

Comparison with τ trigger & μ or τ trigger

W_R 1000 GeV-6500 GeV & N 100 GeV ~

Signal Efficiency τ trigger vs μ or τ trigger

- Comparing using **only τ trigger** and using **both τ trigger μ trigger**
- > Using Both two trigger would select more datas, But efficiency would also be better?

1. MET filter + Tau trigger	
2. Tau ID	<ul style="list-style-type: none">- j_decaymode = 0 , 1, 10 , 11- DecayModeNewDM- delta z< 0.2- passTIDvJet , passTIDvMu , passTIDvEl- eta < 2.1
3. Pt cut	<ul style="list-style-type: none">- Pt> 190 GeV

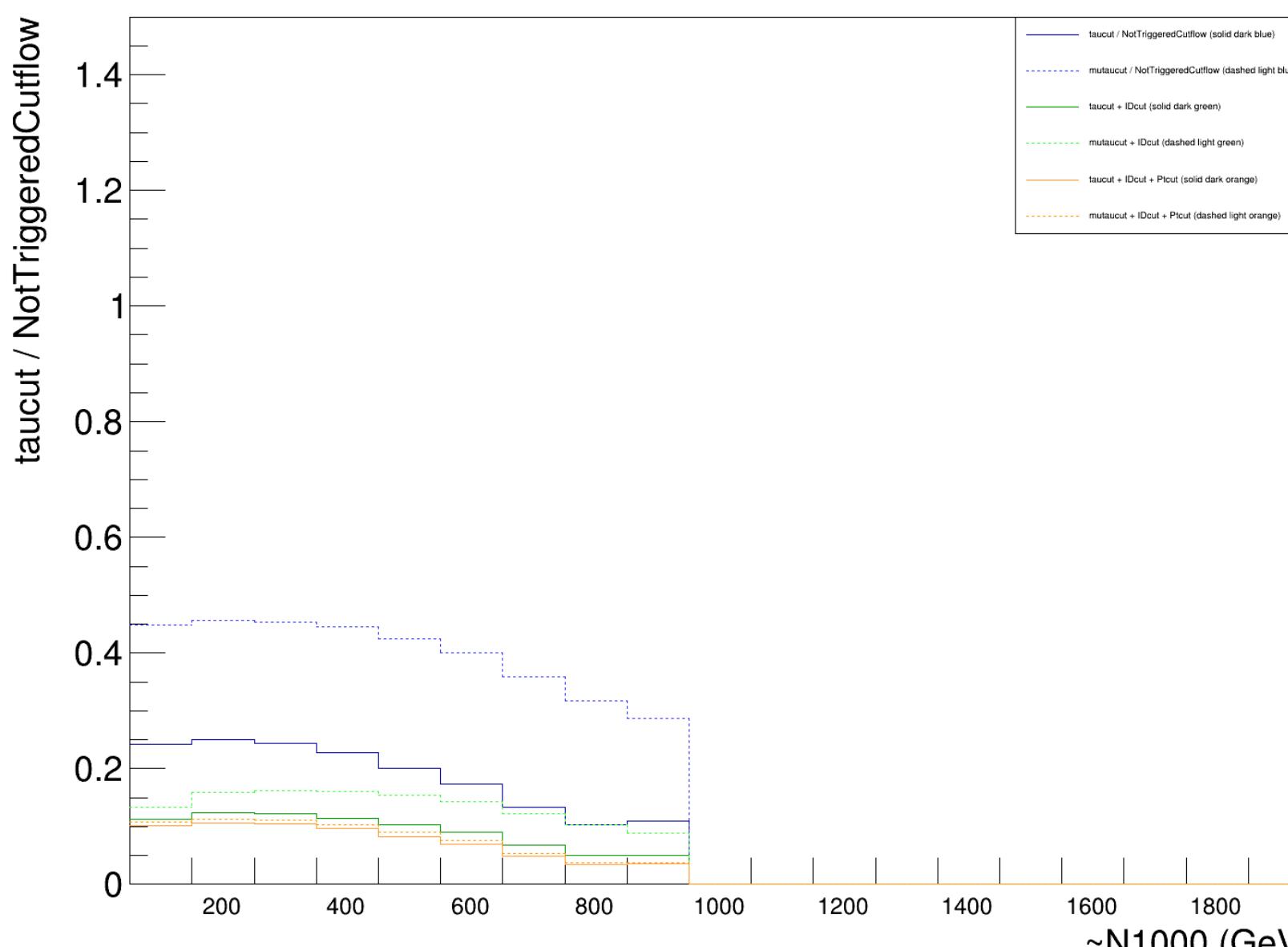
1. MET filter + (Tau trigger + Muon trigger)	
2. Tau ID	<ul style="list-style-type: none">- j_decaymode = 0 , 1, 10 , 11- DecayModeNewDM- delta z< 0.2- passTIDvJet , passTIDvMu , passTIDvEl- eta < 2.1
3. Pt cut	<ul style="list-style-type: none">- Pt> 190 GeV

μ or τ trigger & τ trigger

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger} + \text{MET filter}) / \text{MET filter}$

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger or } \mu \text{ trigger} + \text{MET filter}) / \text{MET filter}$

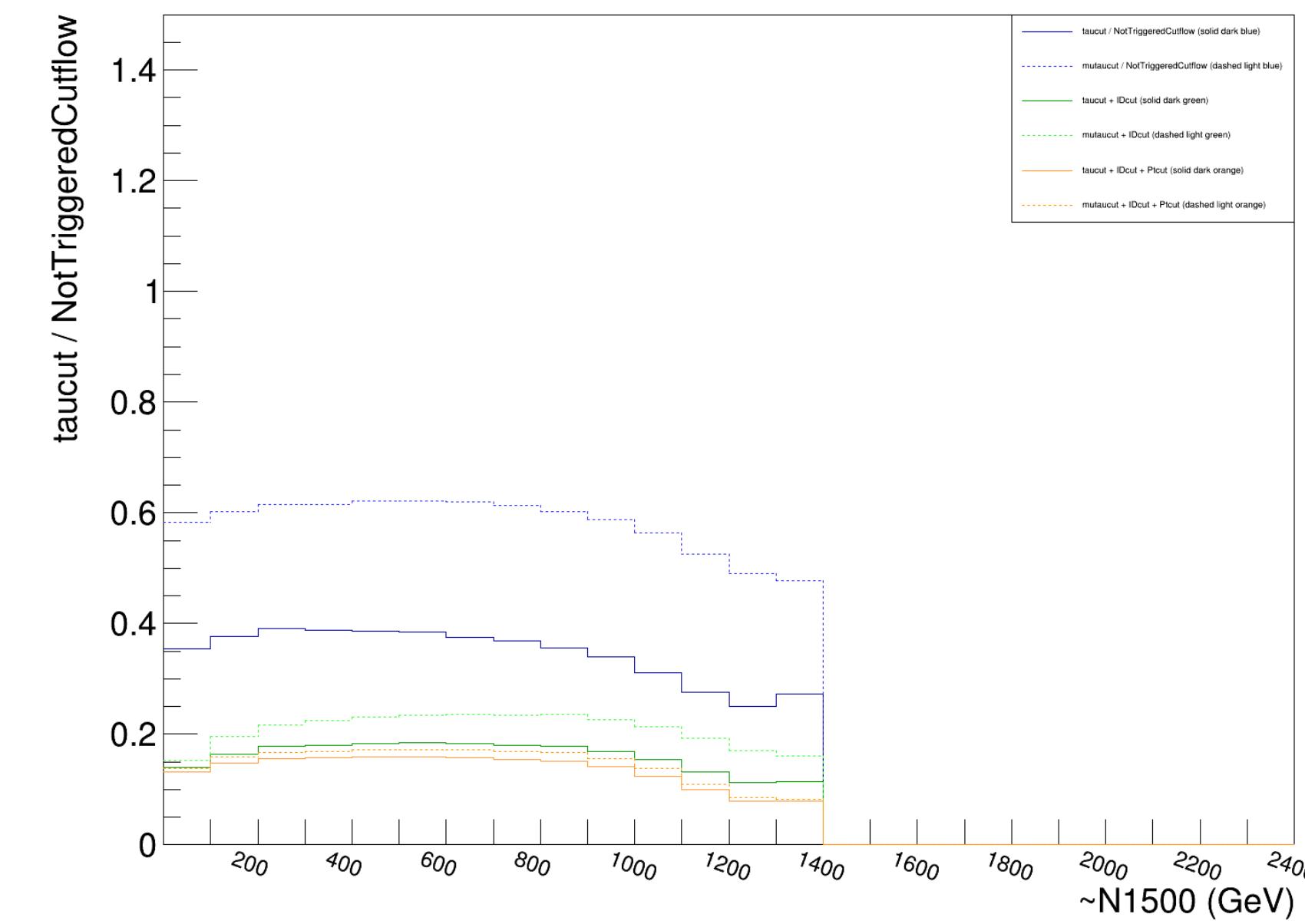
Ratio of taucut to NotTriggeredCutflow



WR 1000

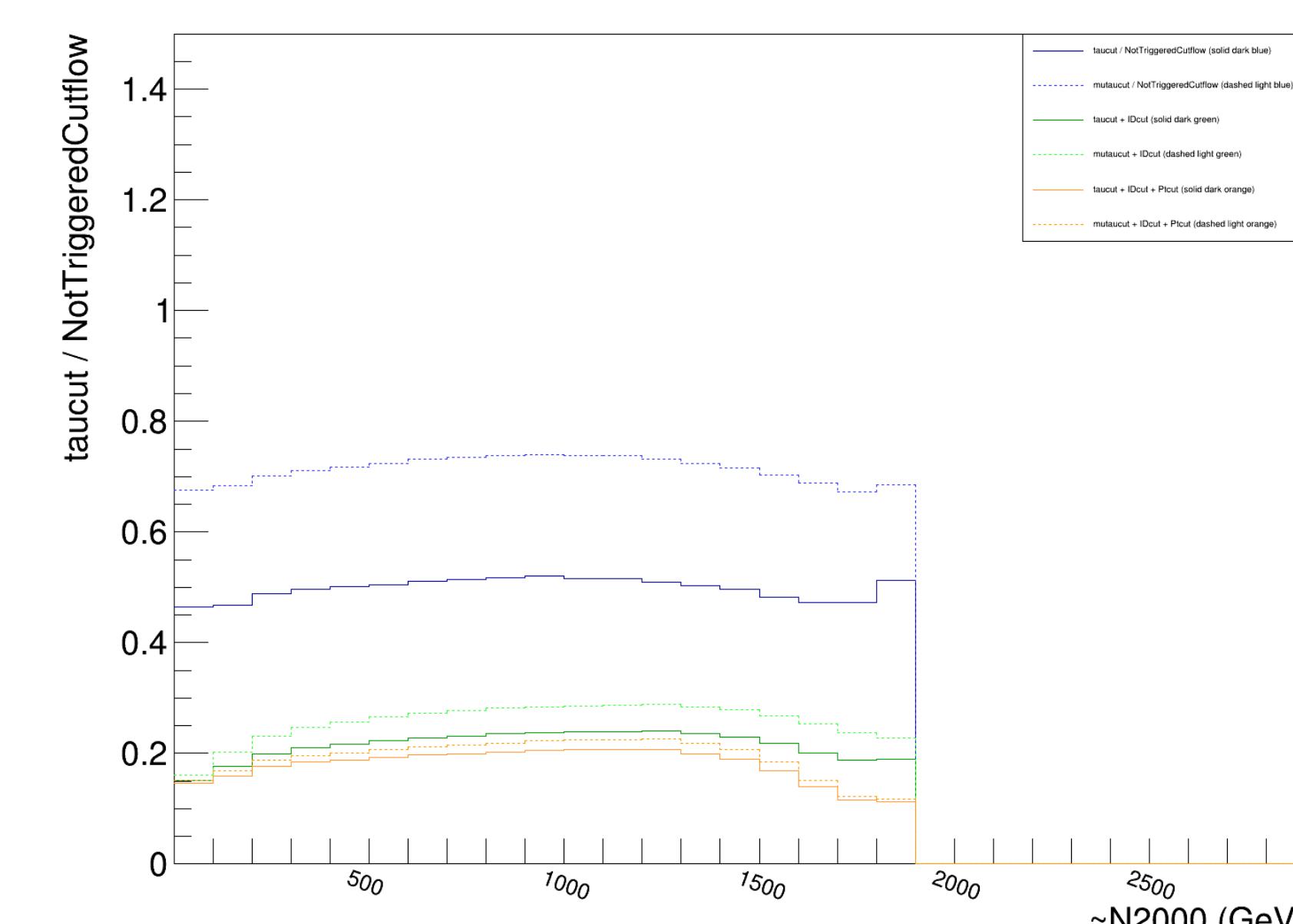
- W_R 1000 ~ 2000

Ratio of taucut to NotTriggeredCutflow



WR 1500

Ratio of taucut to NotTriggeredCutflow



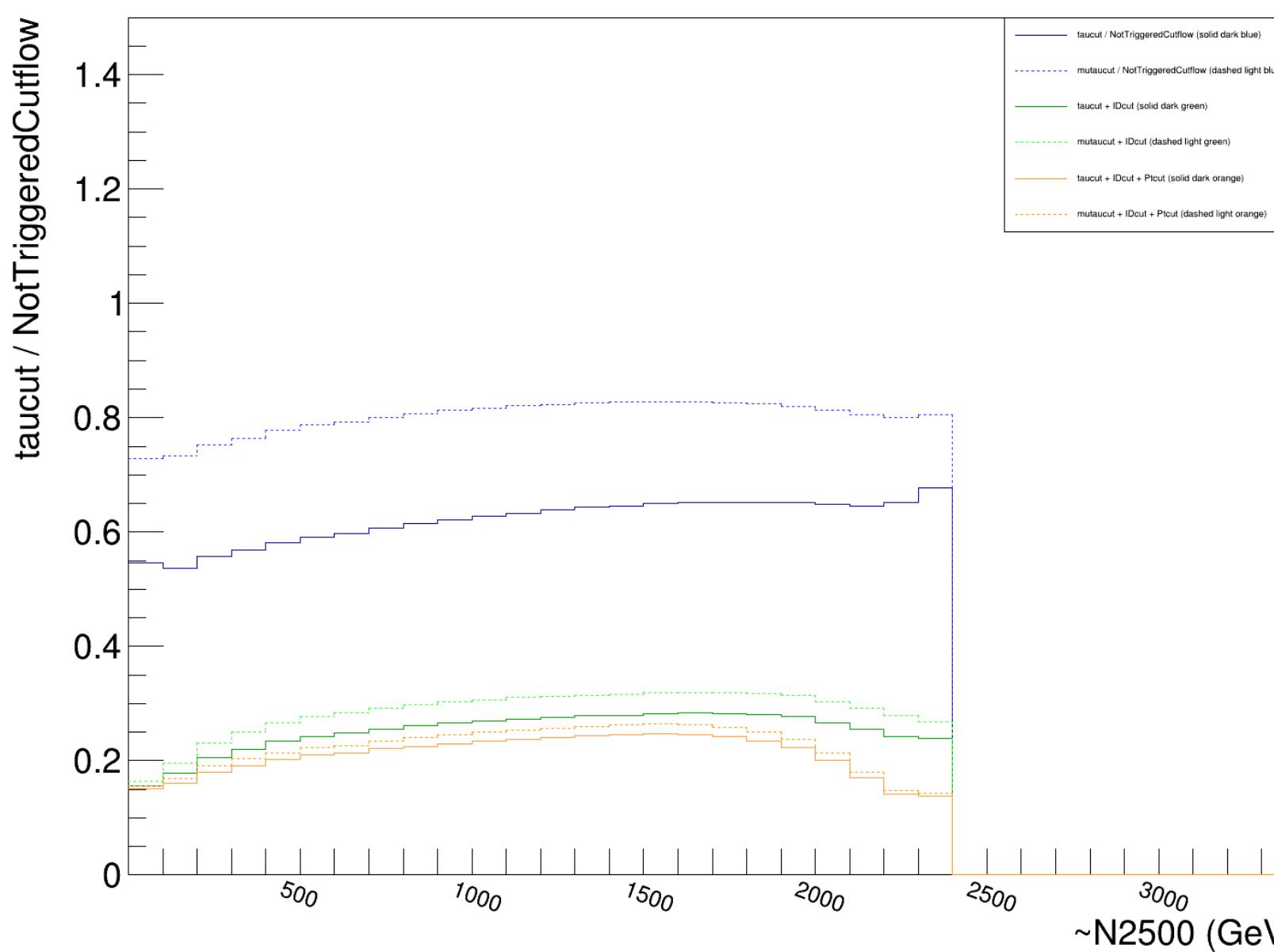
WR 2000

μ or τ trigger & τ trigger

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger} + \text{MET filter}) / \text{MET filter}$

