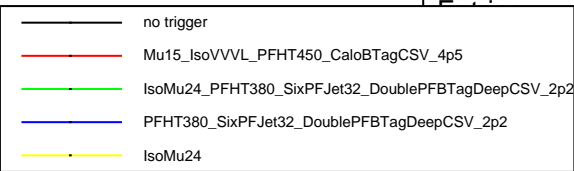


no trigger

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

CMS

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

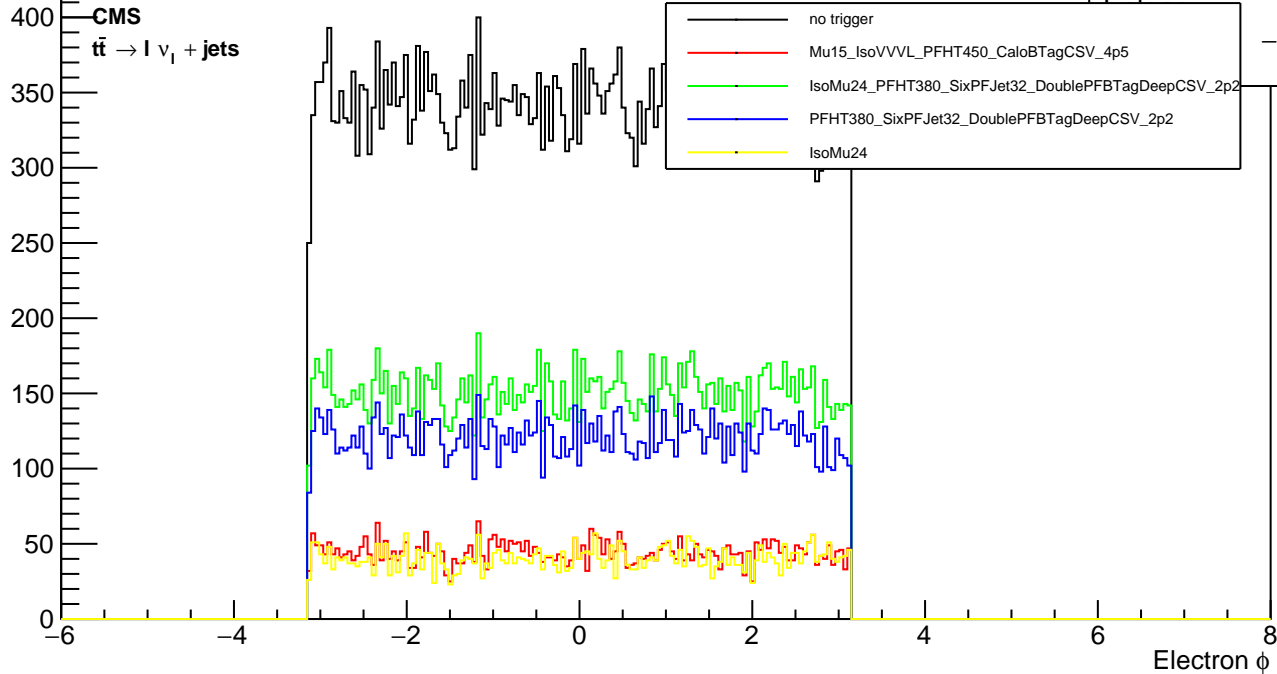