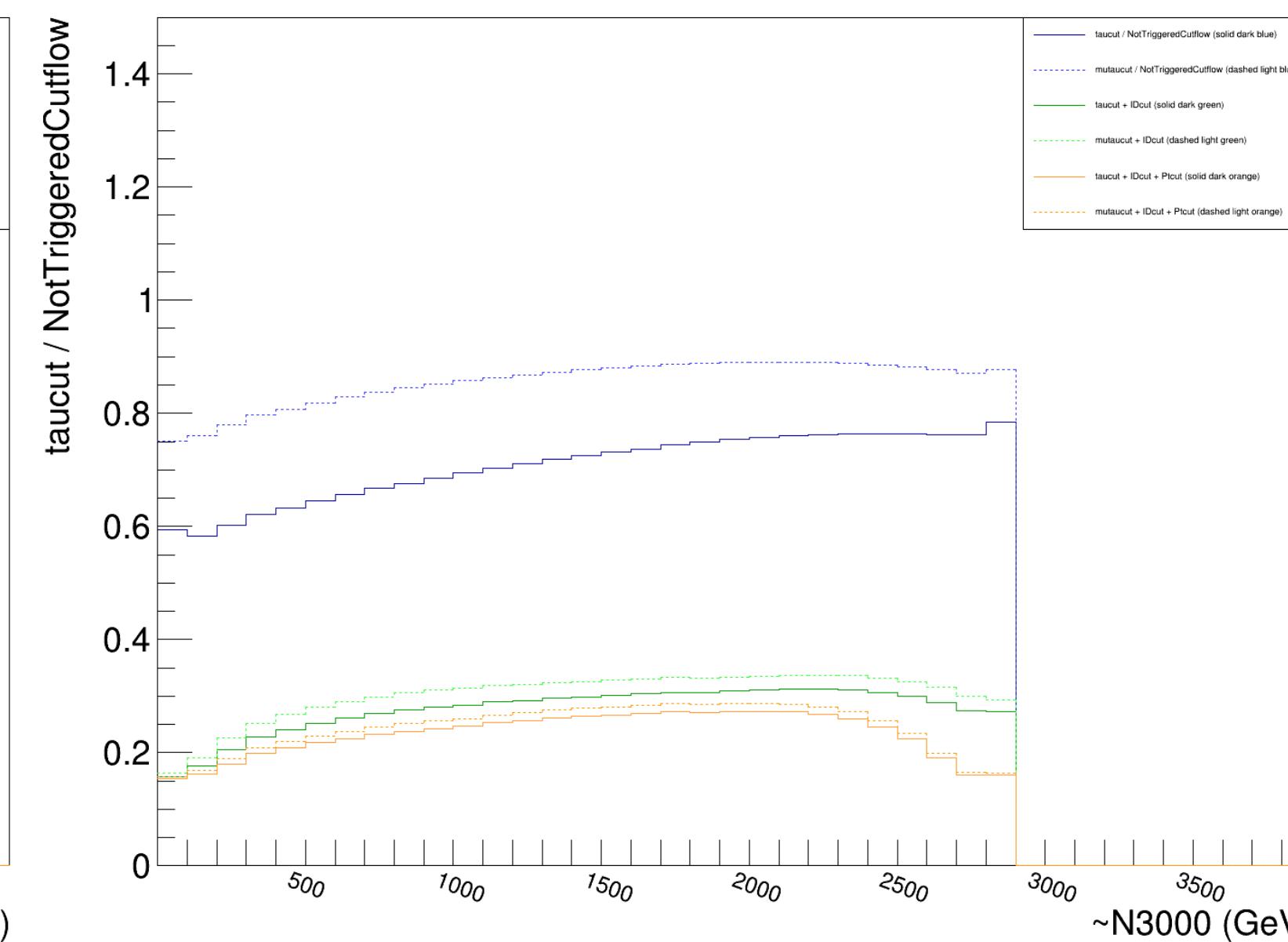
$(P_T + \tau^{\text{ID}} + \tau \text{ trigger or } \mu \text{ trigger} + \text{MET filter}) / \text{MET filter}$

Ratio of taucut to NotTriggeredCutflow



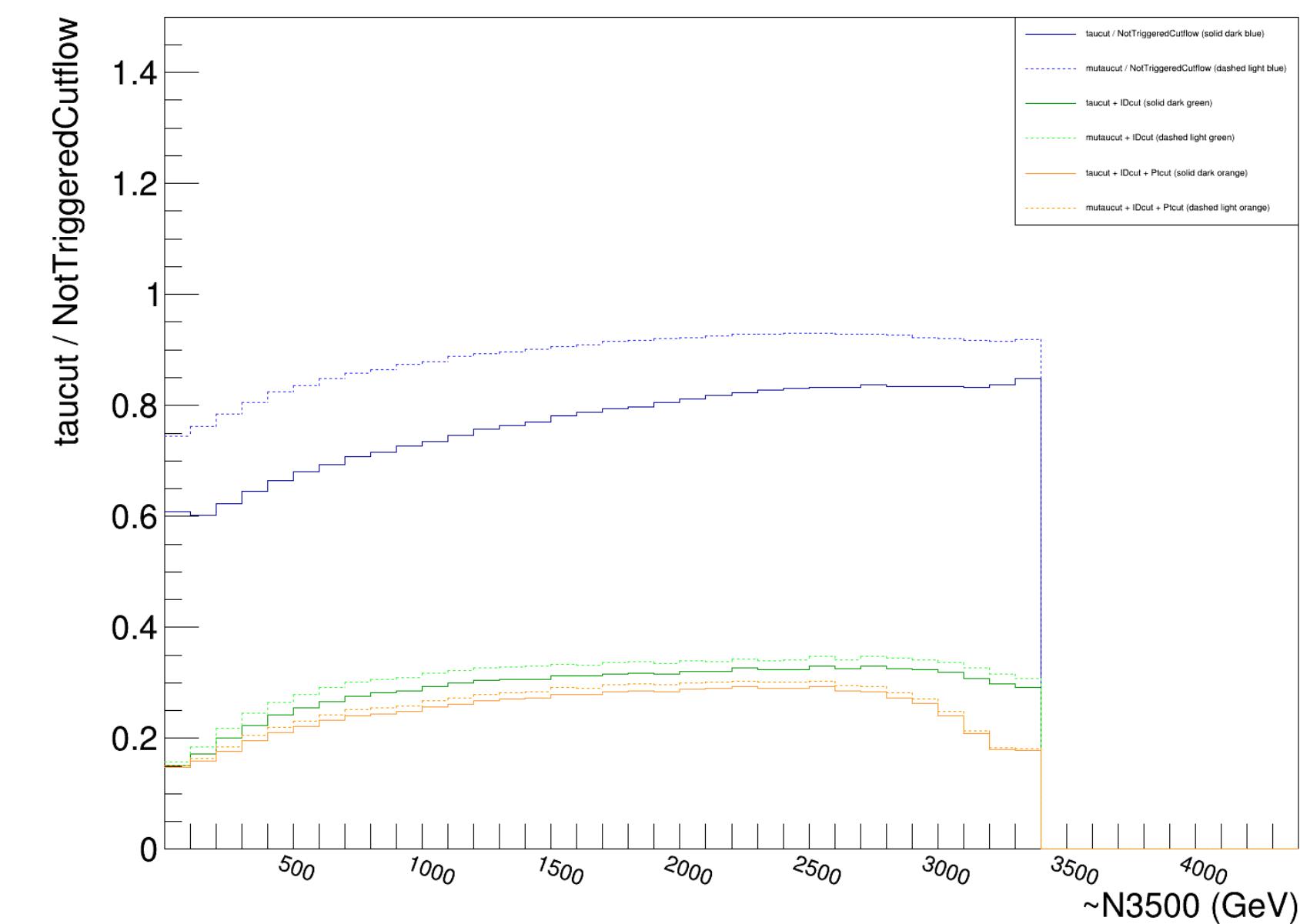
WR 2500

Ratio of taucut to NotTriggeredCutflow



WR 3000

Ratio of taucut to NotTriggeredCutflow



WR 3500

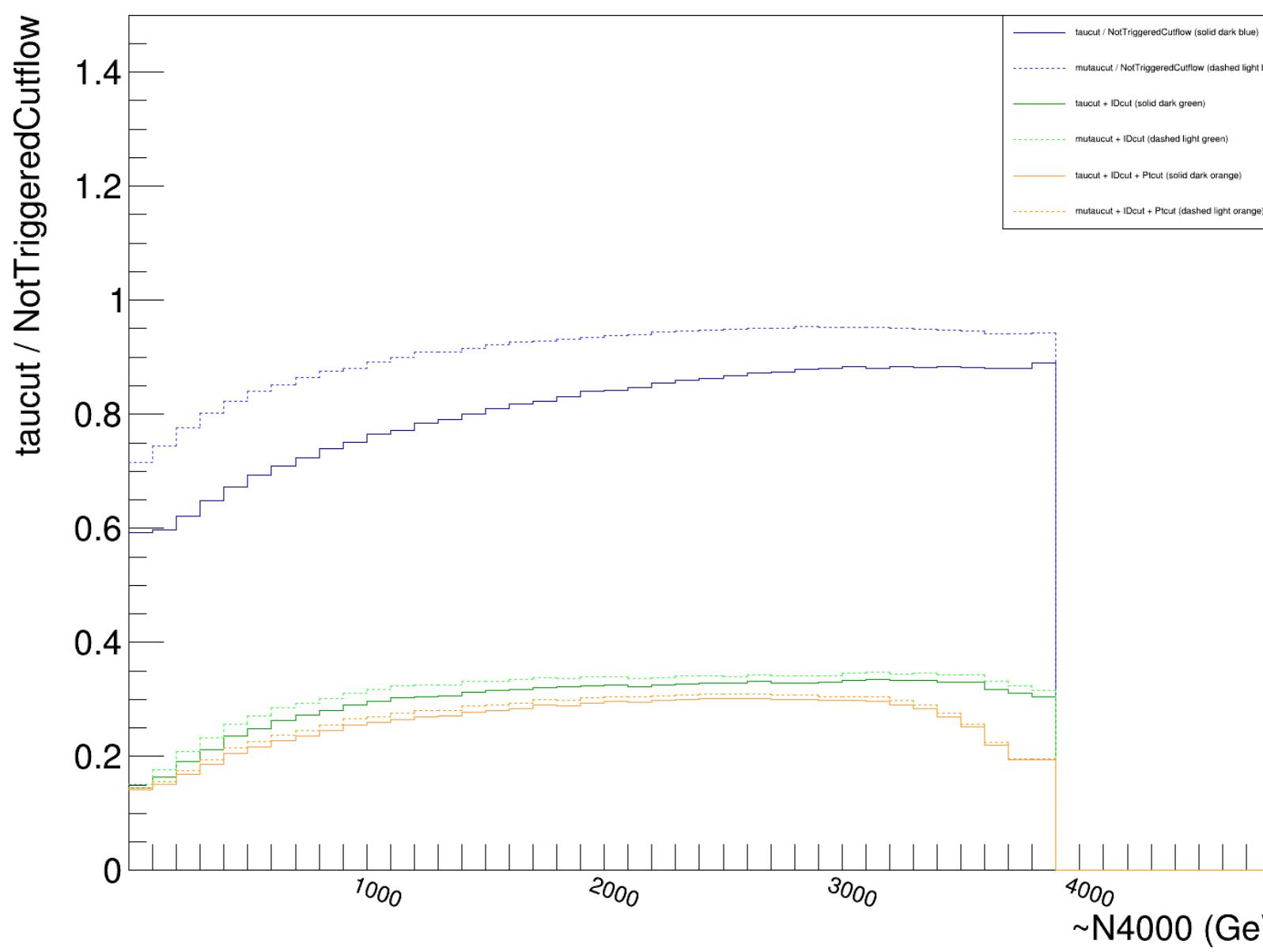
- W_R 2500 ~ 3500

μ or τ trigger & τ trigger

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger} + \text{MET filter}) / \text{MET filter}$

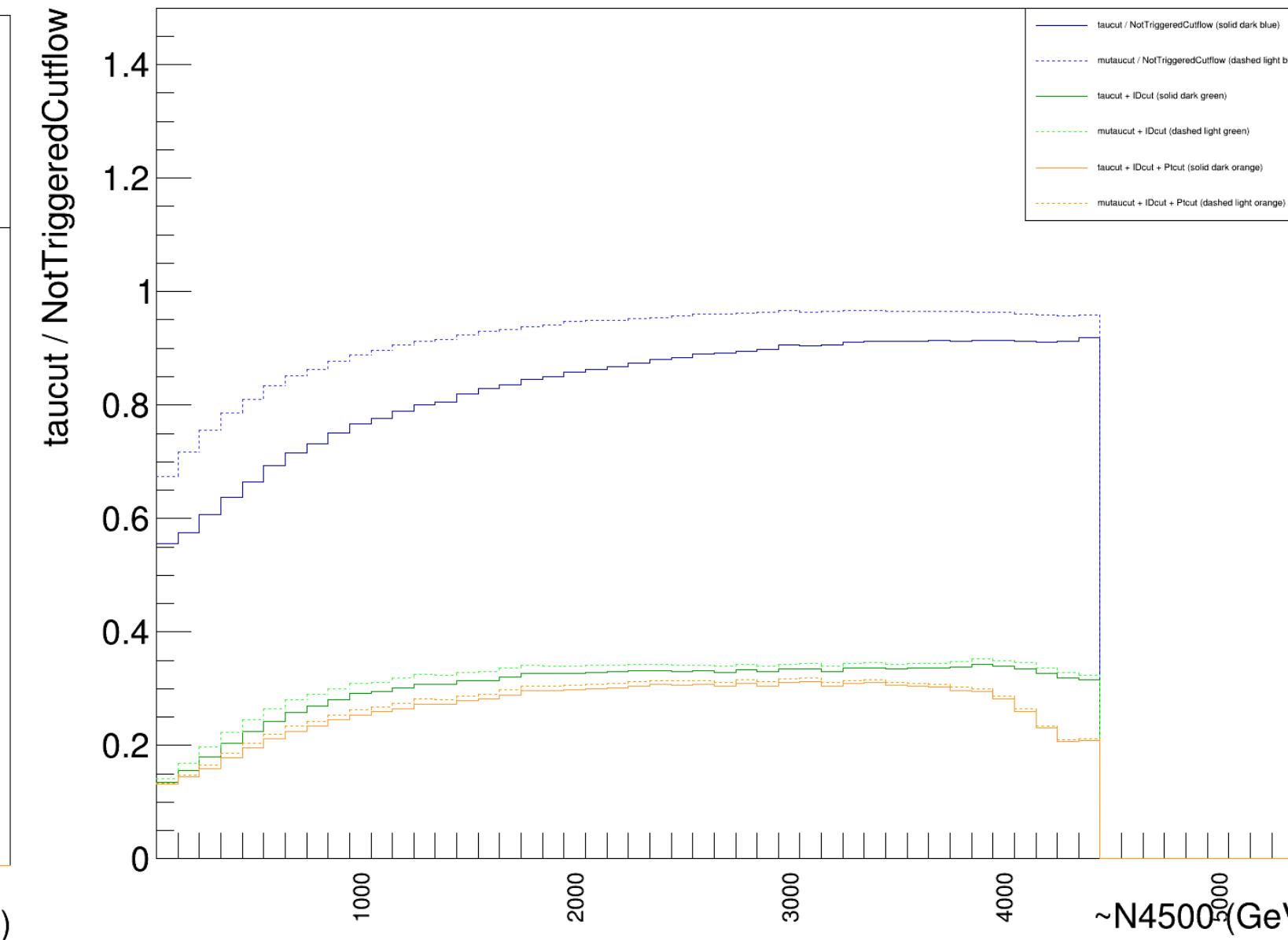
$(P_T + \tau^{\text{ID}} + \tau \text{ trigger or } \mu \text{ trigger} + \text{MET filter}) / \text{MET filter}$

Ratio of taucut to NotTriggeredCutflow



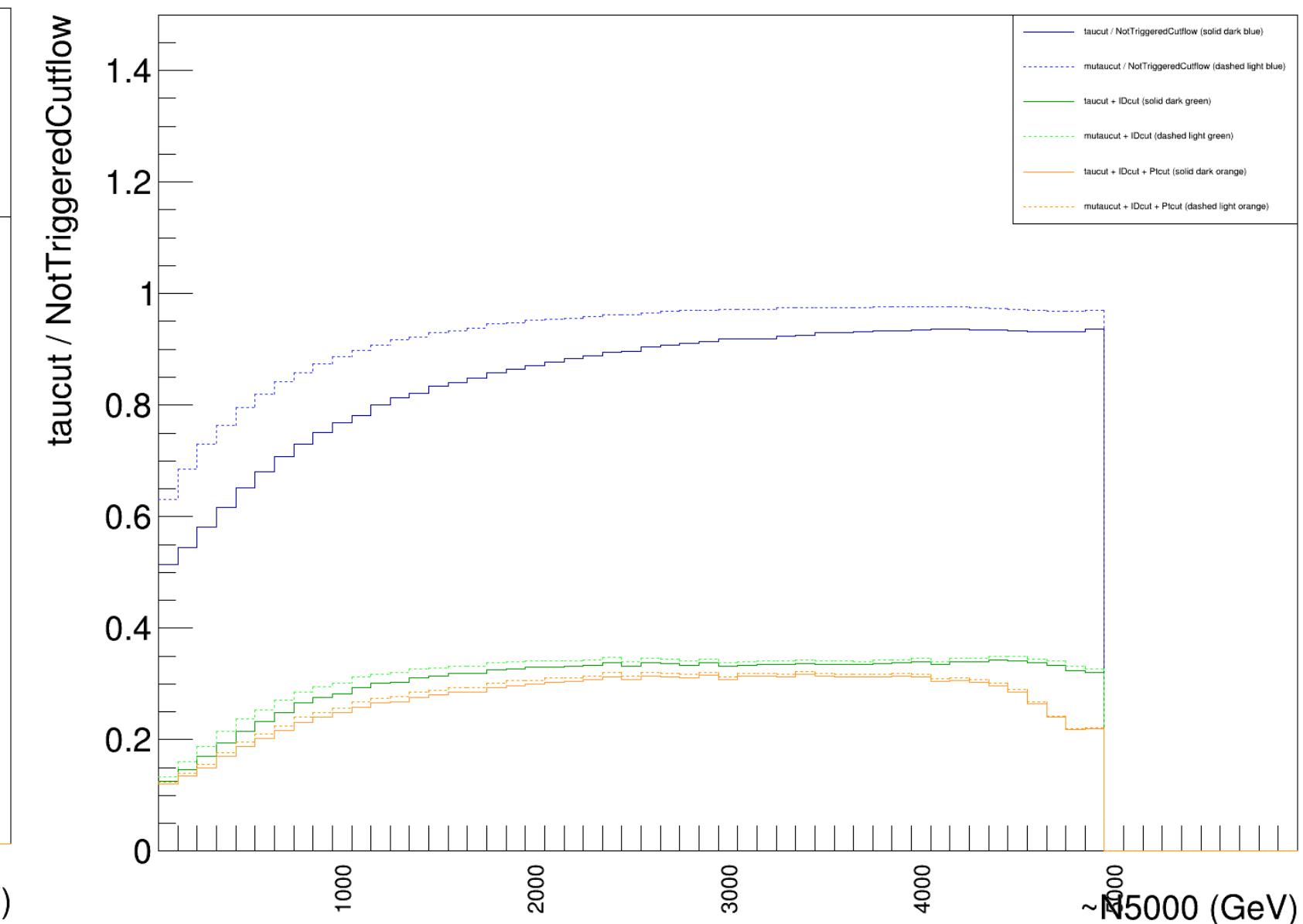
WR 4000

Ratio of taucut to NotTriggeredCutflow



WR 4500

Ratio of taucut to NotTriggeredCutflow



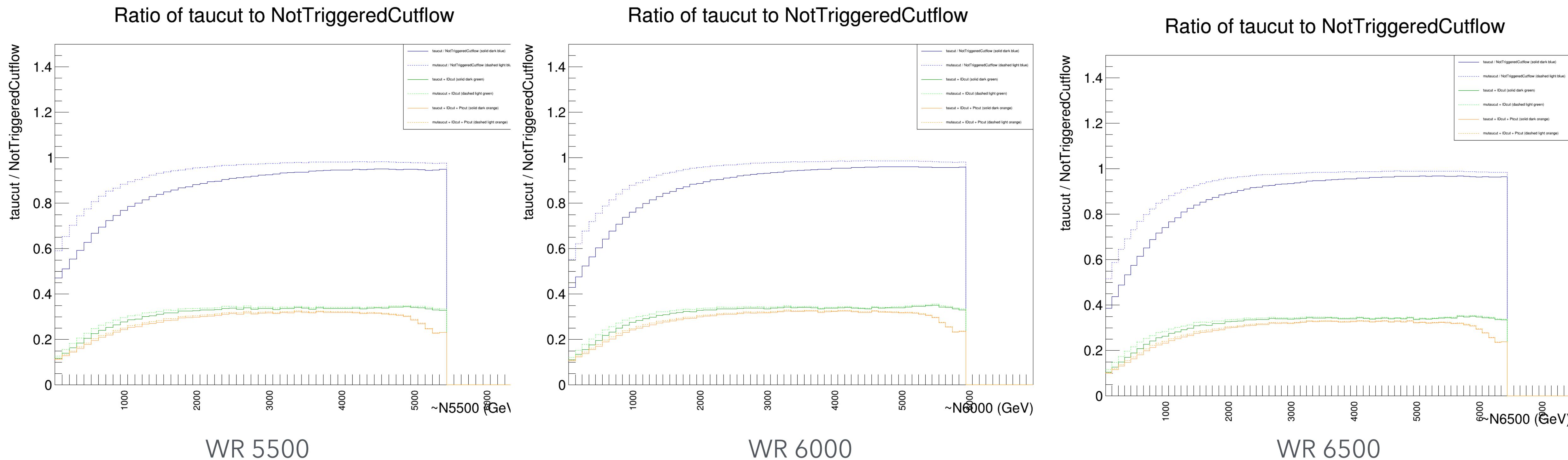
WR 5000

- W_R 4000~5000

μ or τ trigger & τ trigger

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger} + \text{MET filter}) / \text{MET filter}$

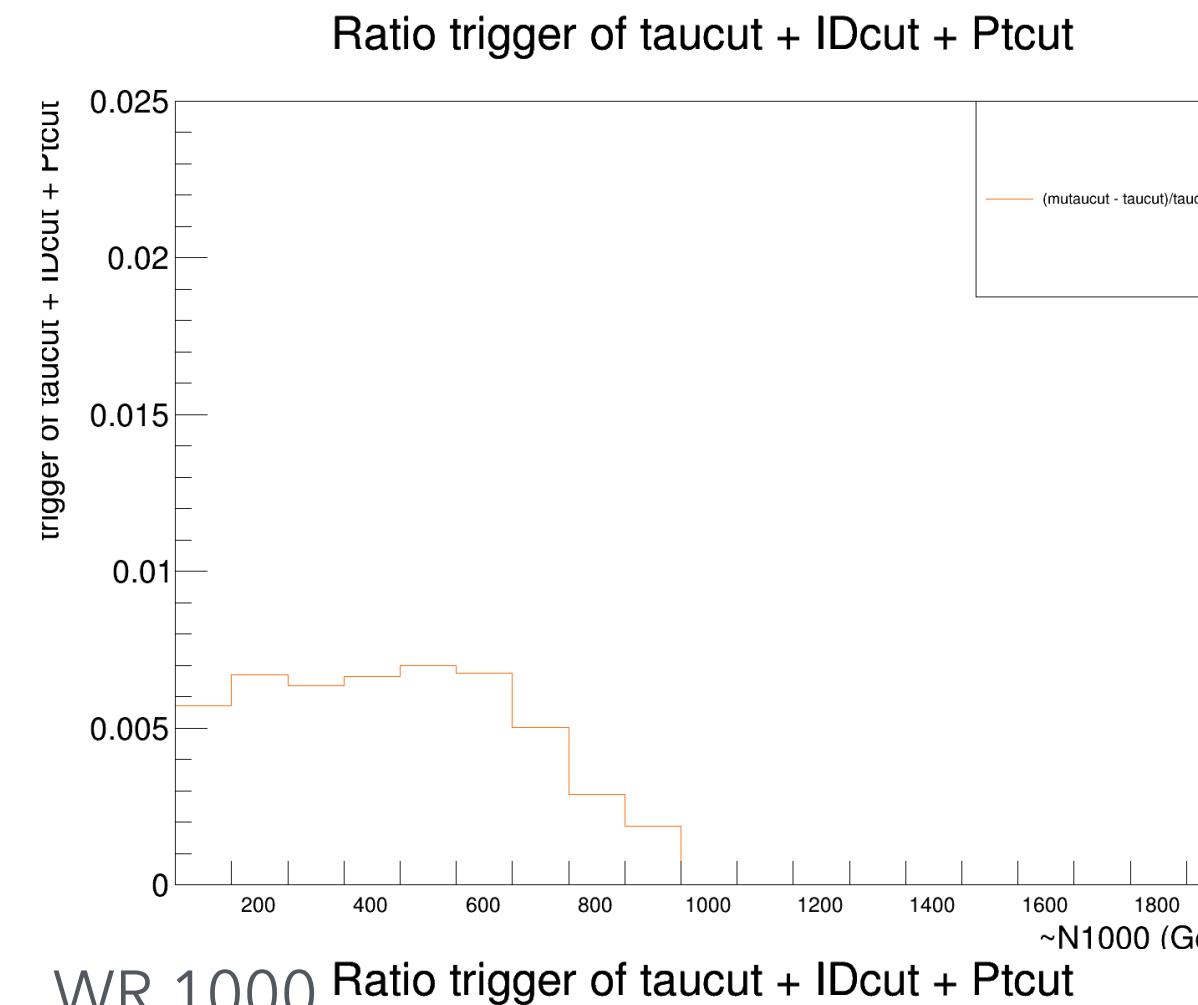
$(P_T + \tau^{\text{ID}} + \tau \text{ trigger or } \mu \text{ trigger} + \text{MET filter}) / \text{MET filter}$



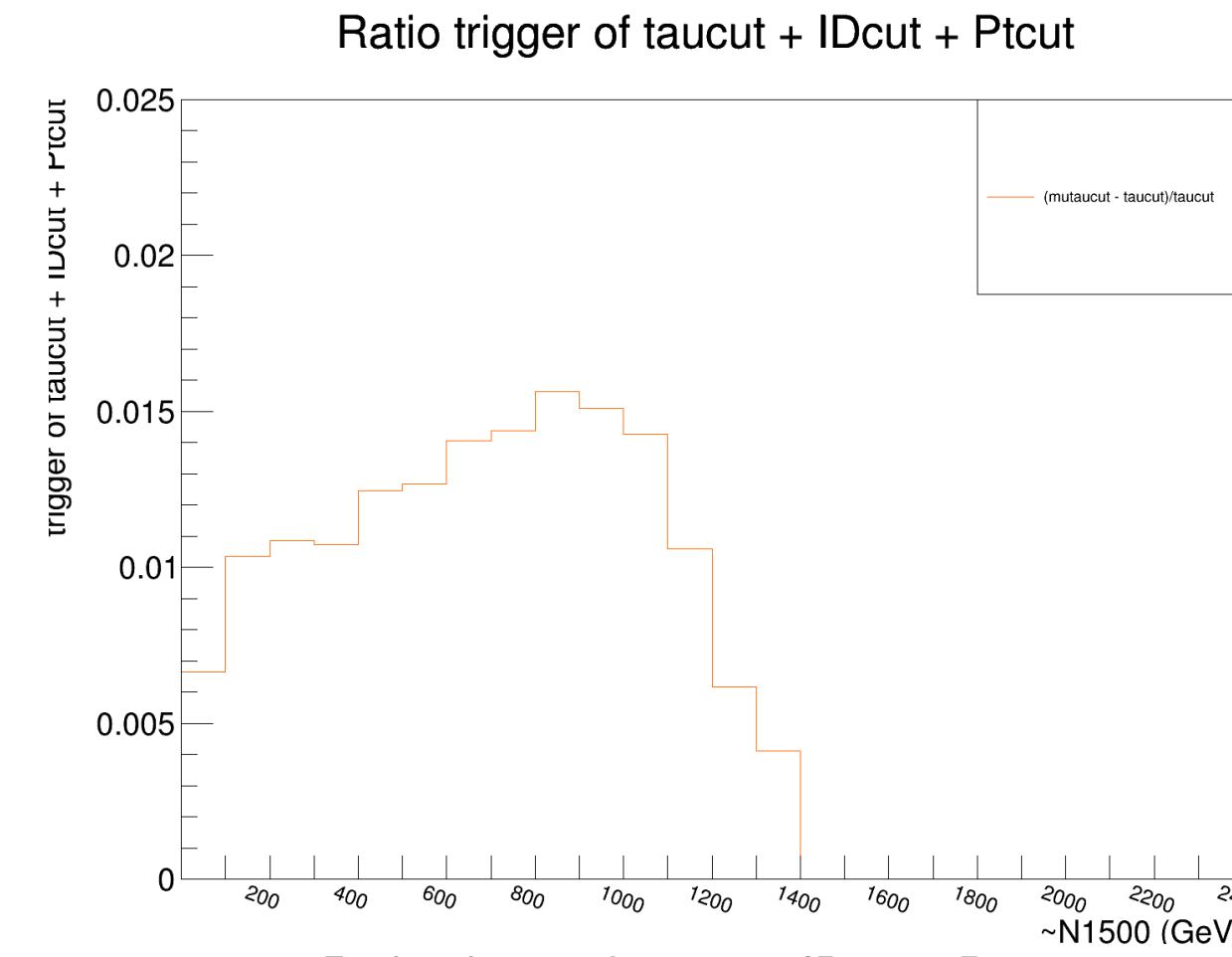
- W_R 5500~6500

μ or τ trigger - τ trigger

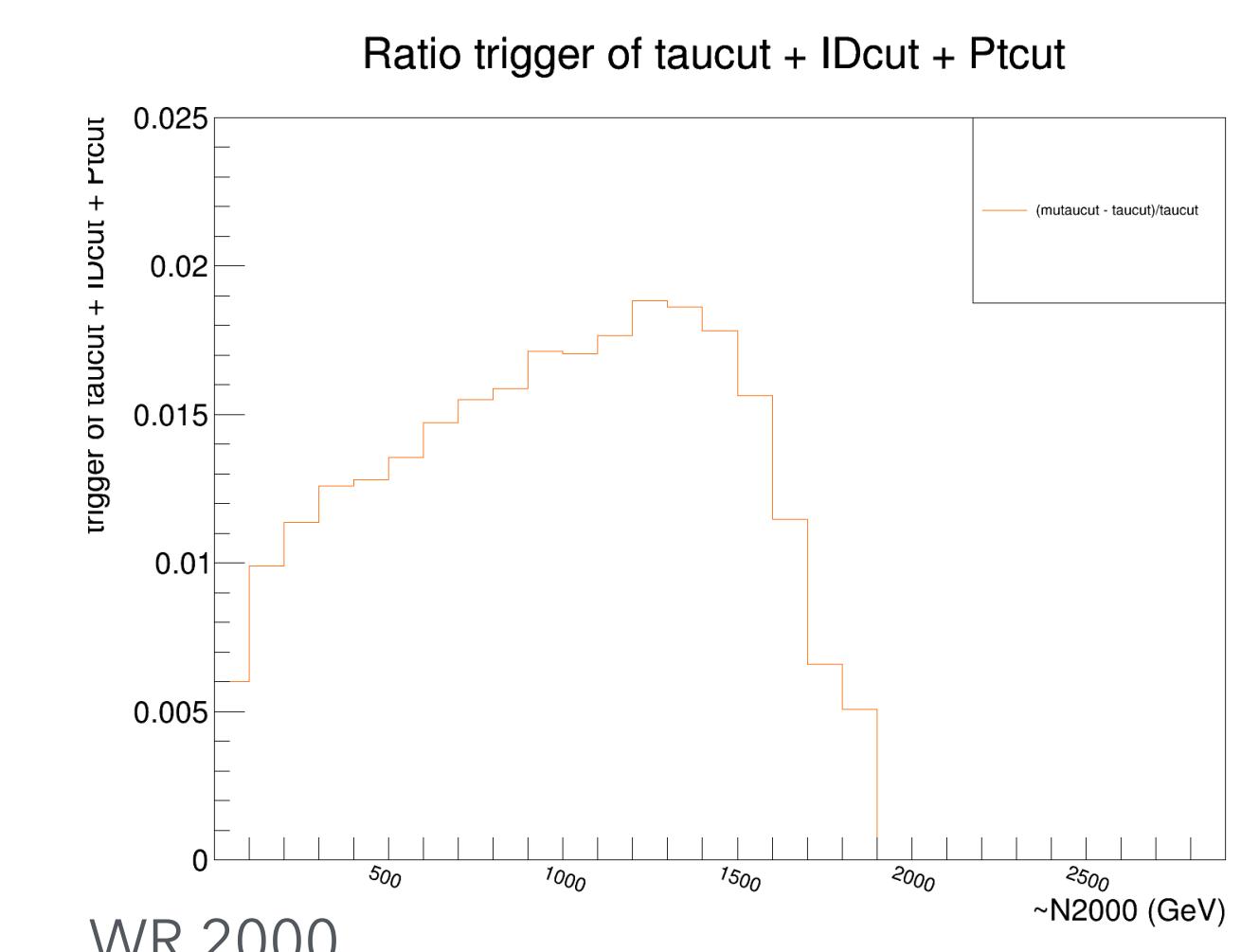
(τ trigger & μ trigger - τ trigger)/ MET filter