h_elPhi_notrigger

46431

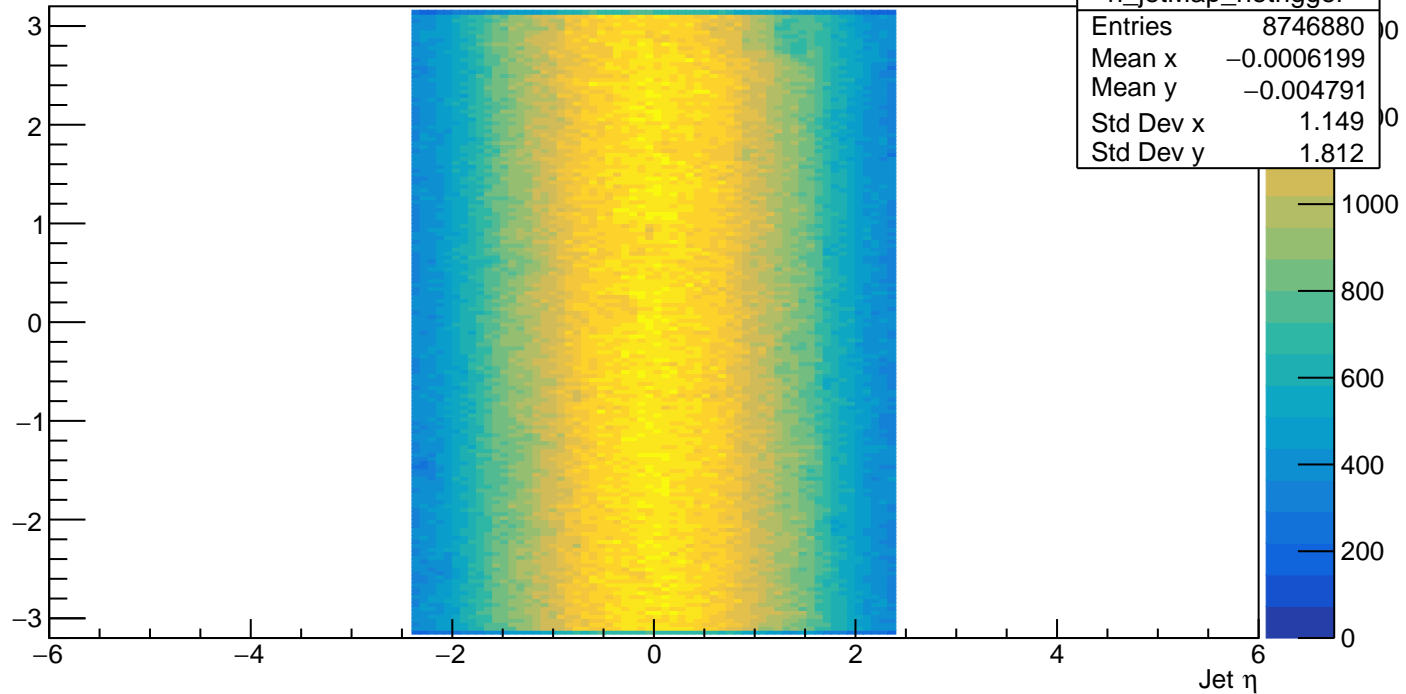
-0.00138

1.816

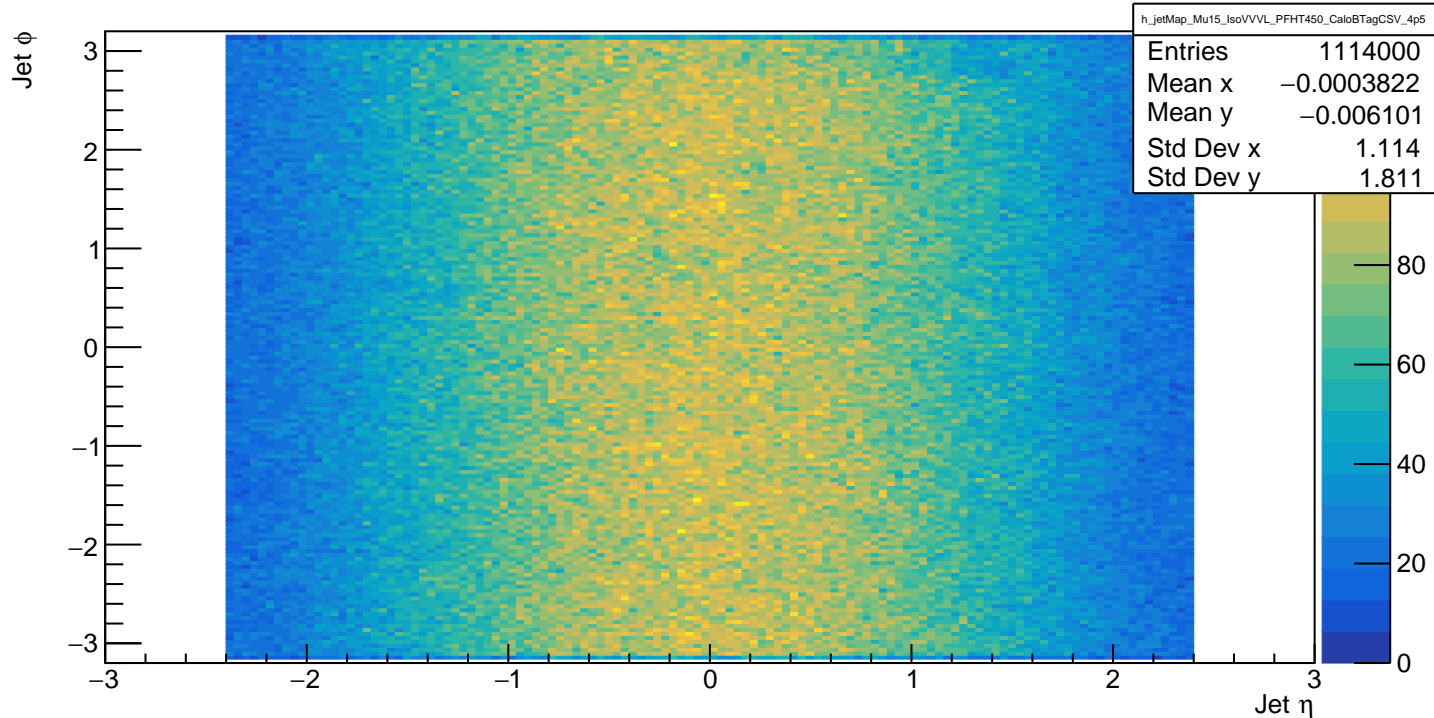


no trigger

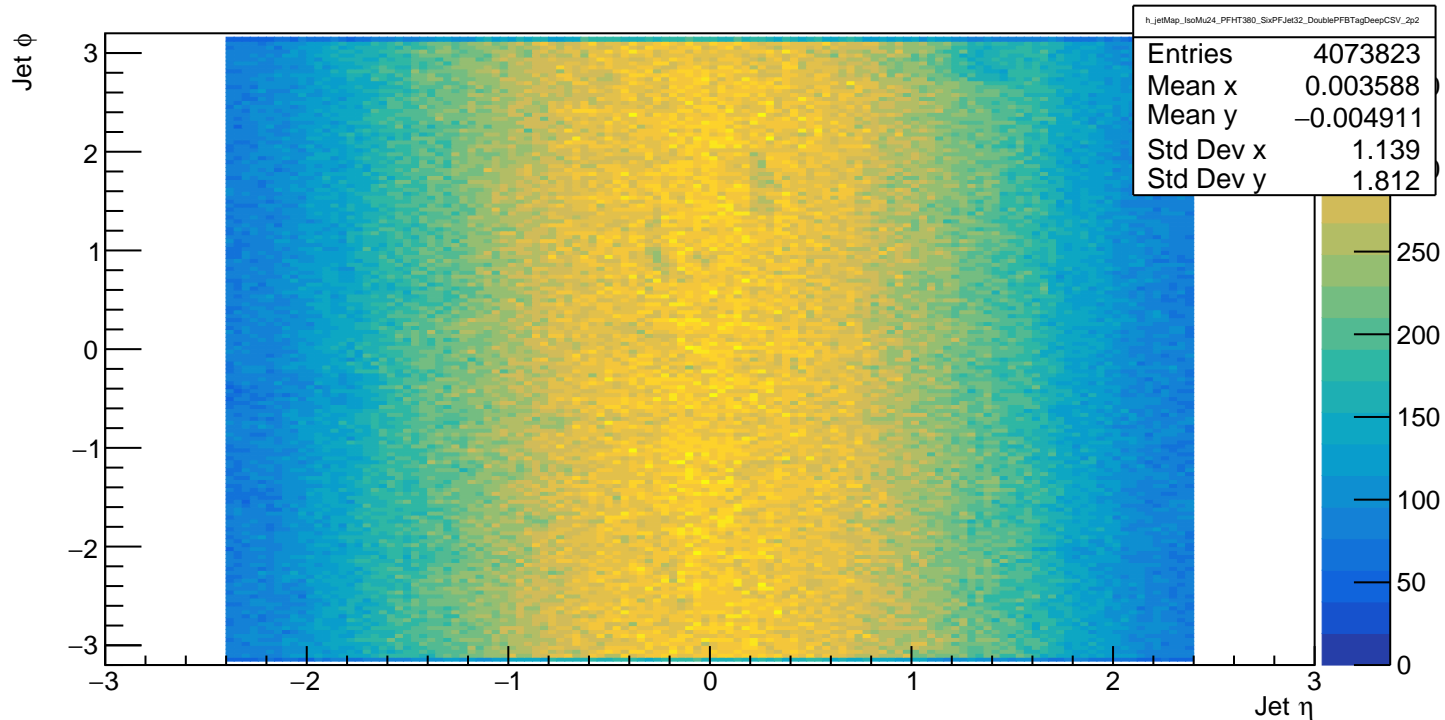