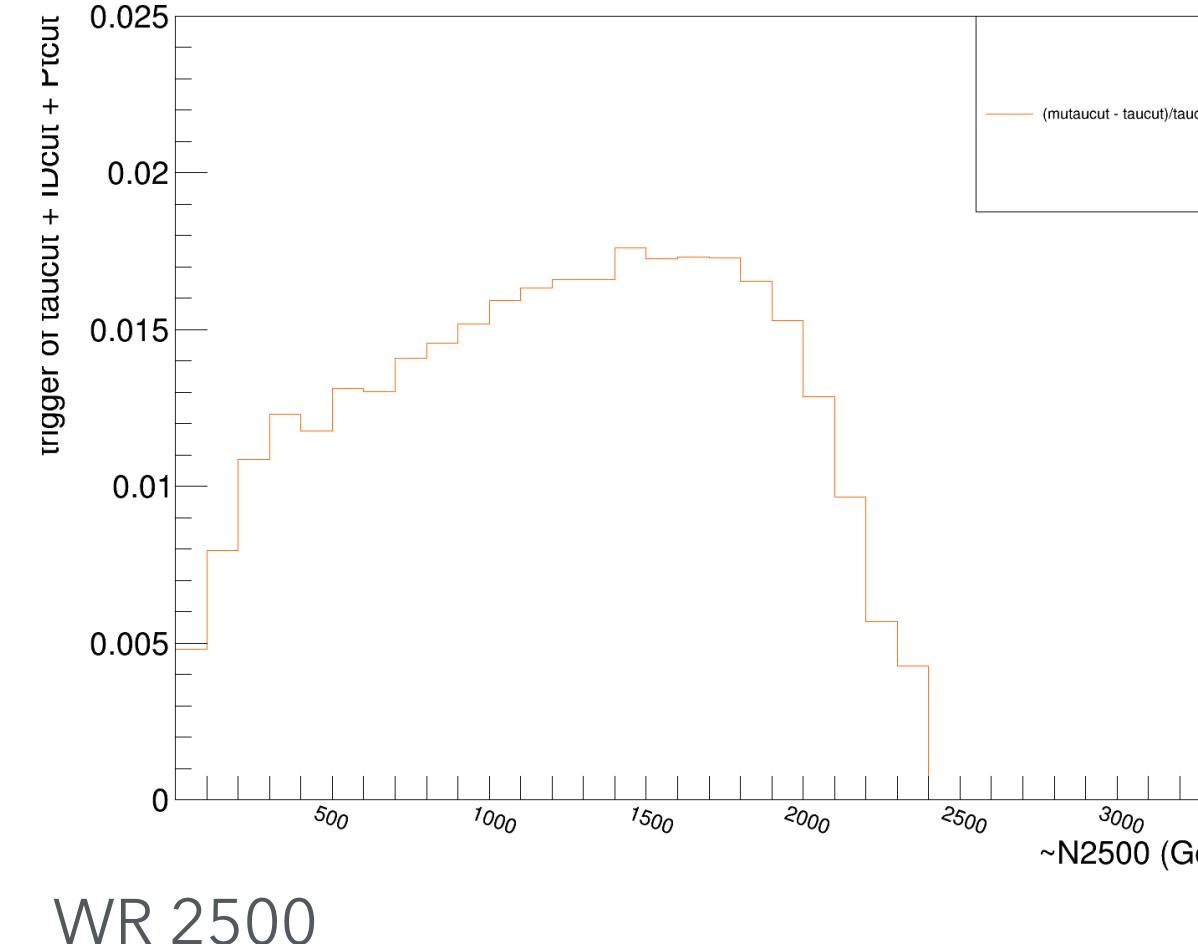
WR 1000 Ratio trigger of taucut + IDcut + Ptcut



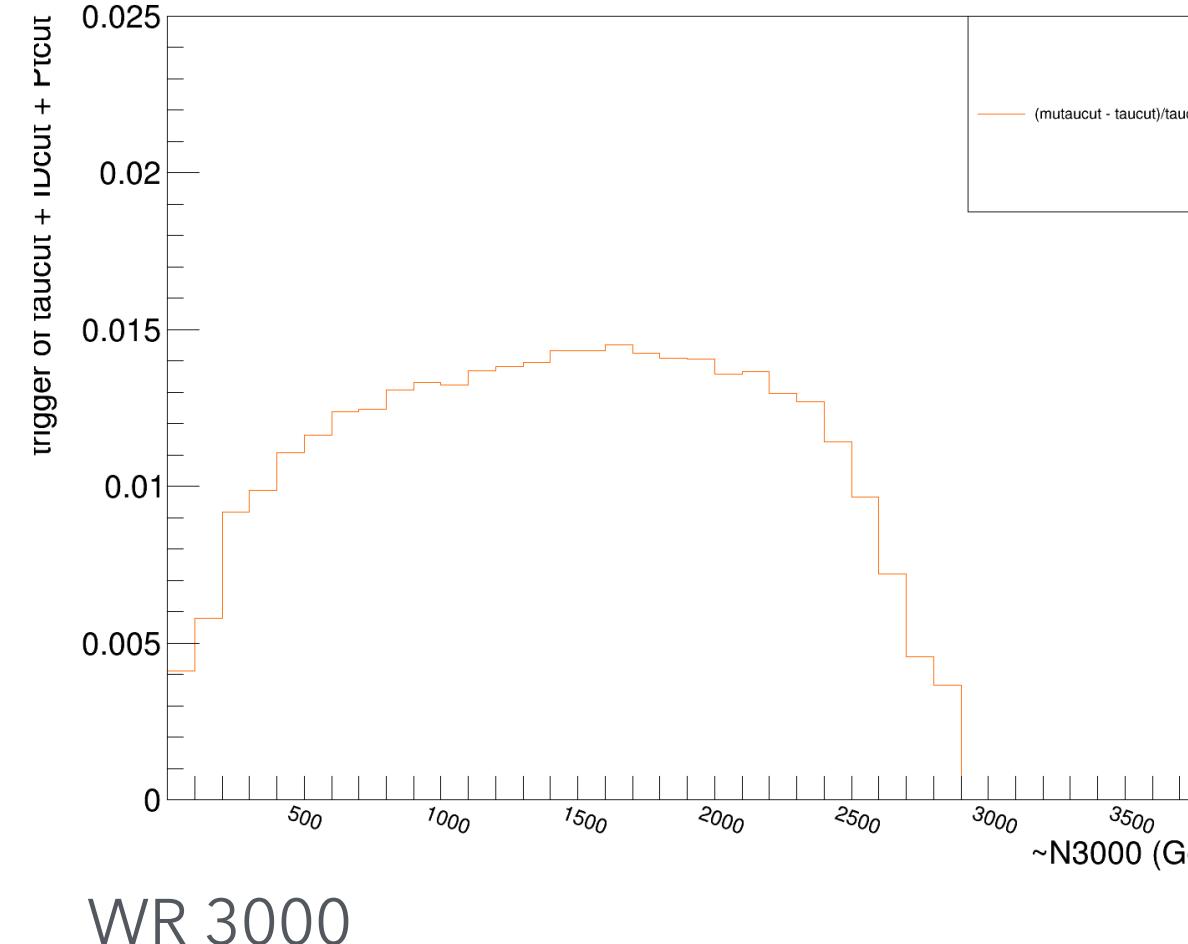
WR 1500 Ratio trigger of taucut + IDcut + Ptcut



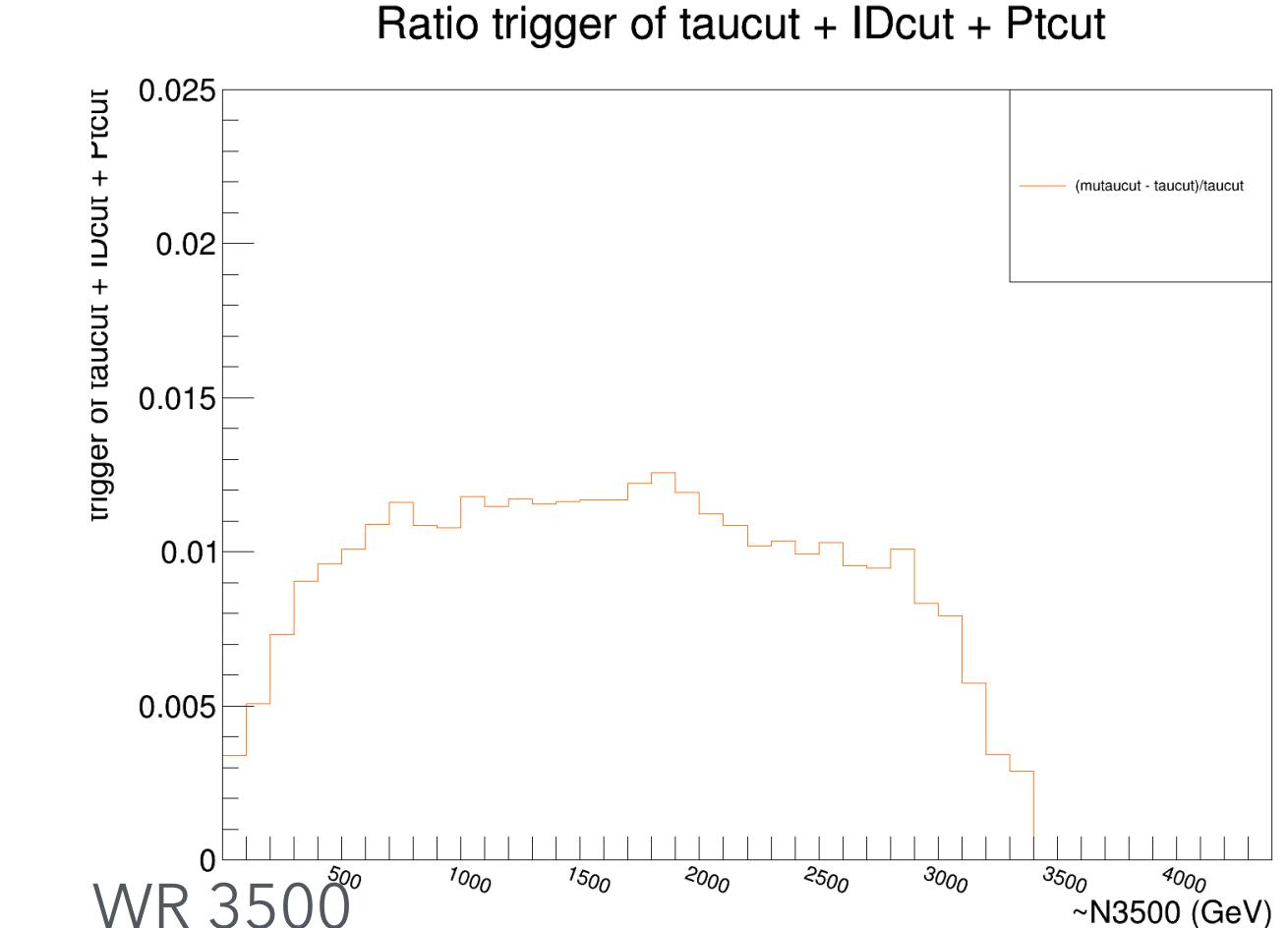
WR 2000 Ratio trigger of taucut + IDcut + Ptcut



WR 2500



WR 3000

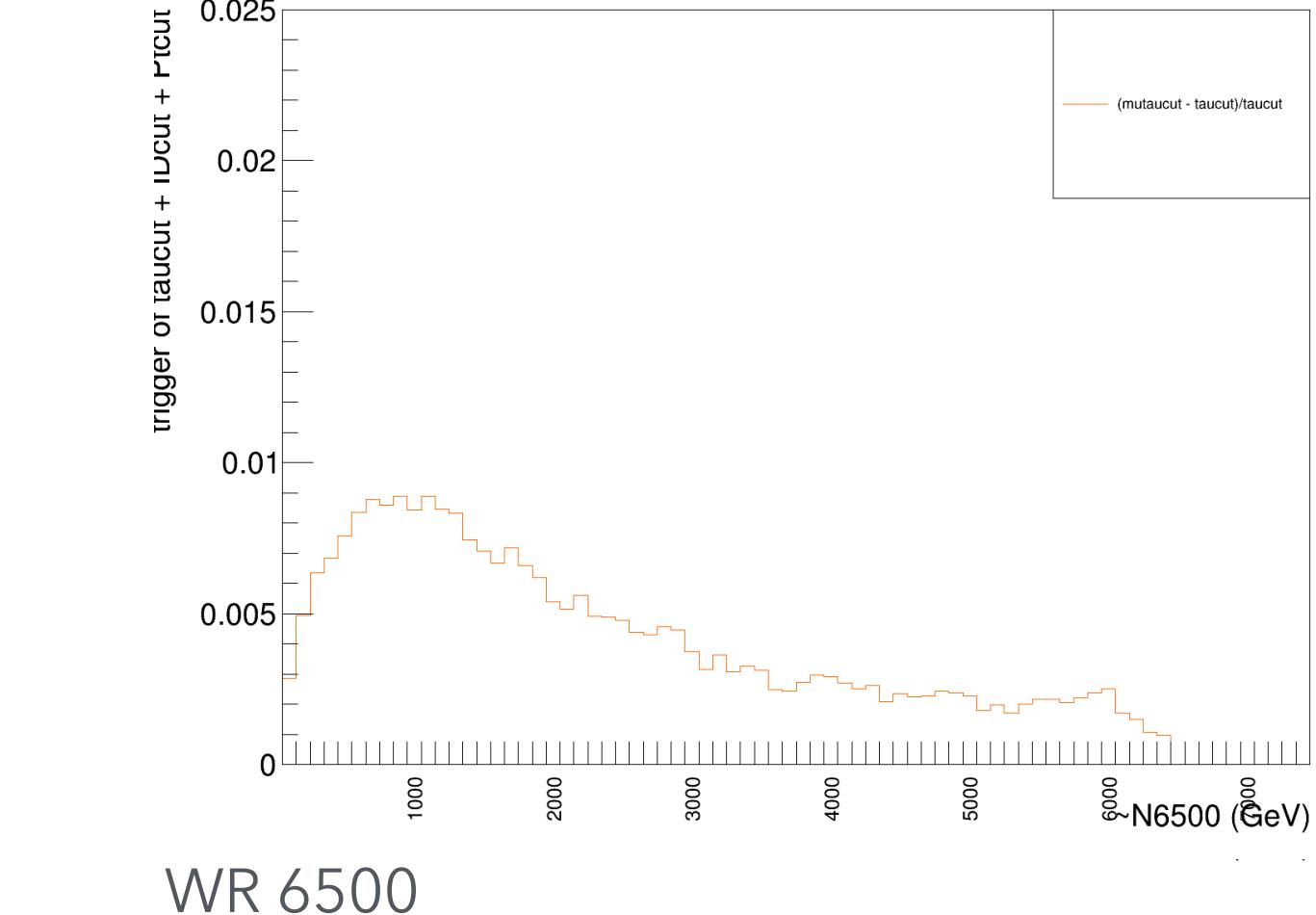
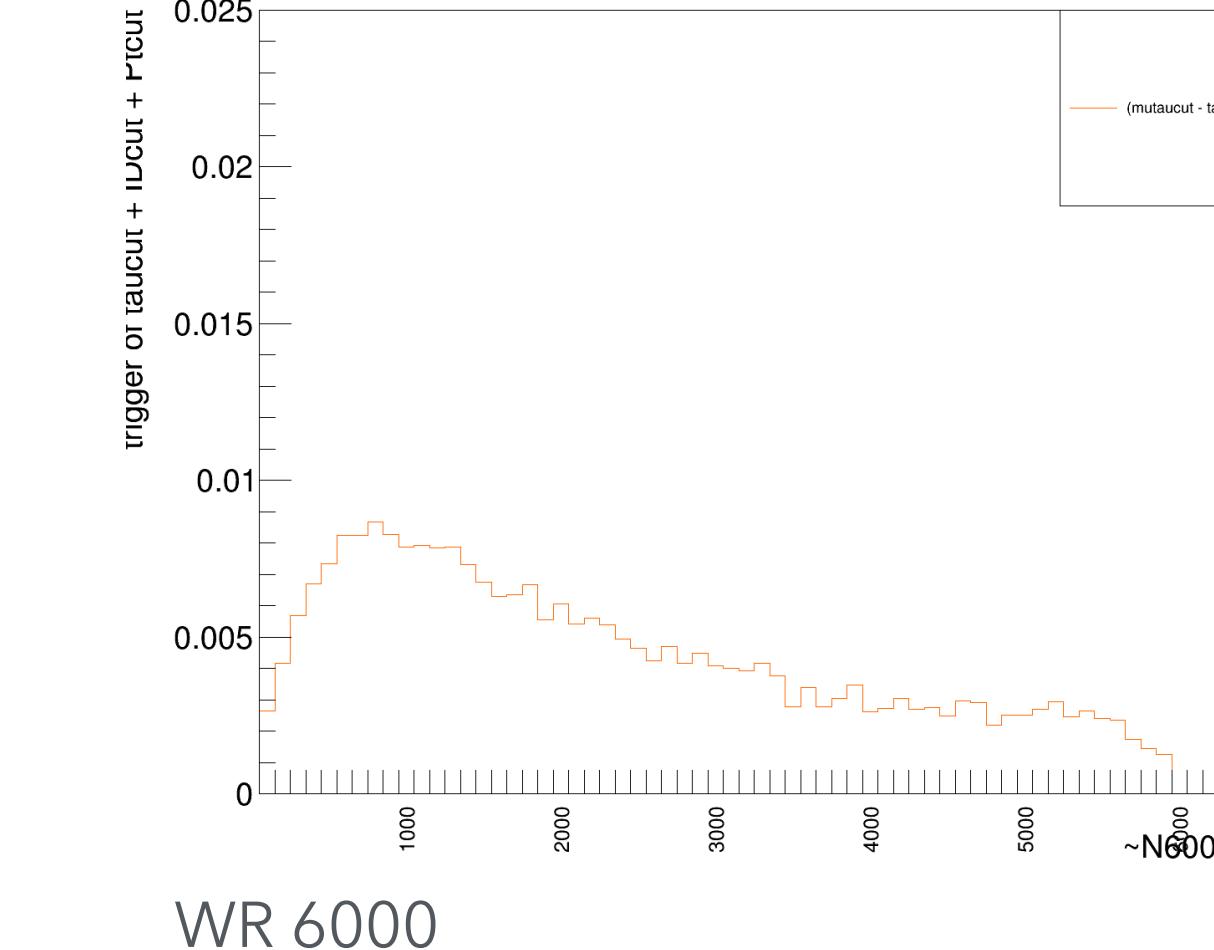
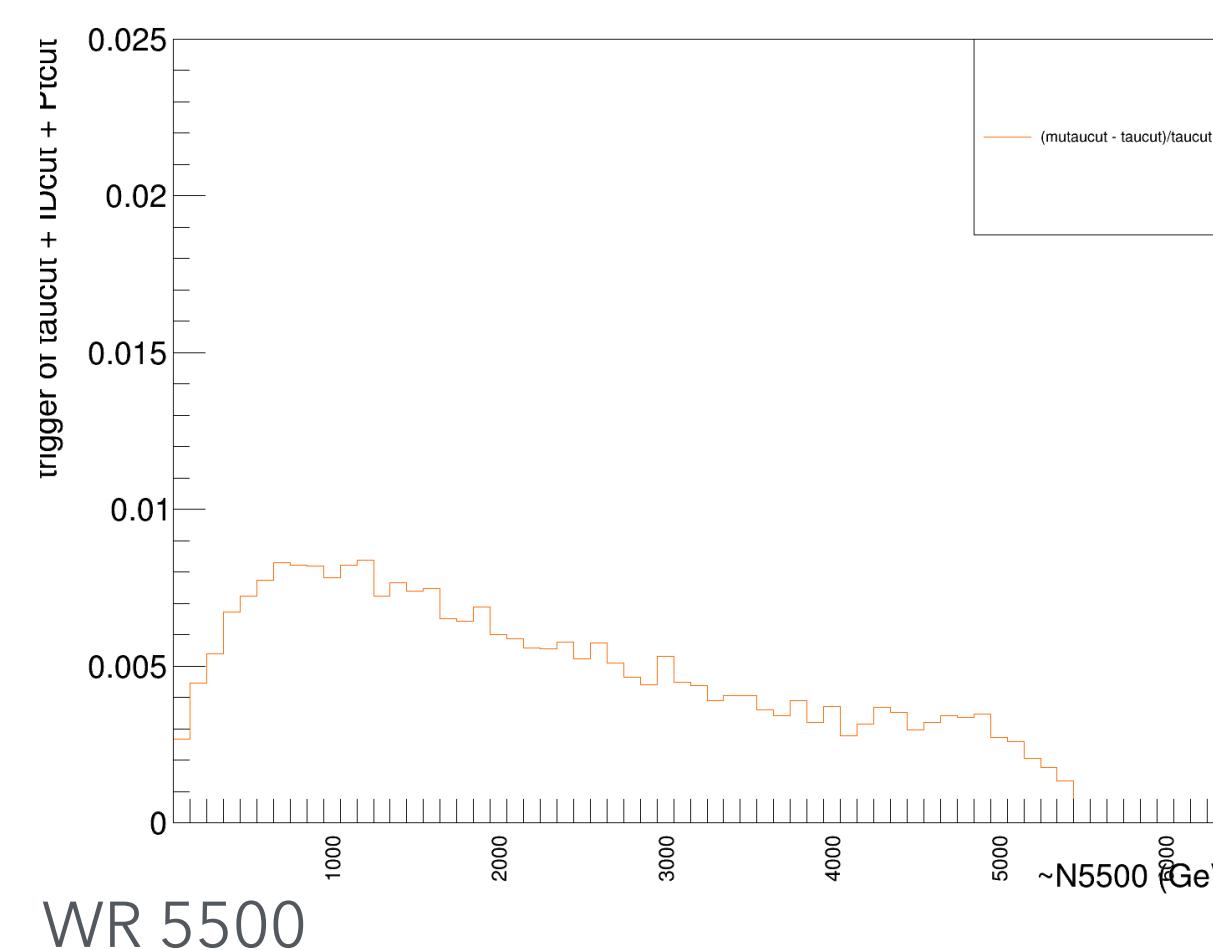
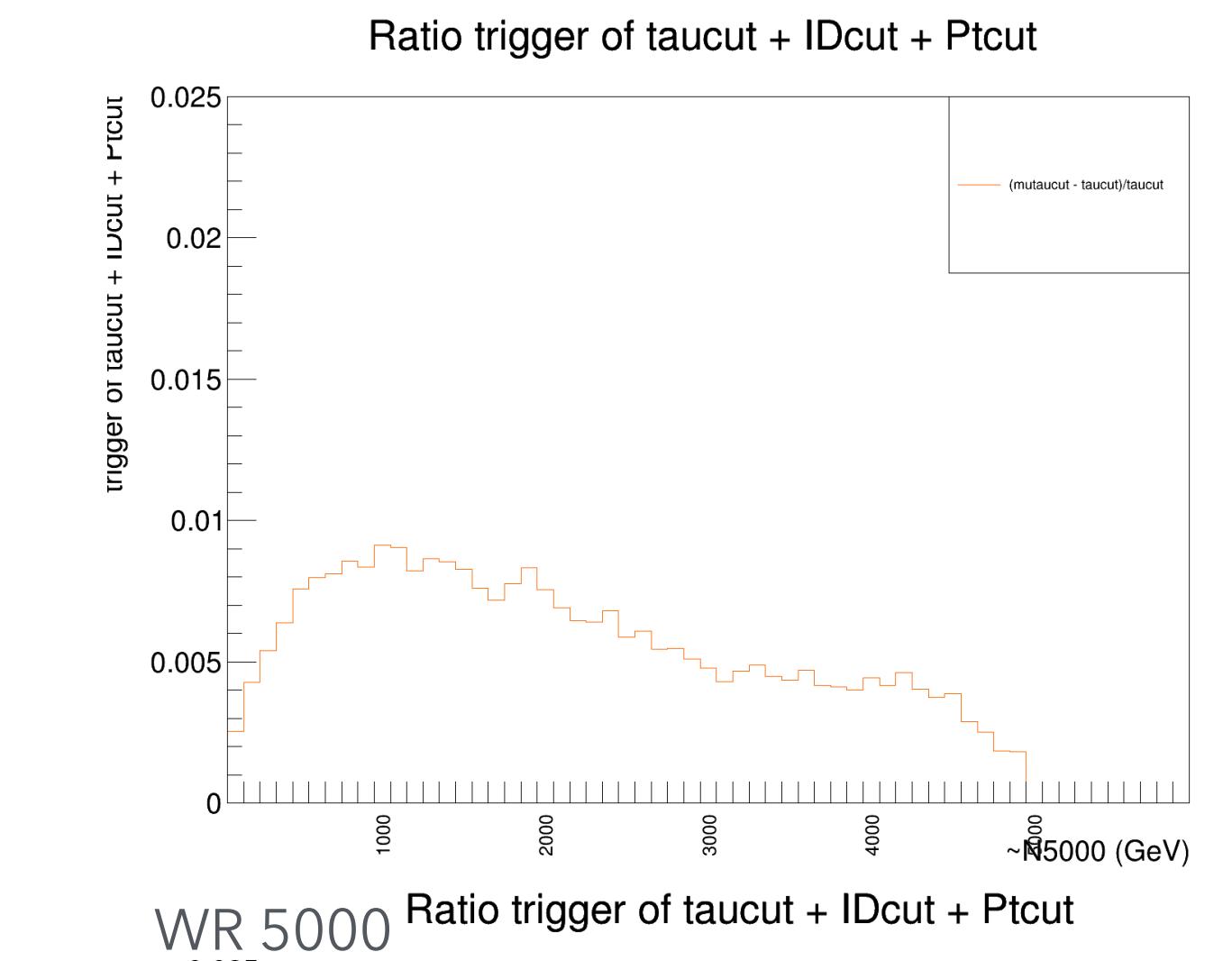
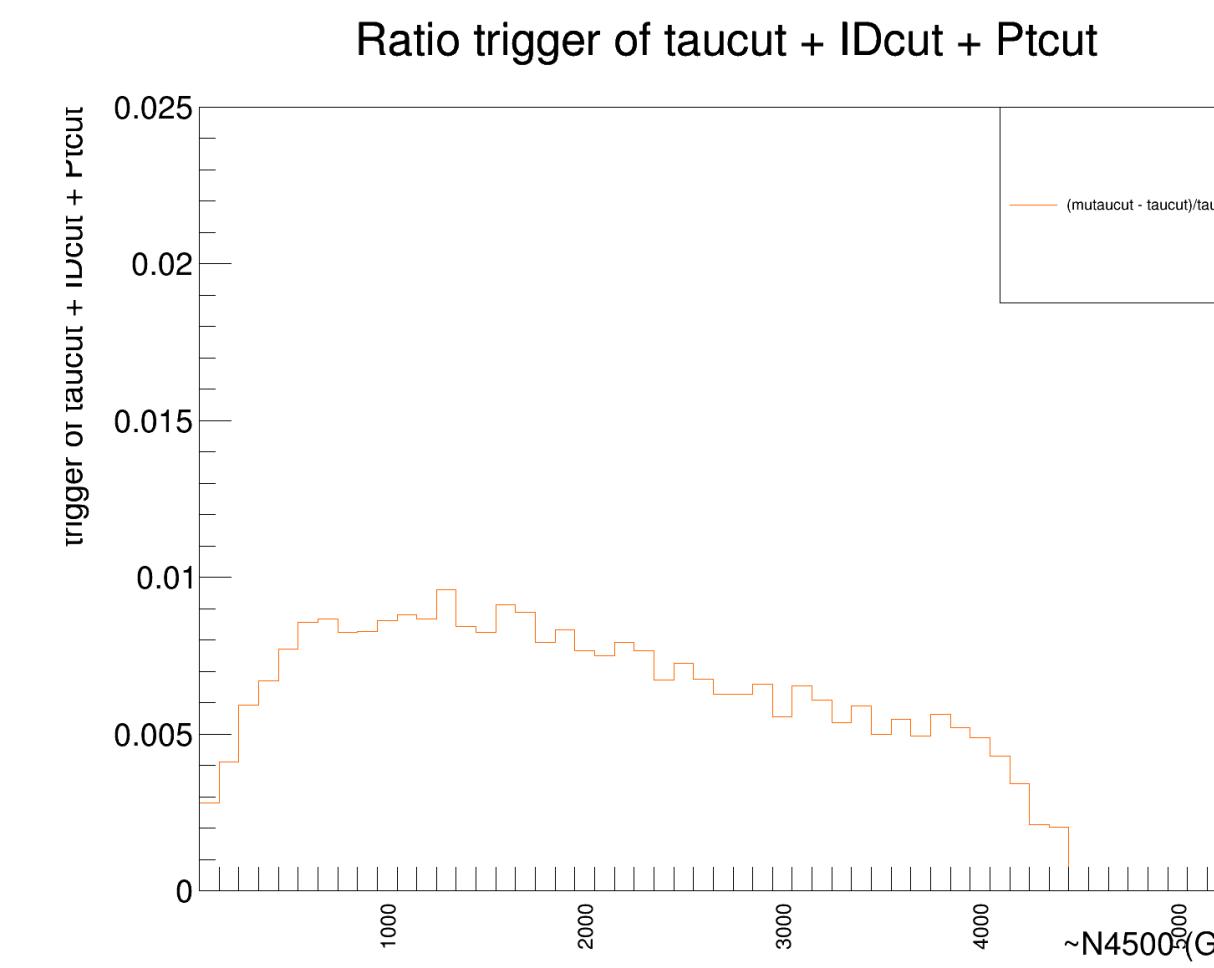
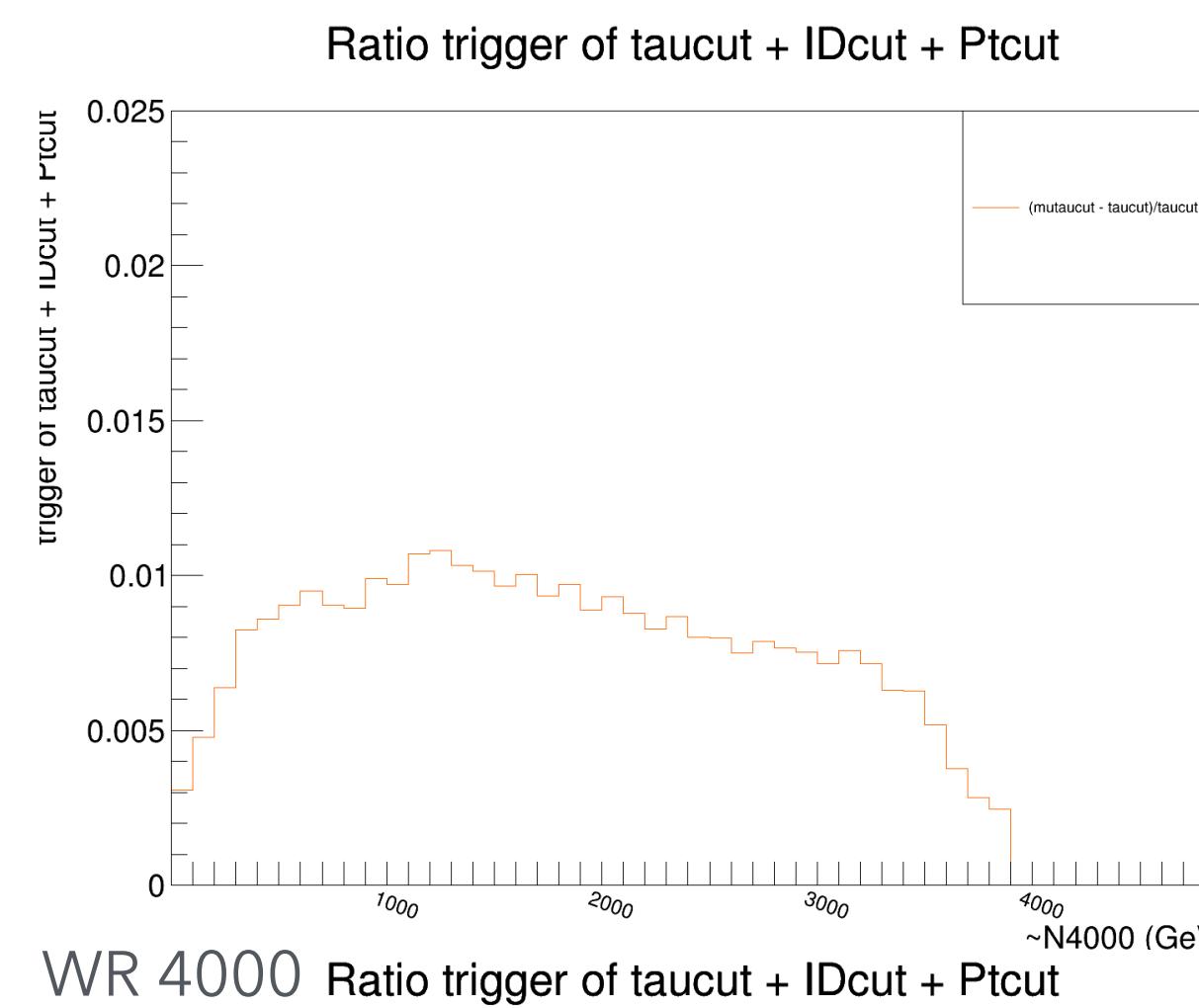