Jet ϕ



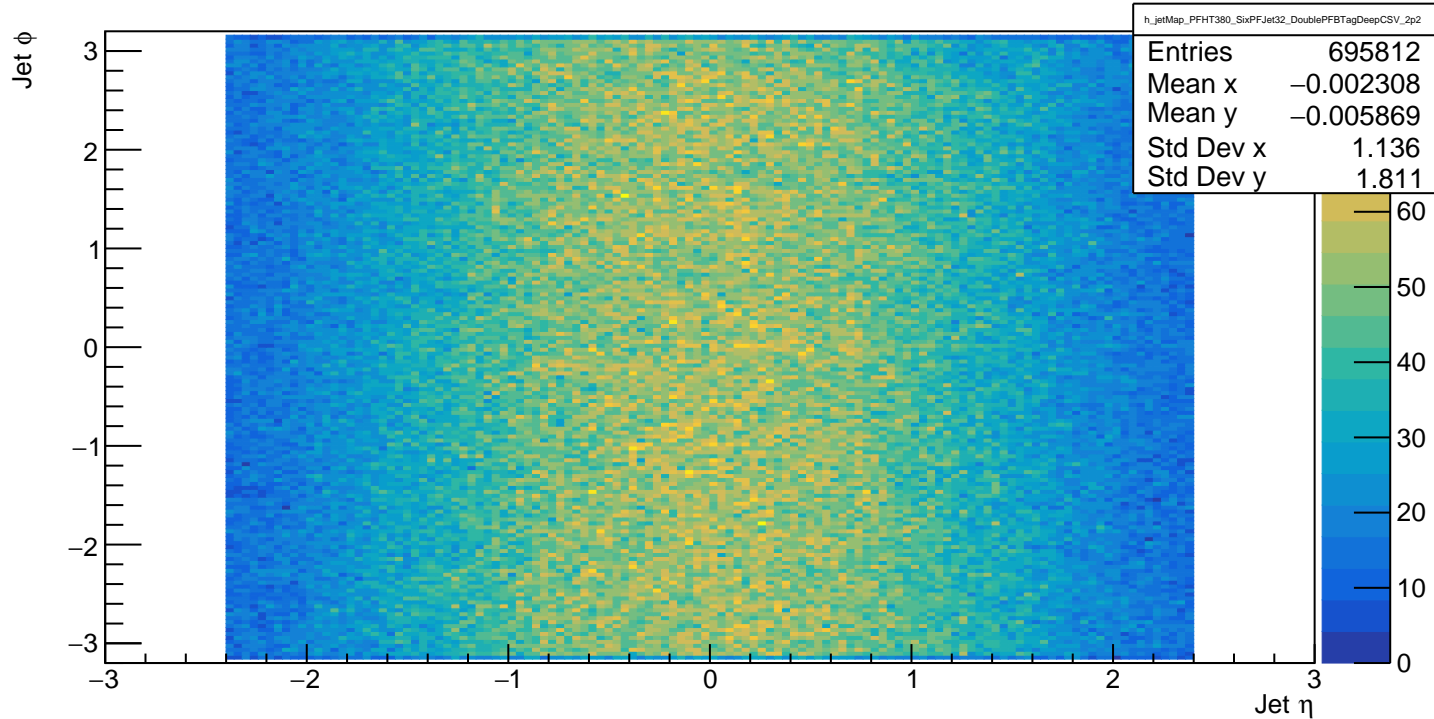
Mu15_IsoVVVL_PFHT450_CaloBTagCSV_4p5



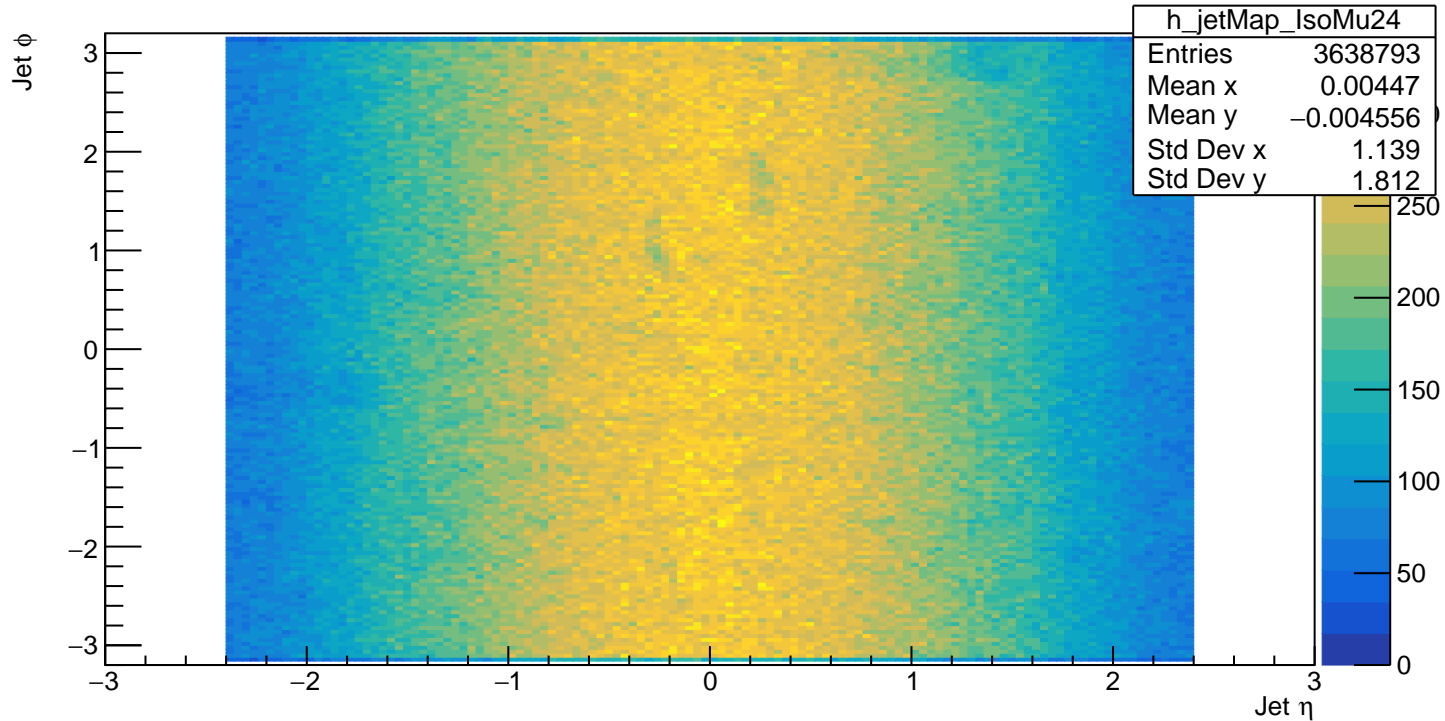
IsoMu24_PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2



PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

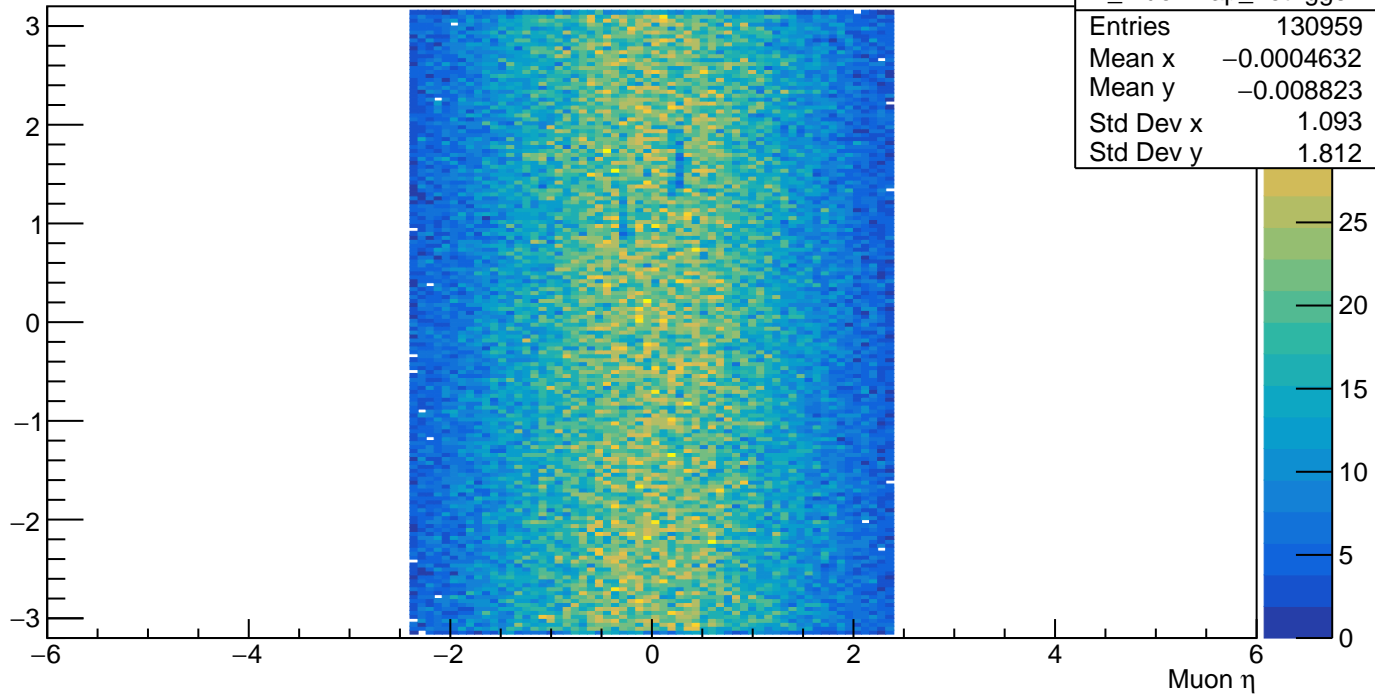


IsoMu24

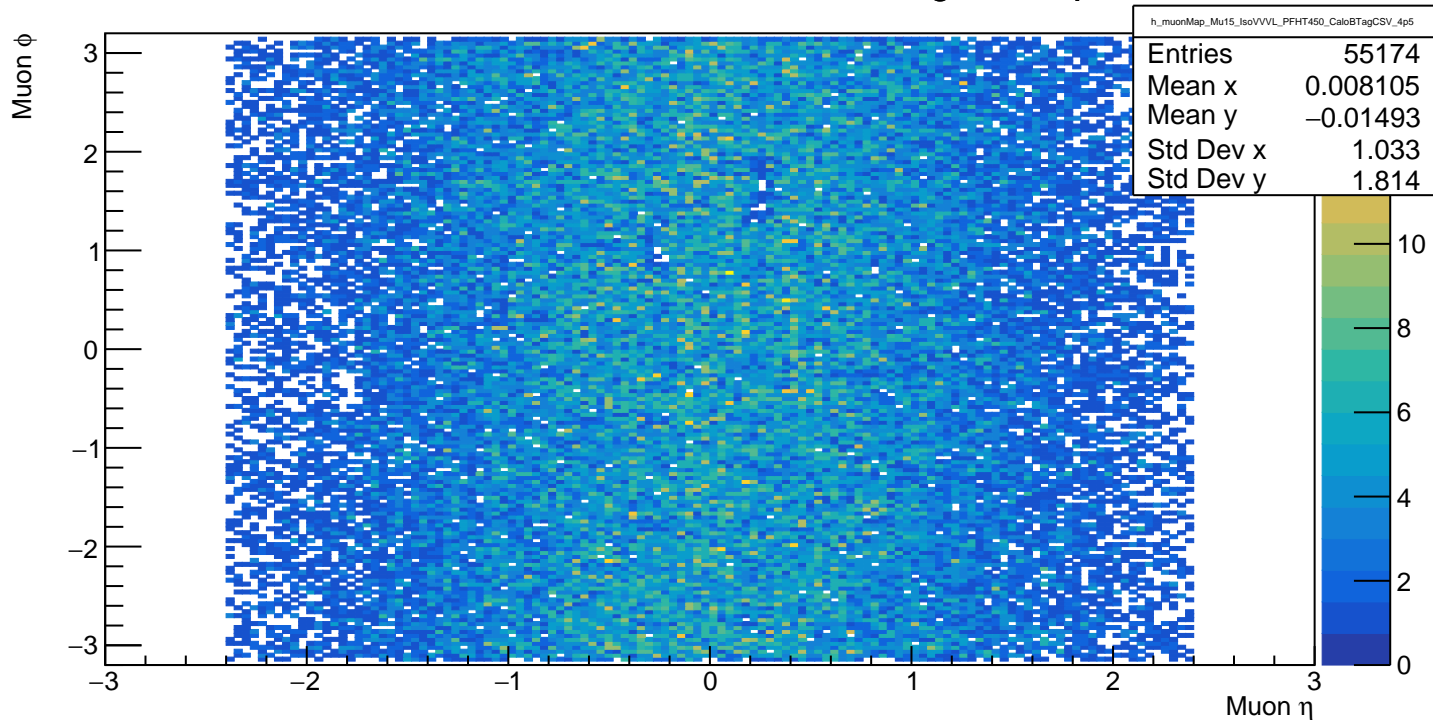


no trigger

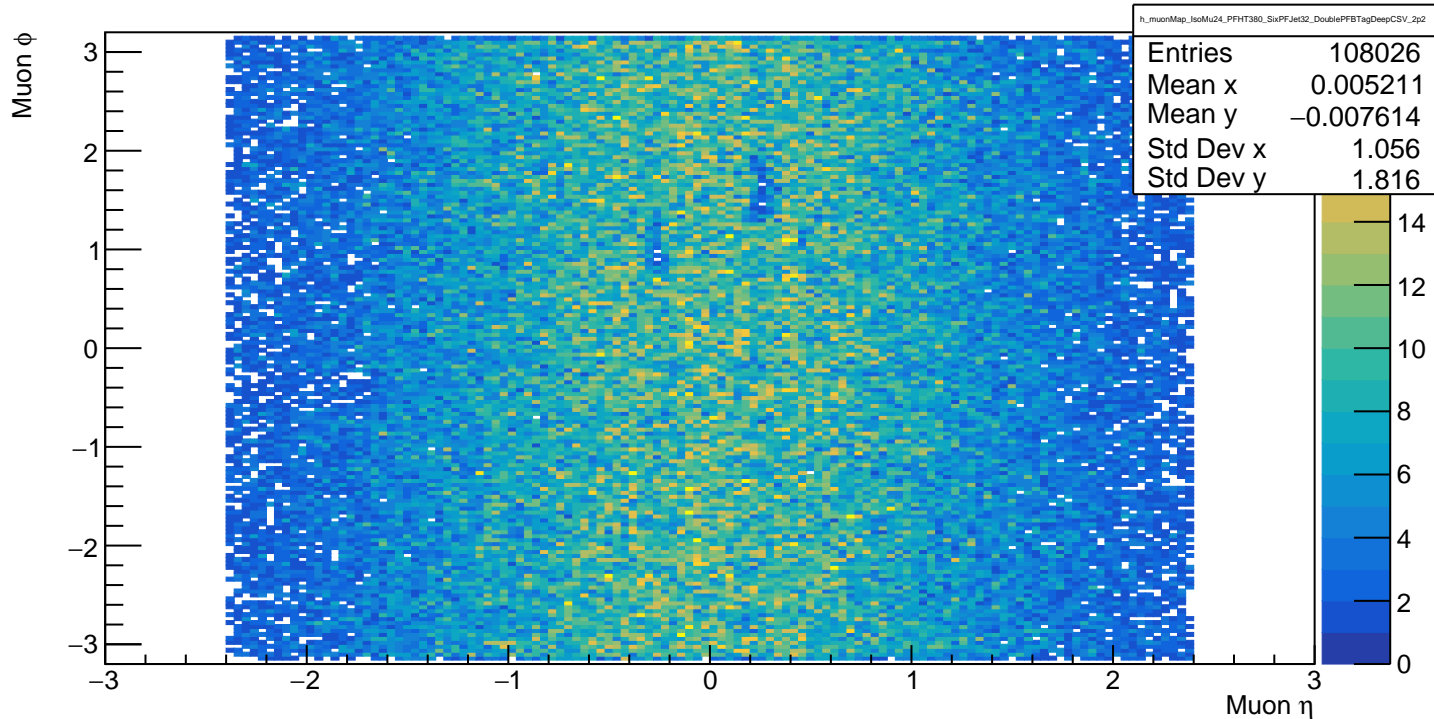