WR 3500

- W_R 1000~3500

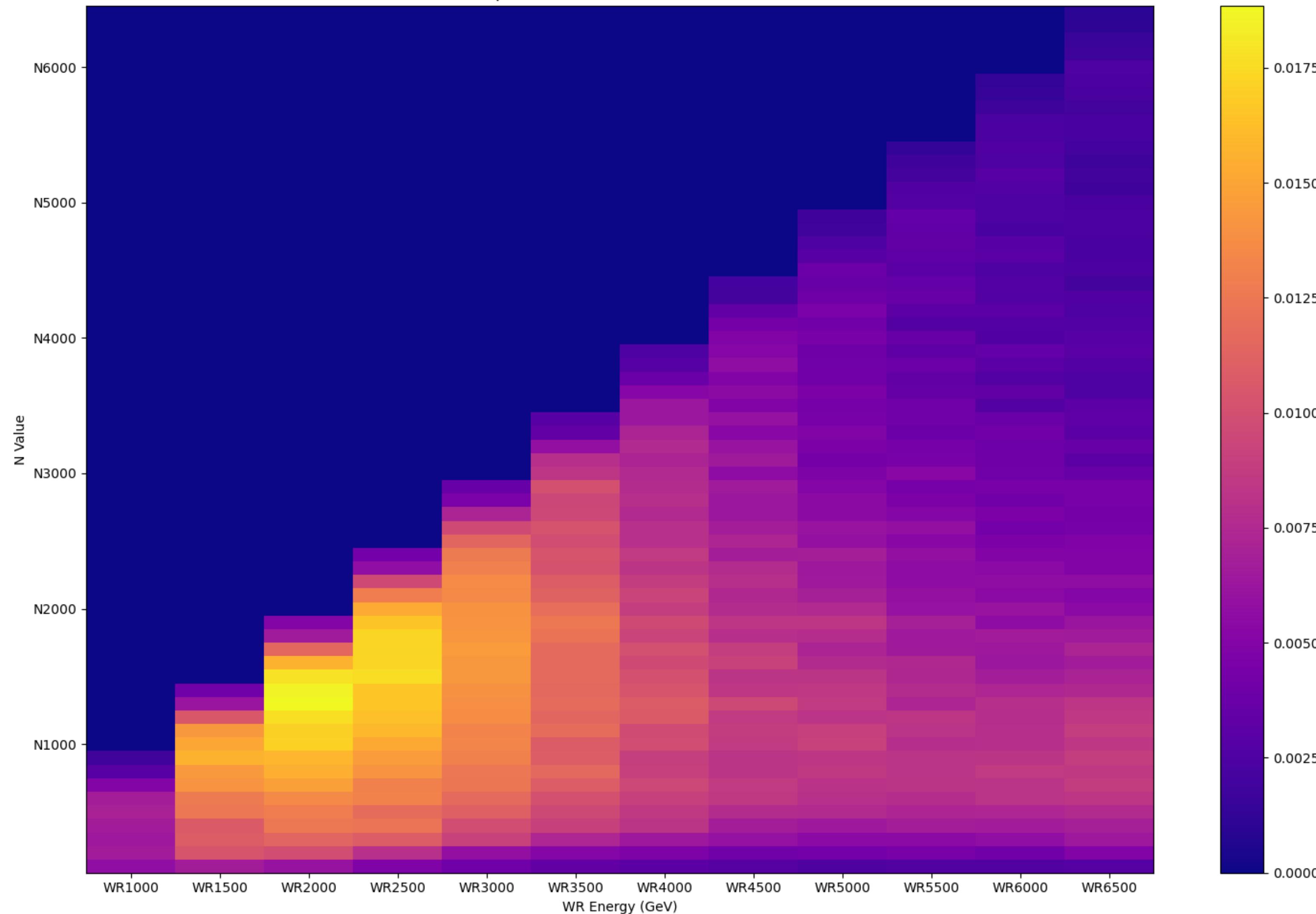
μ or τ trigger - τ trigger

(τ trigger & μ trigger - τ trigger)/ MET filter



- W_R 4000~6500

Heatmap of mu or taucut Ratios - taucutratio

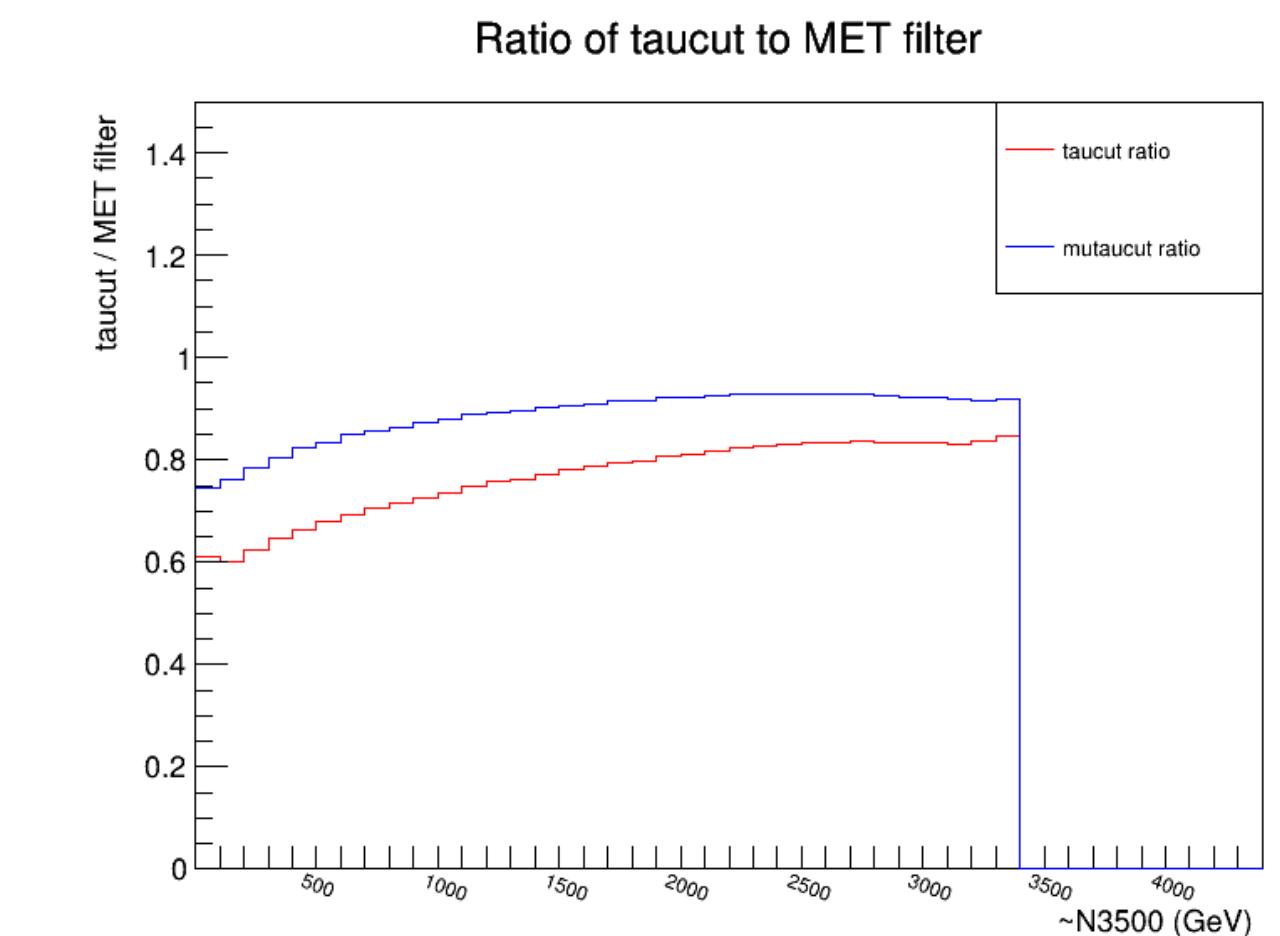
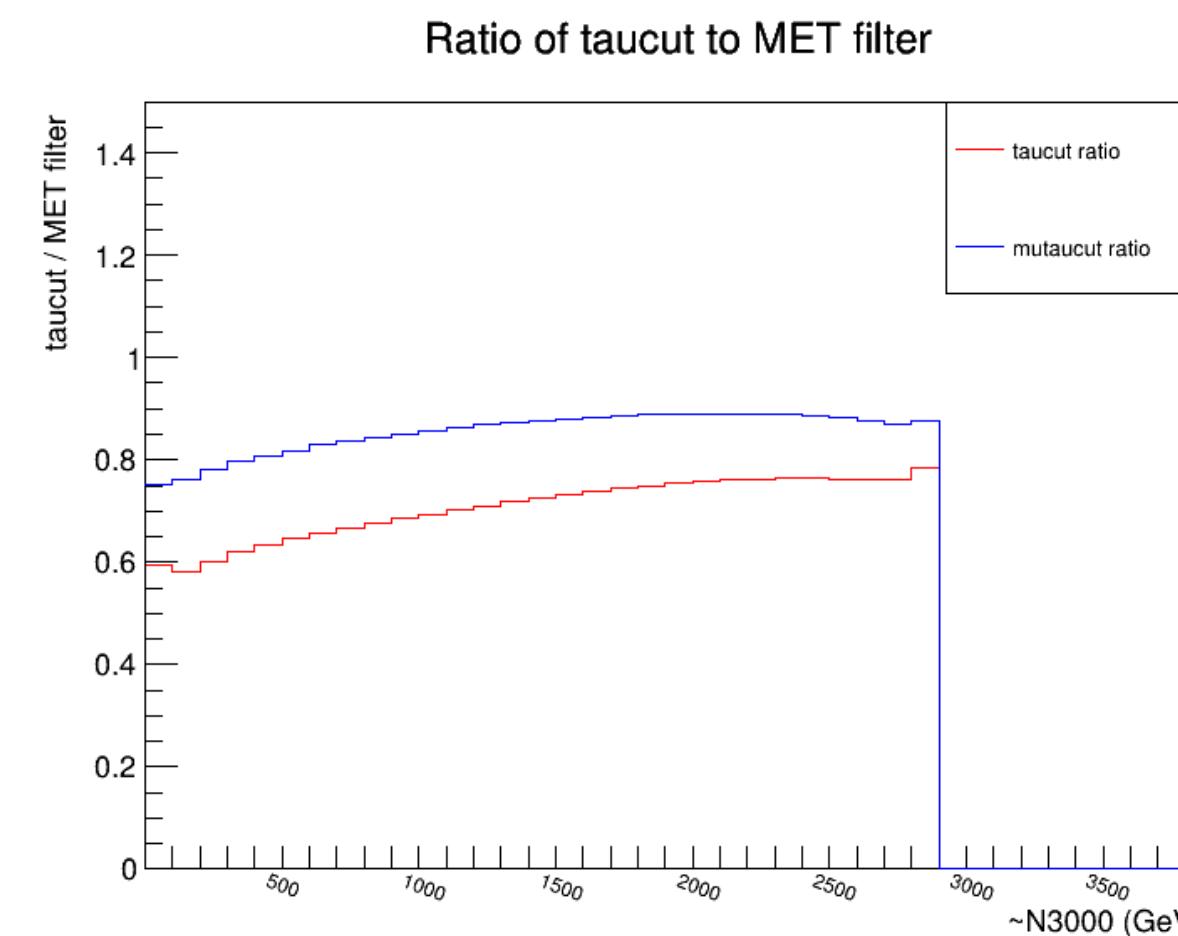
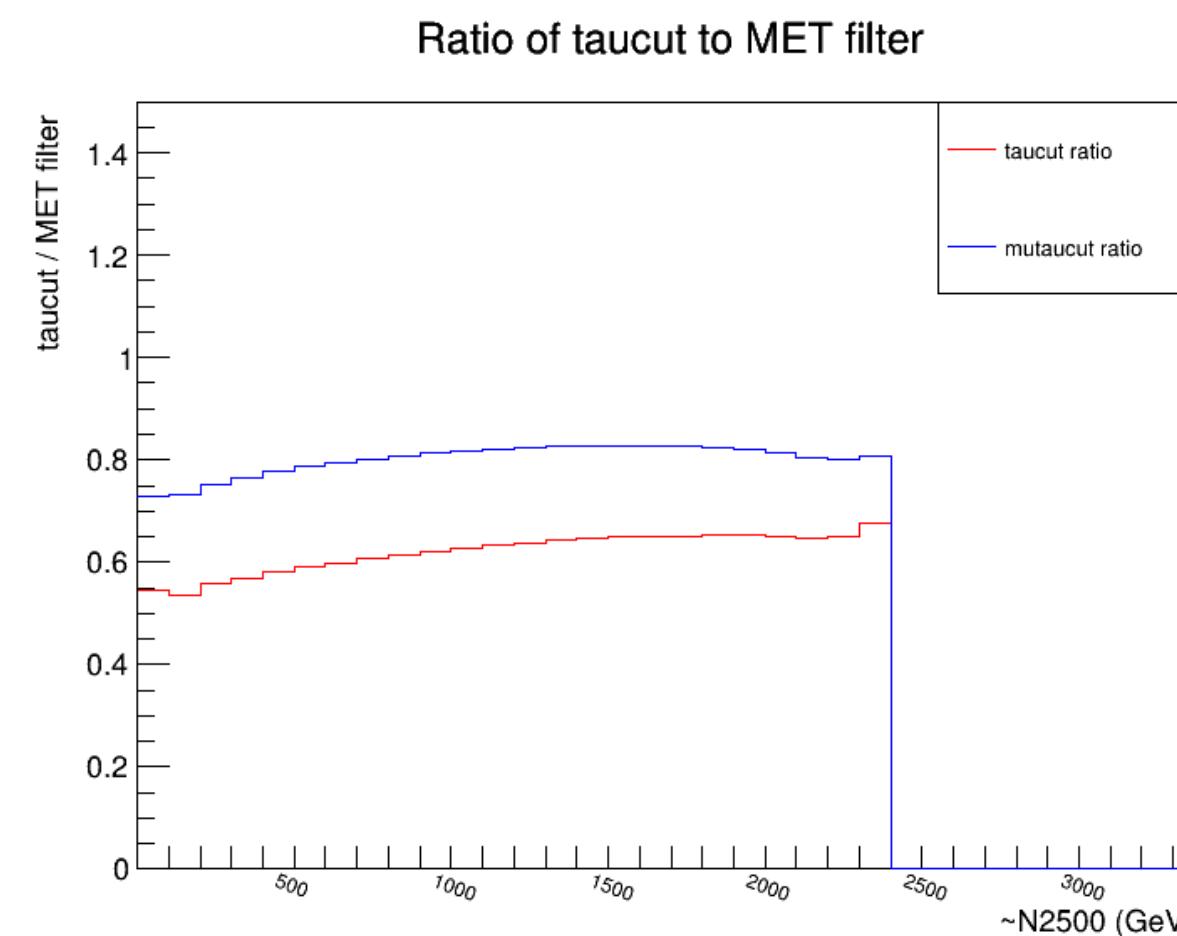
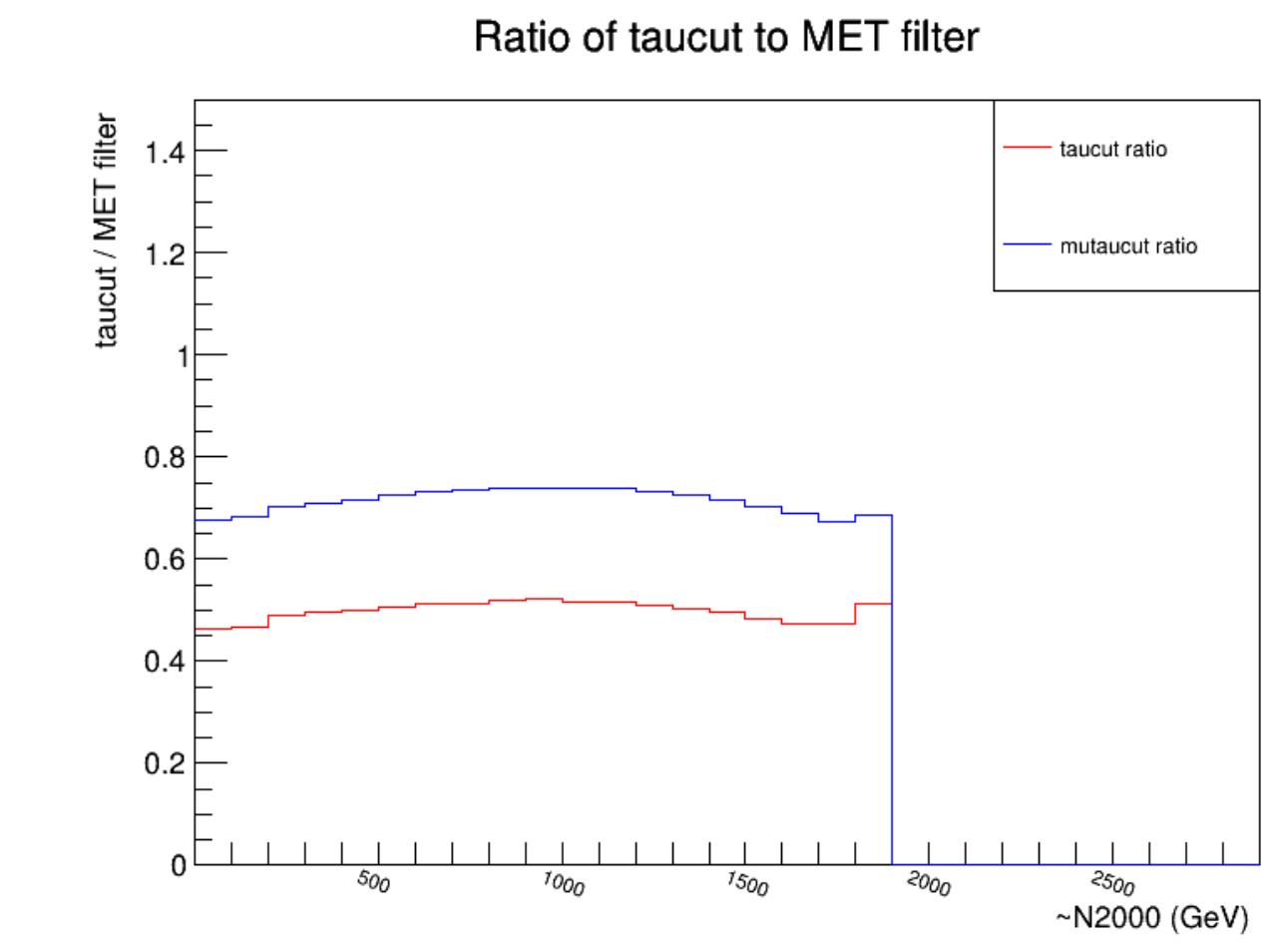
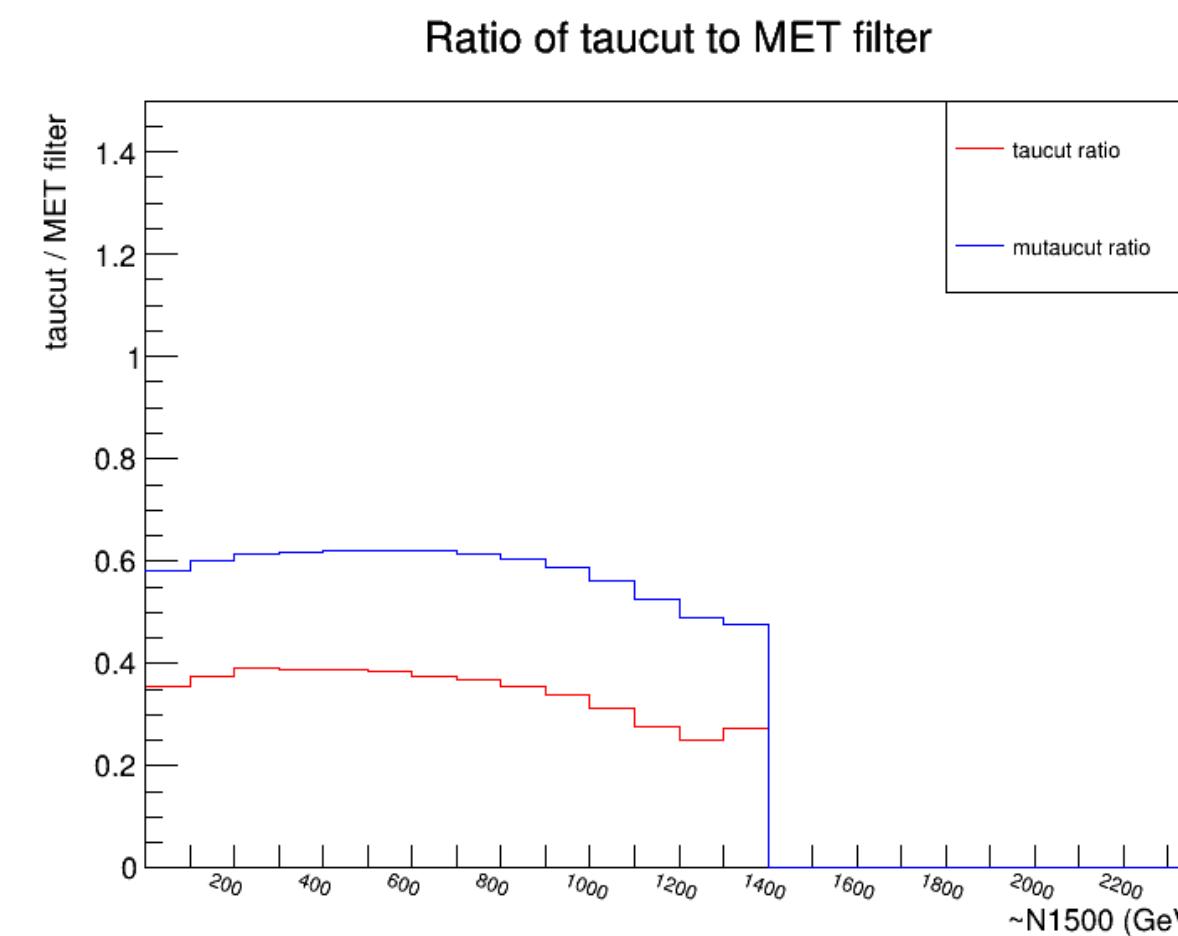
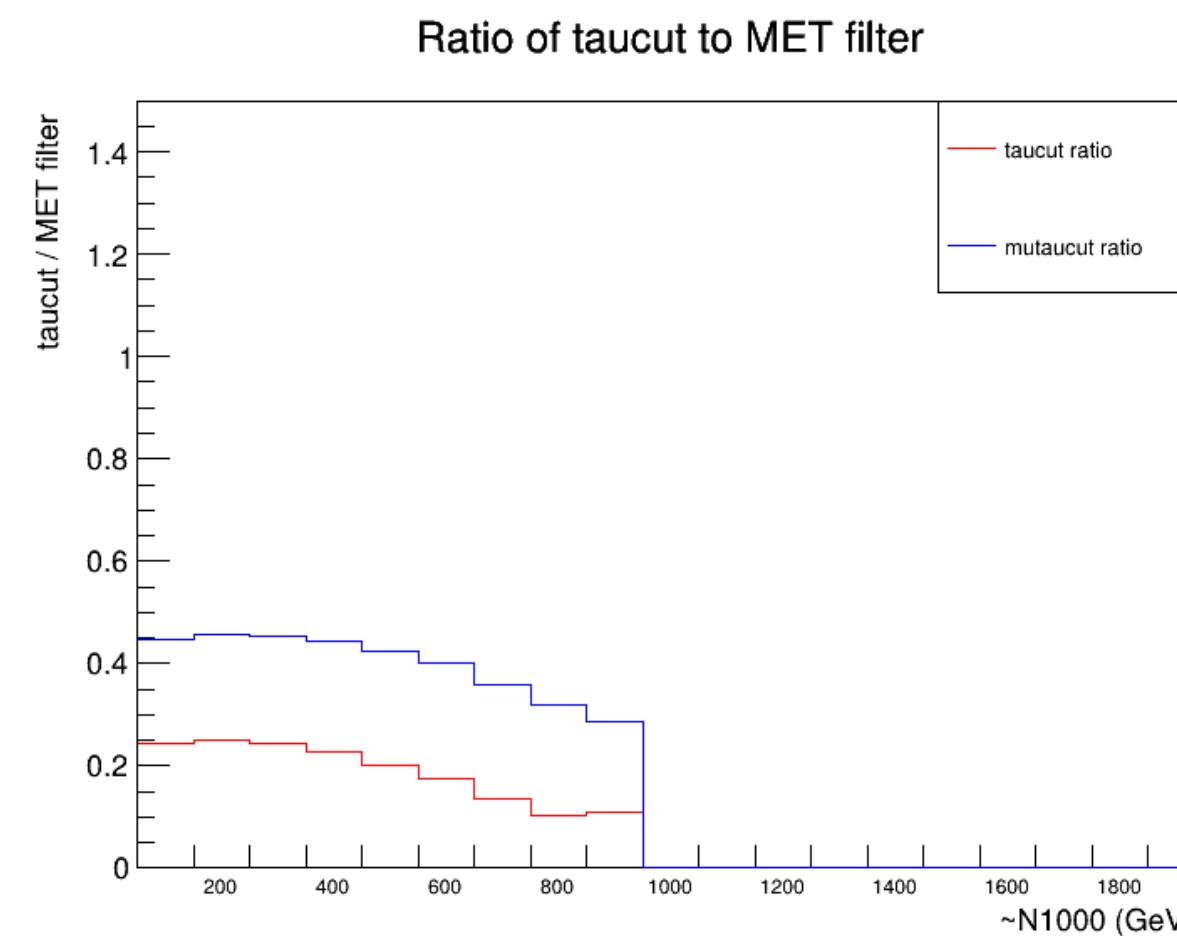


$(\tau \text{ trigger} \& \mu \text{trigger} - \tau \text{ trigger}) / \text{MET filter}$