Muon ϕ



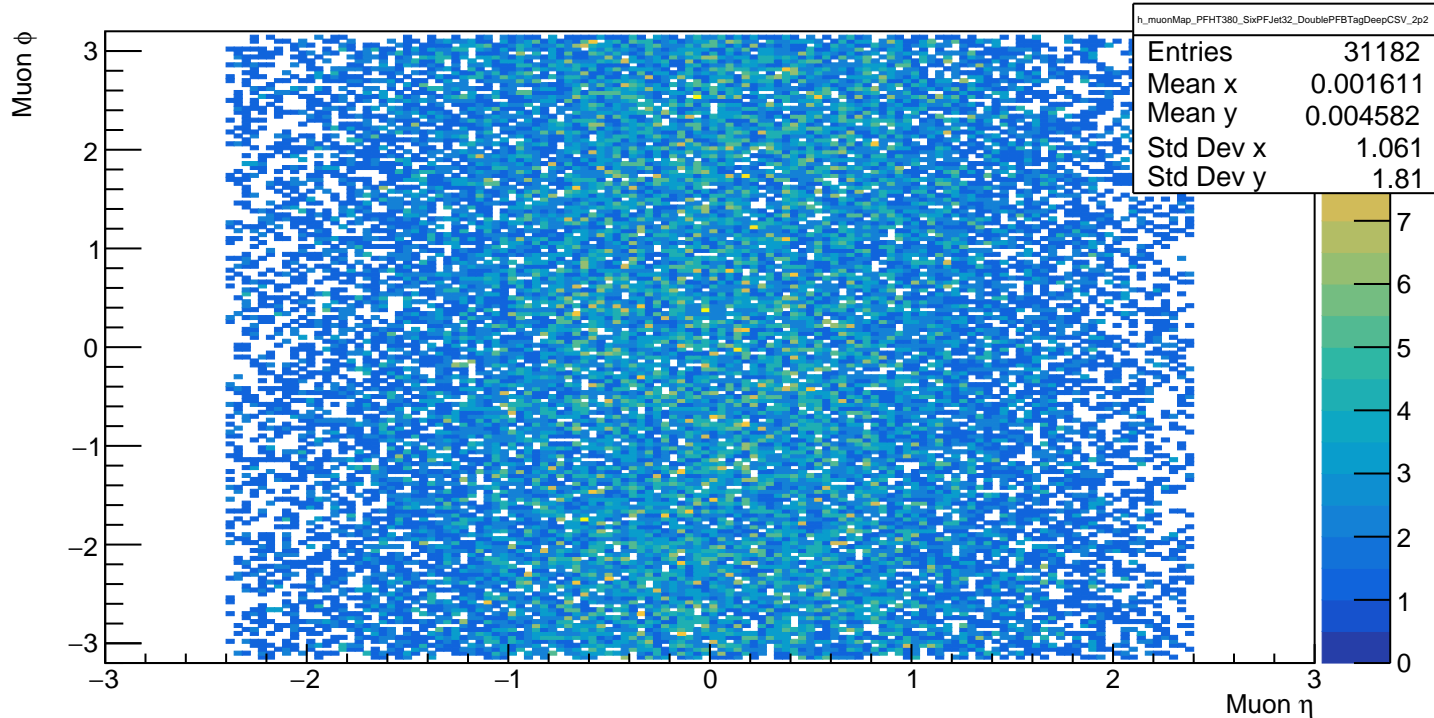
Mu15_IsoVVVL_PFHT450_CaloBTagCSV_4p5



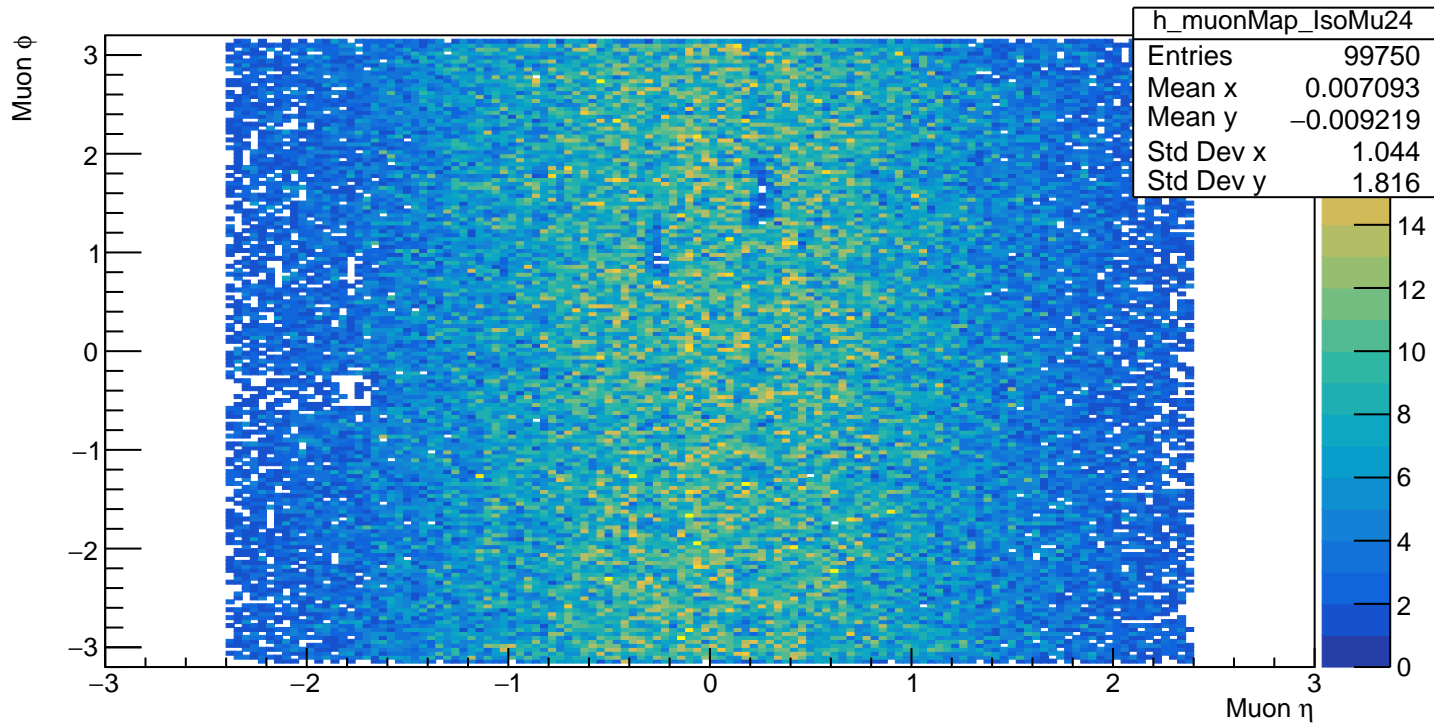
IsoMu24_PFH380_SixPFJet32_DoublePFBTagDeepCSV_2p2



PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2

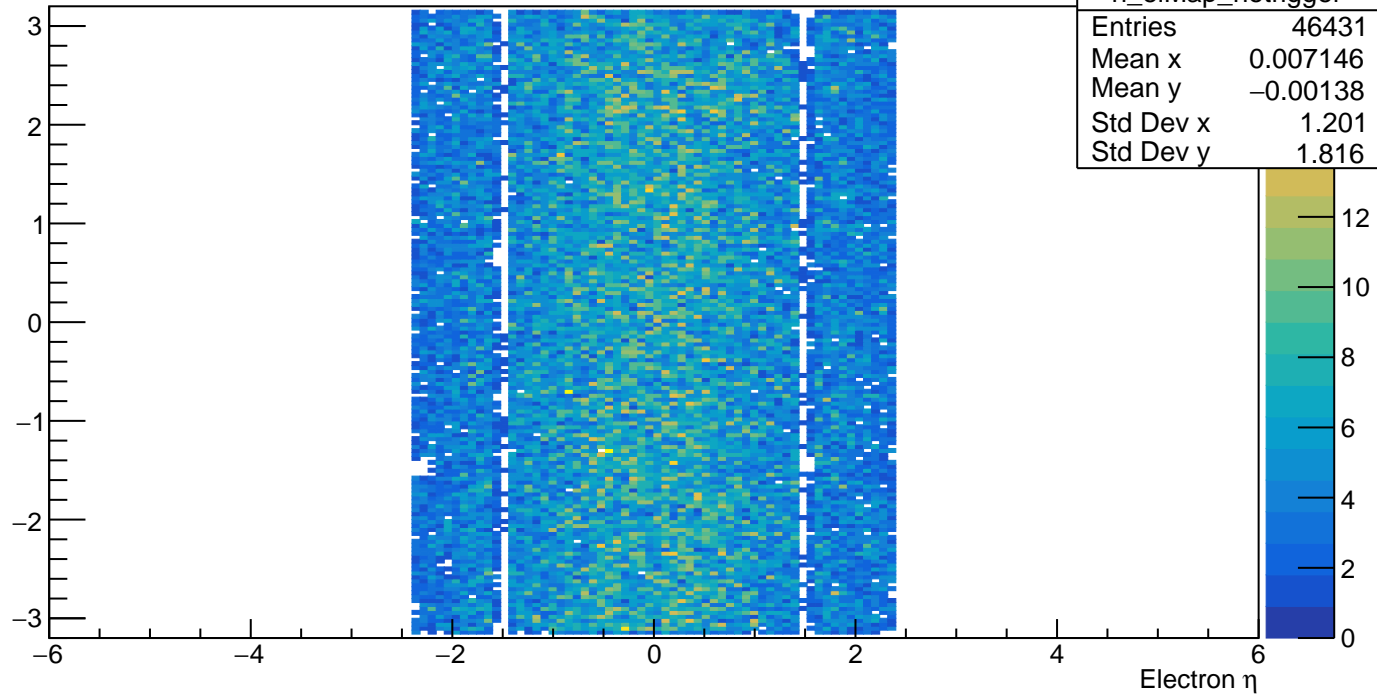


IsoMu24



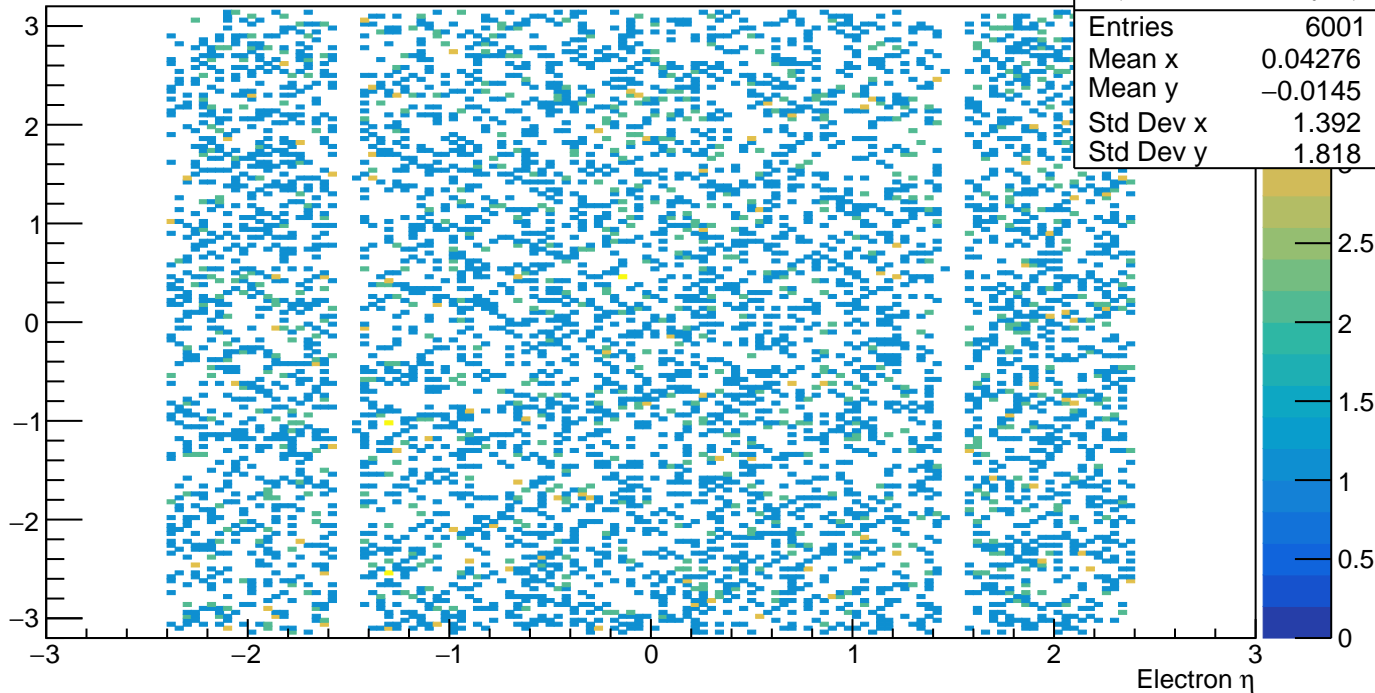
no trigger

Electron ϕ



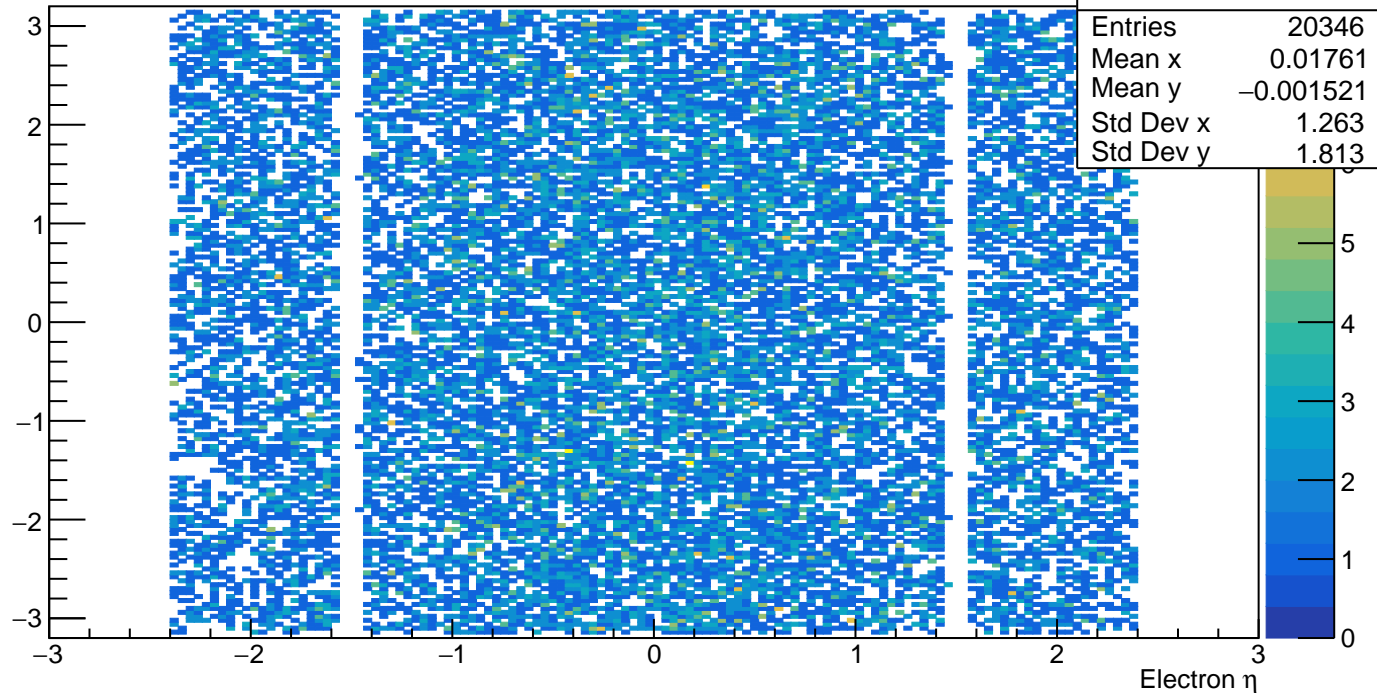
Mu15_IsoVVVL_PFHHT450_CaloBTagCSV_4p5

Electron ϕ

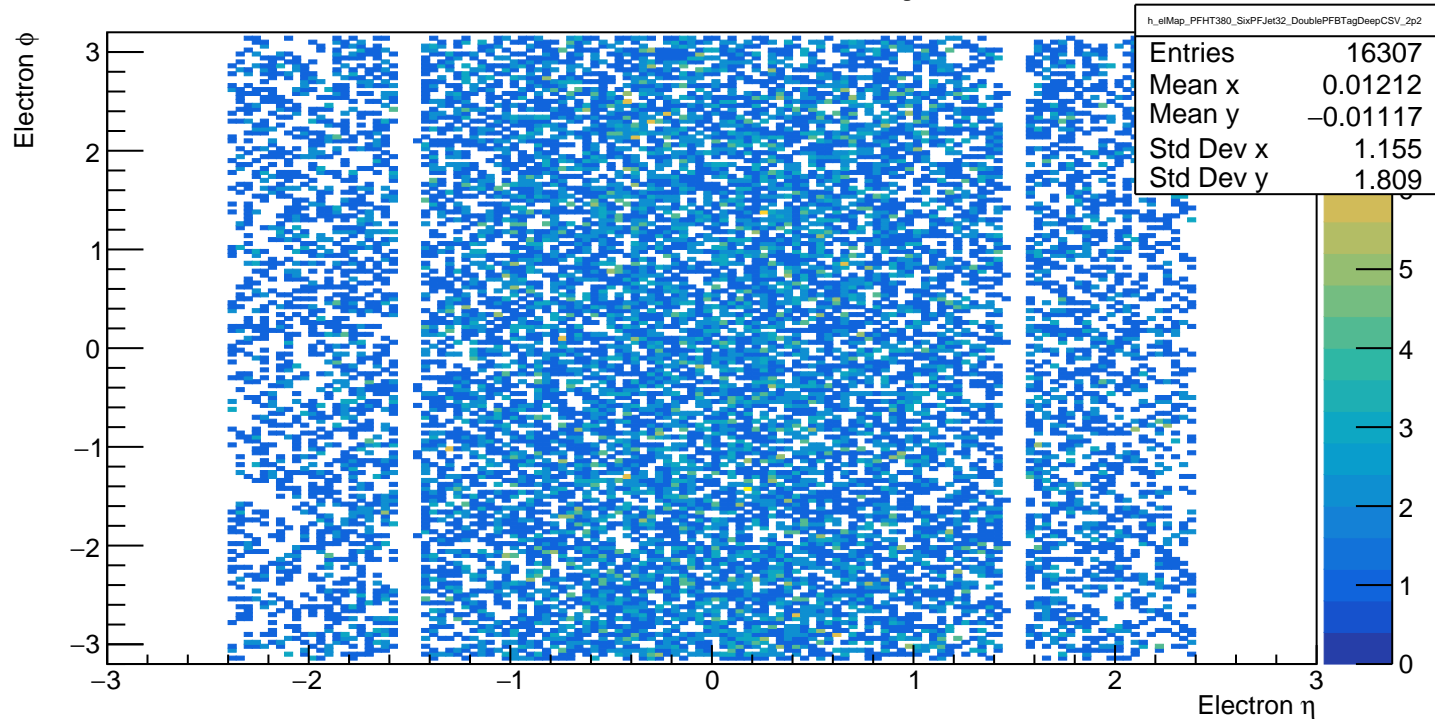


IsoMu24_PFH380_SixPFJet32_DoublePFBTagDeepCSV_2p2

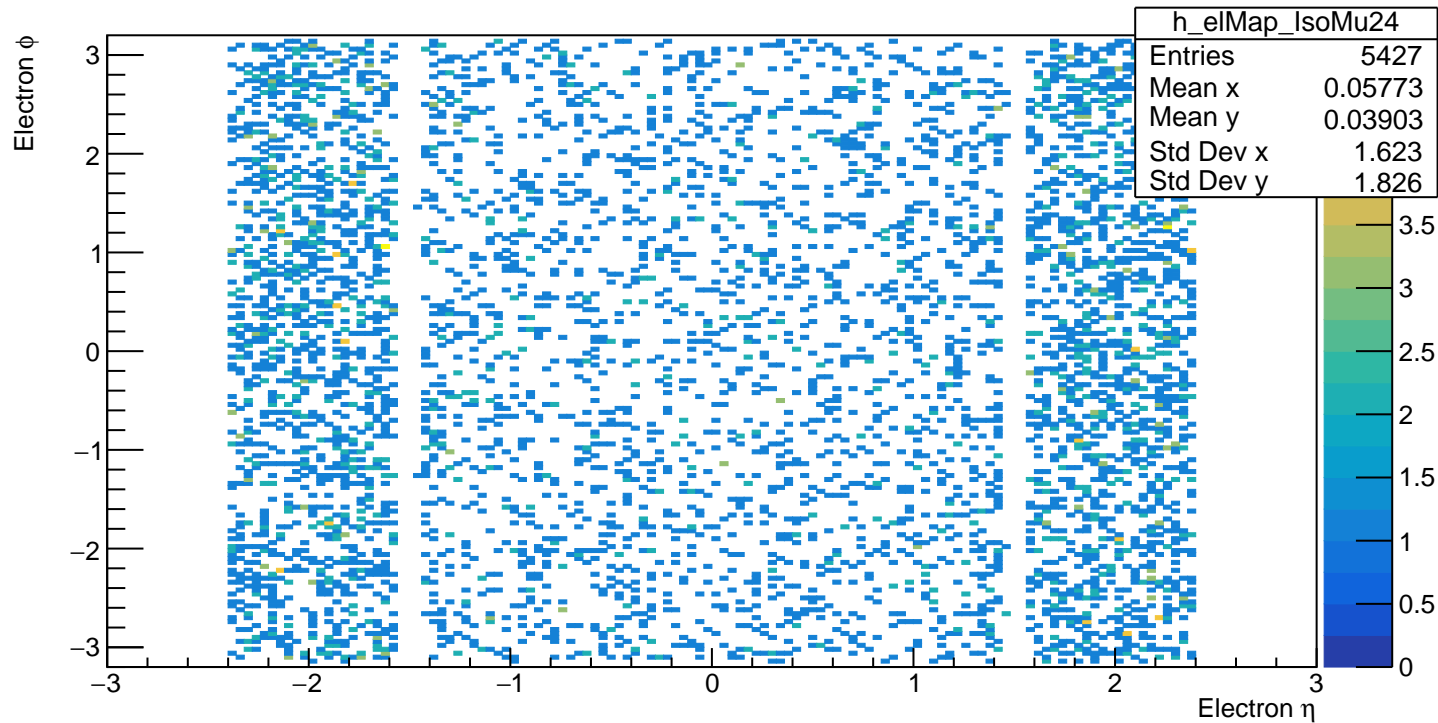
Electron ϕ



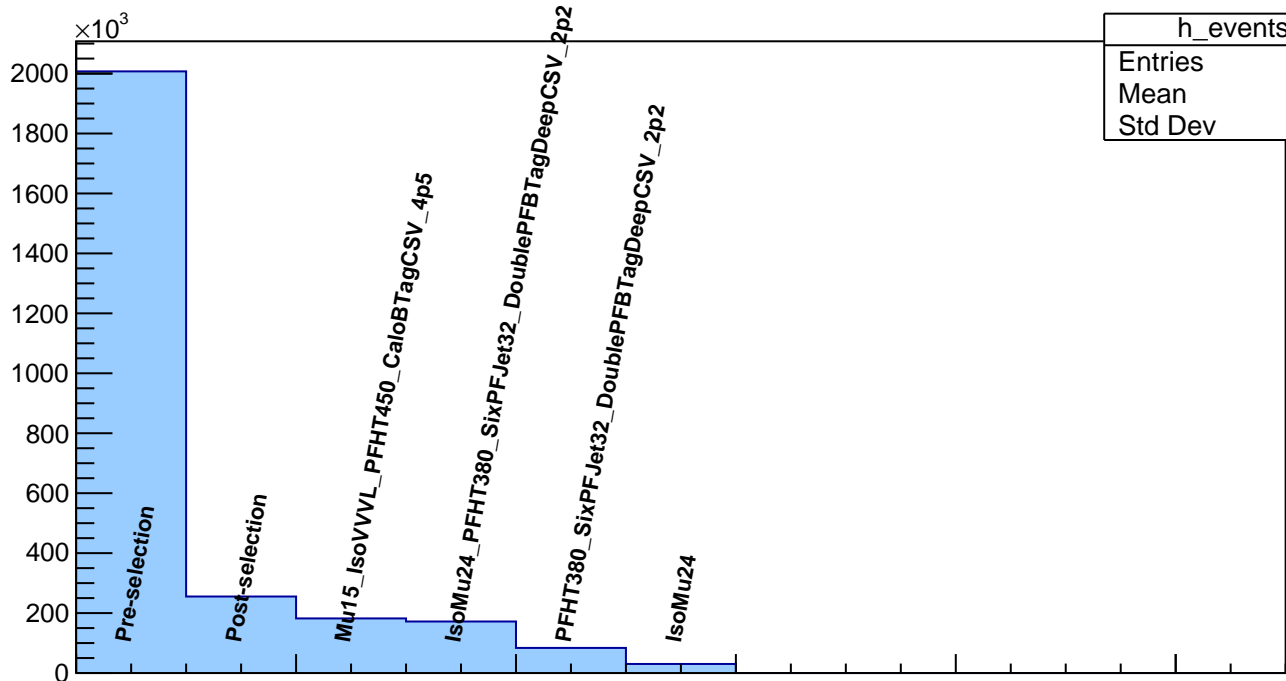
PFHT380_SixPFJet32_DoublePFBTagDeepCSV_2p2



IsoMu24



Total Number of Accepted Events



h_eventsPrg	
Entries	2730701
Mean	0.5939
Std Dev	1.158

Cuts and Triggers