Backup

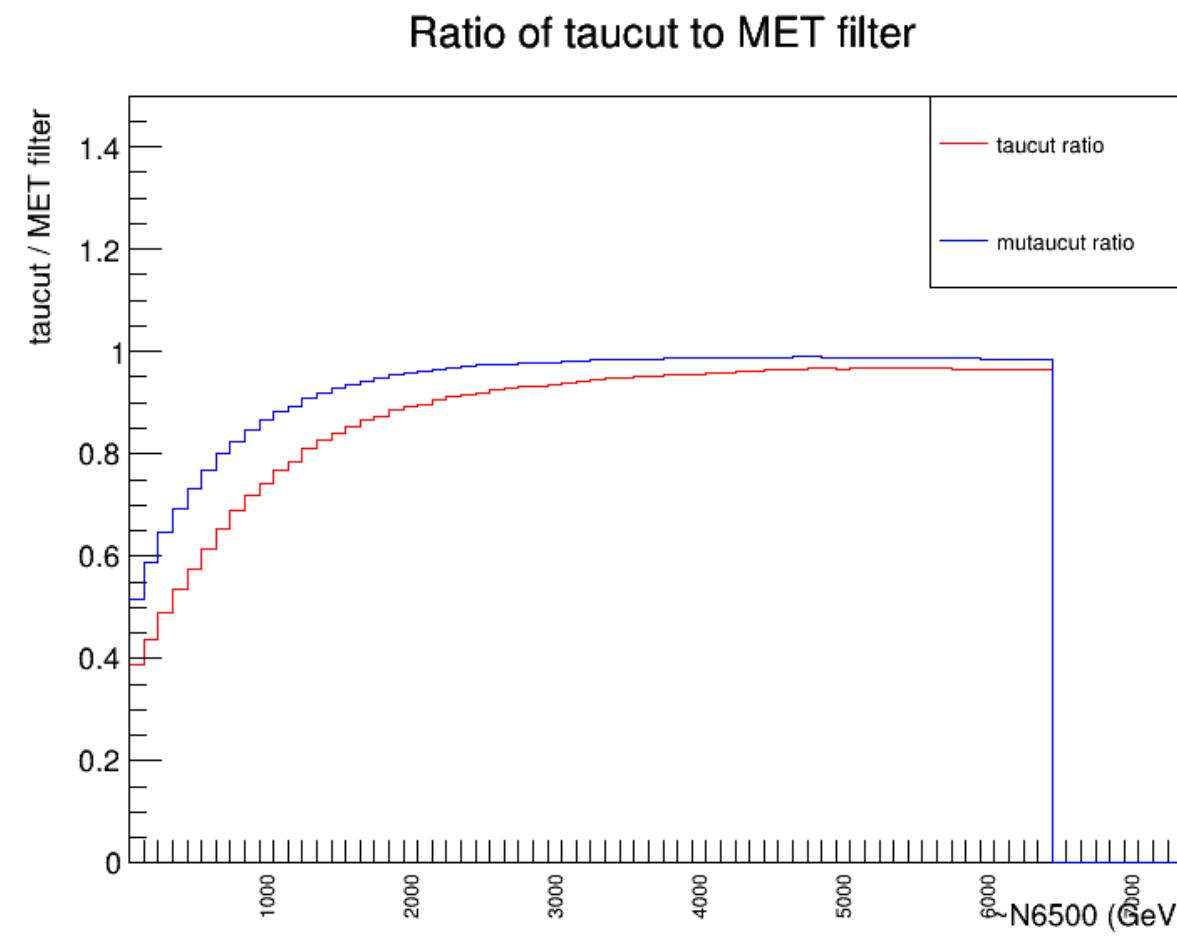
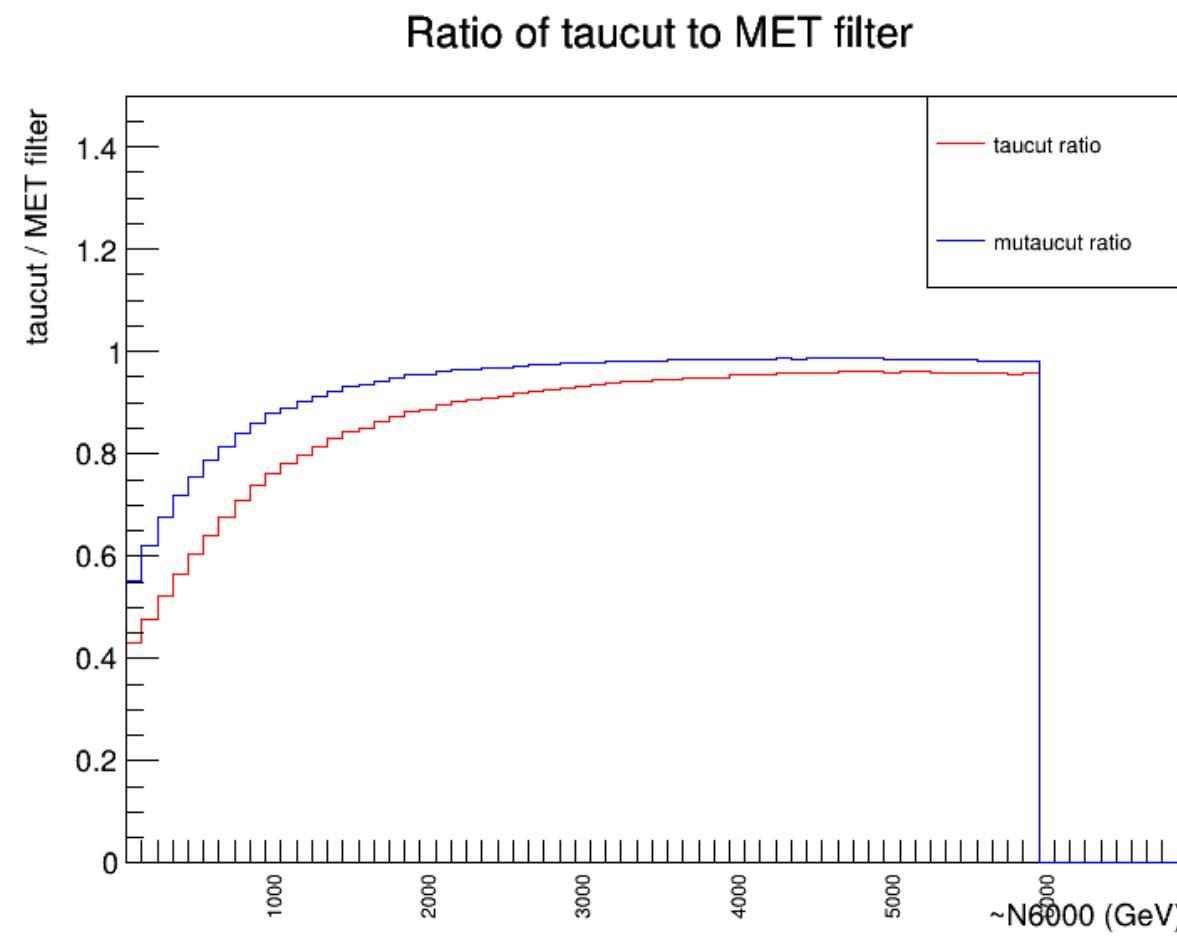
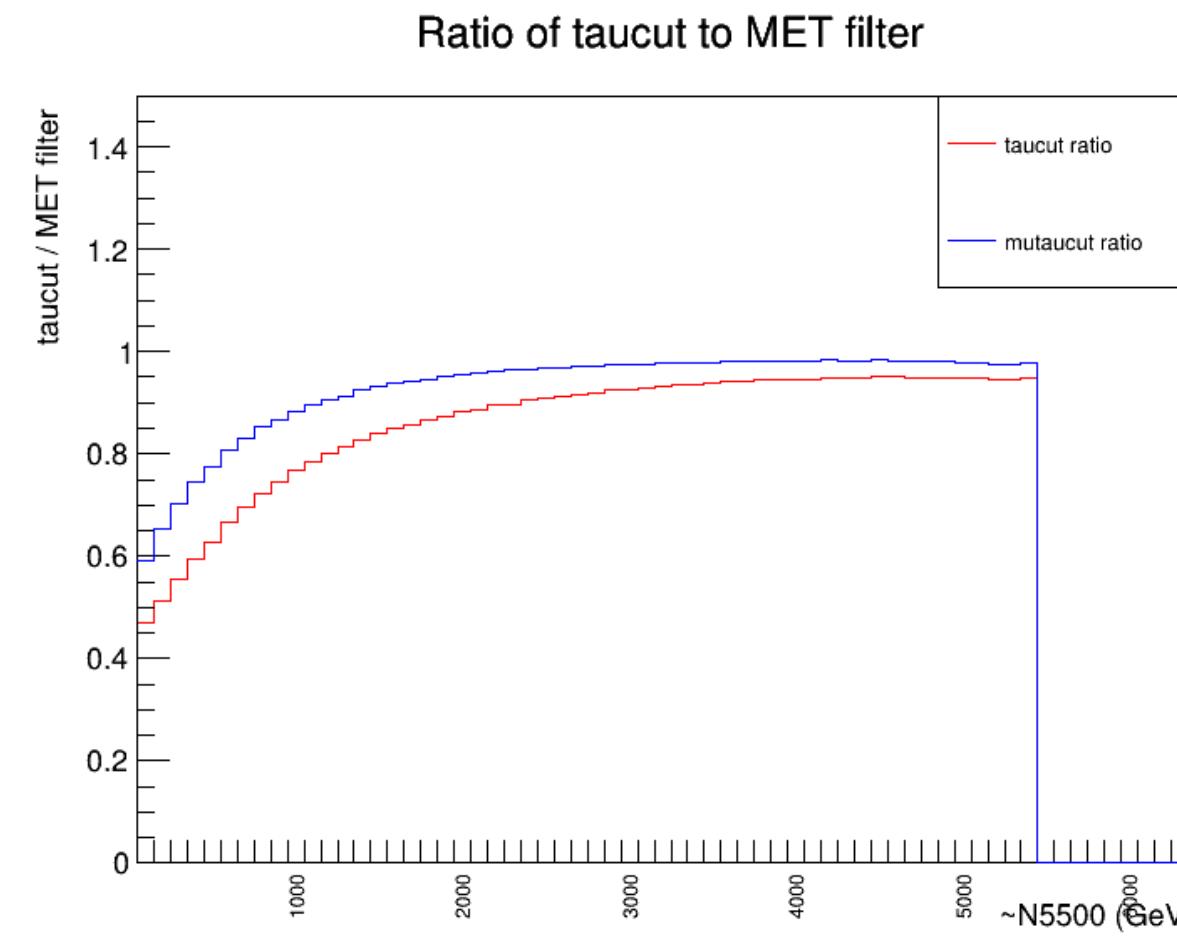
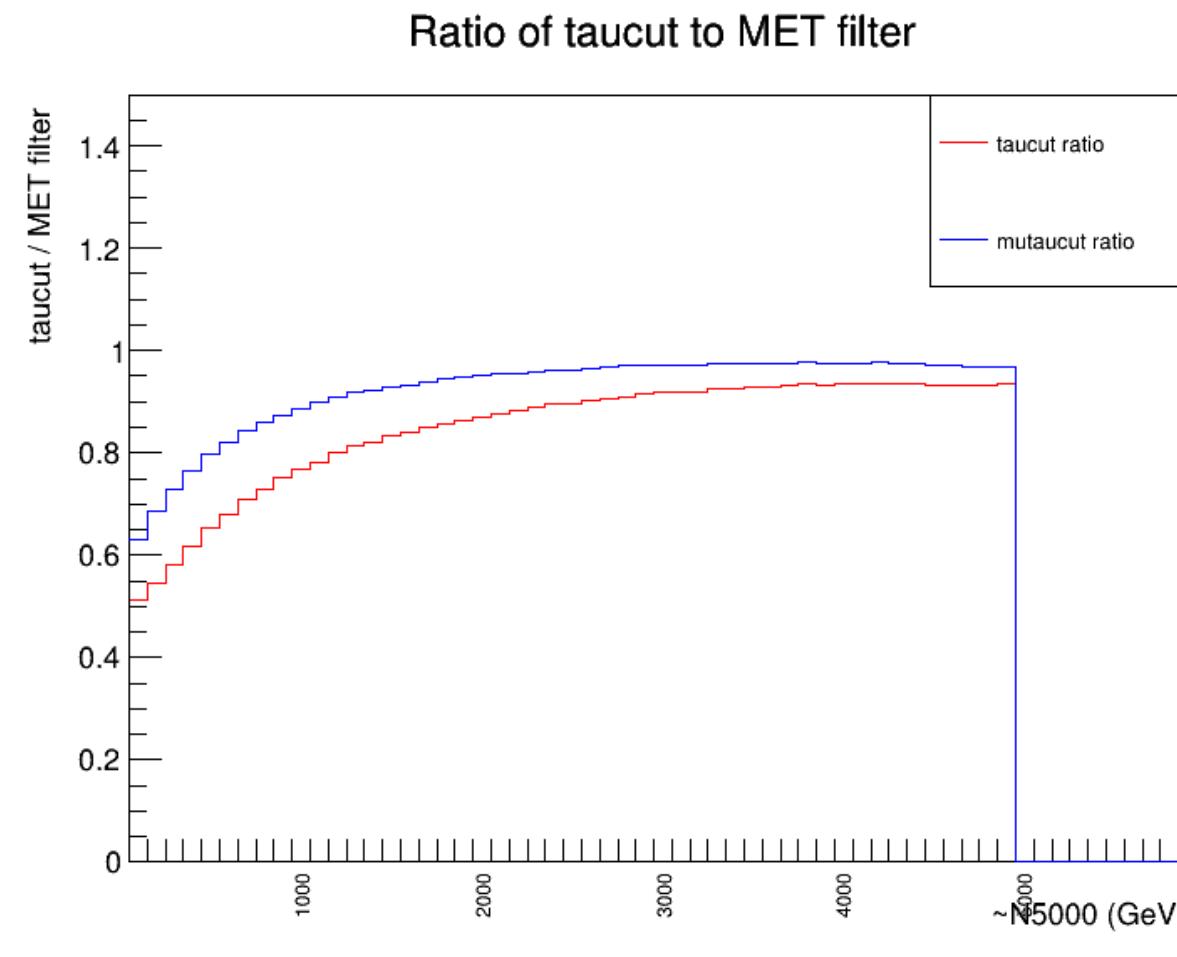
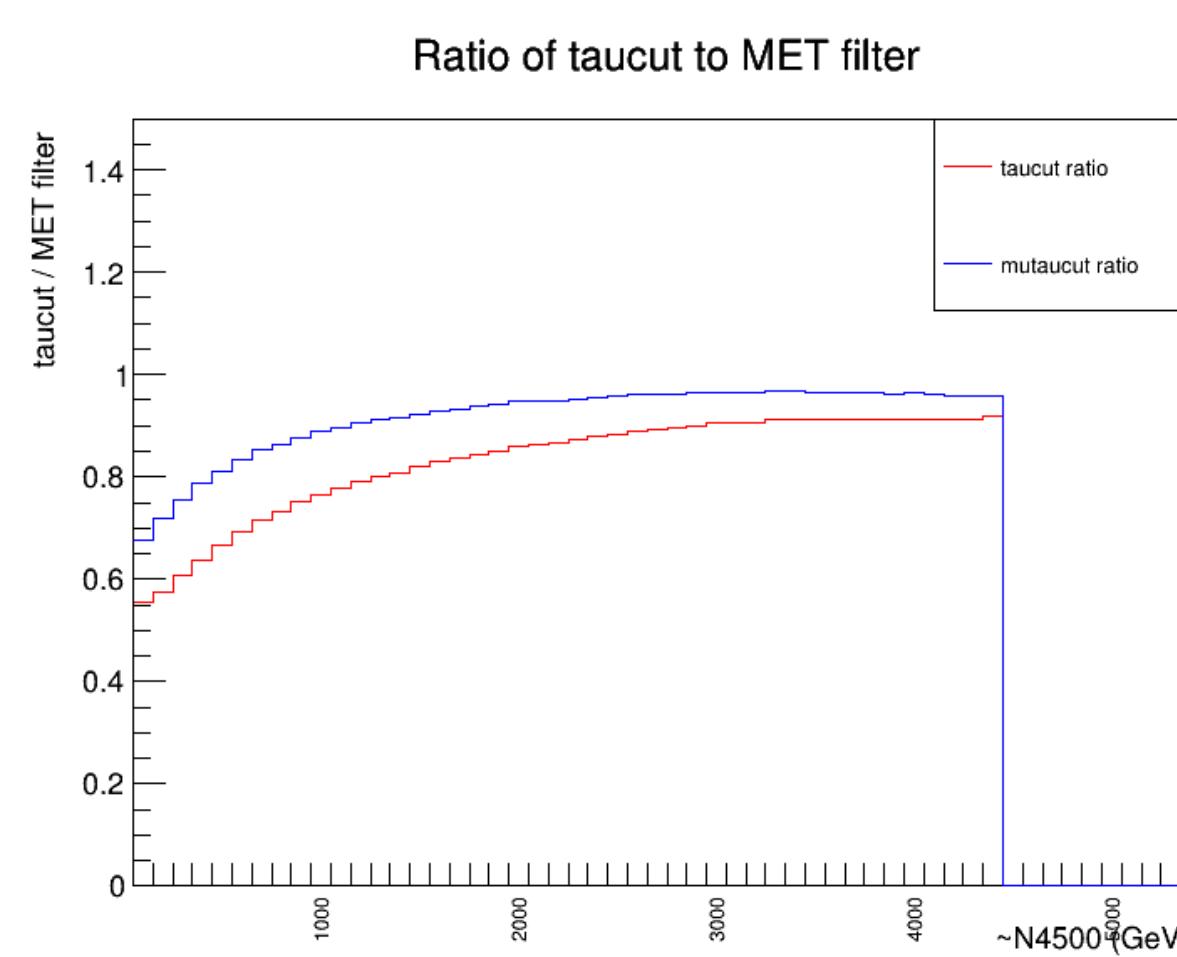
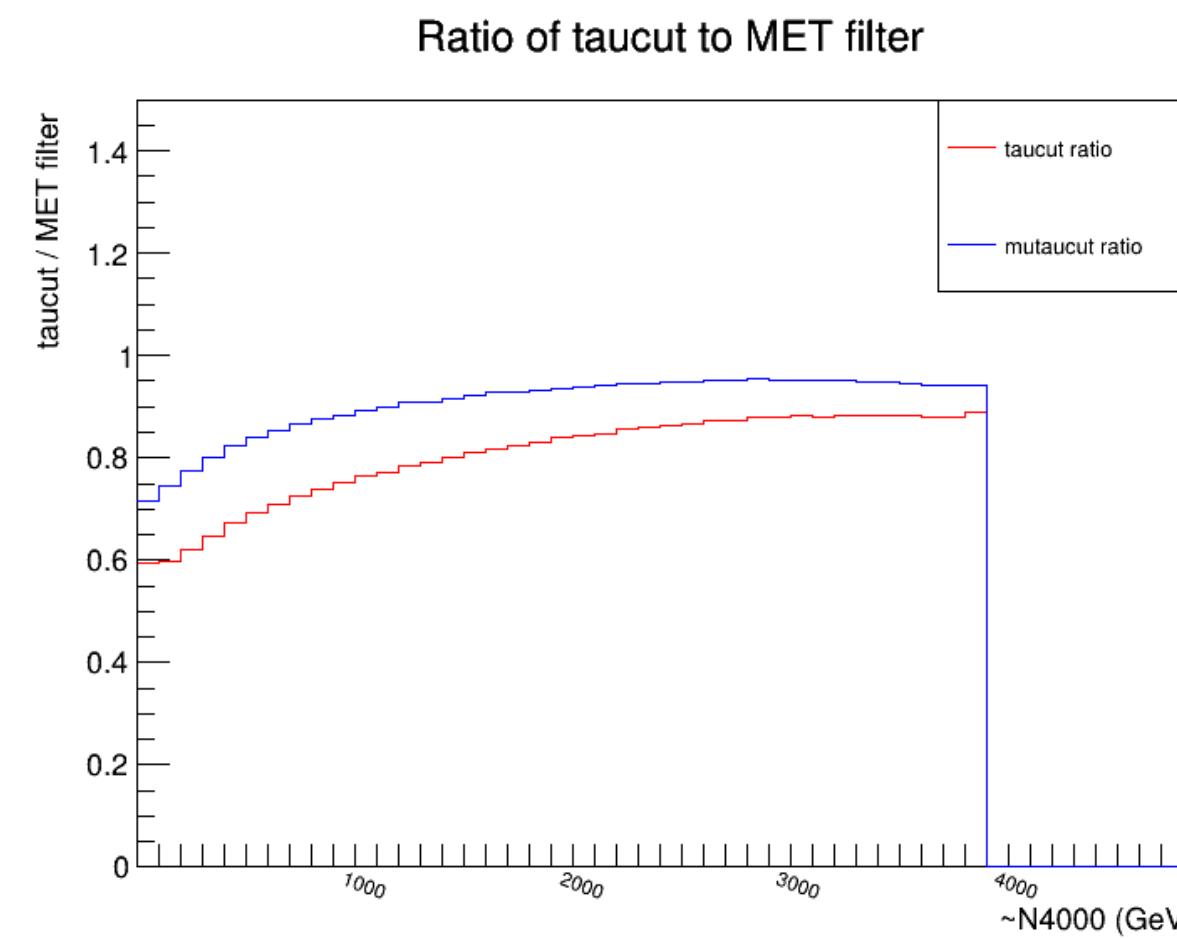
Only trigger & τ ID cut & P_T cut

μ or τ trigger & τ trigger



- W_R 1000 ~ 3500

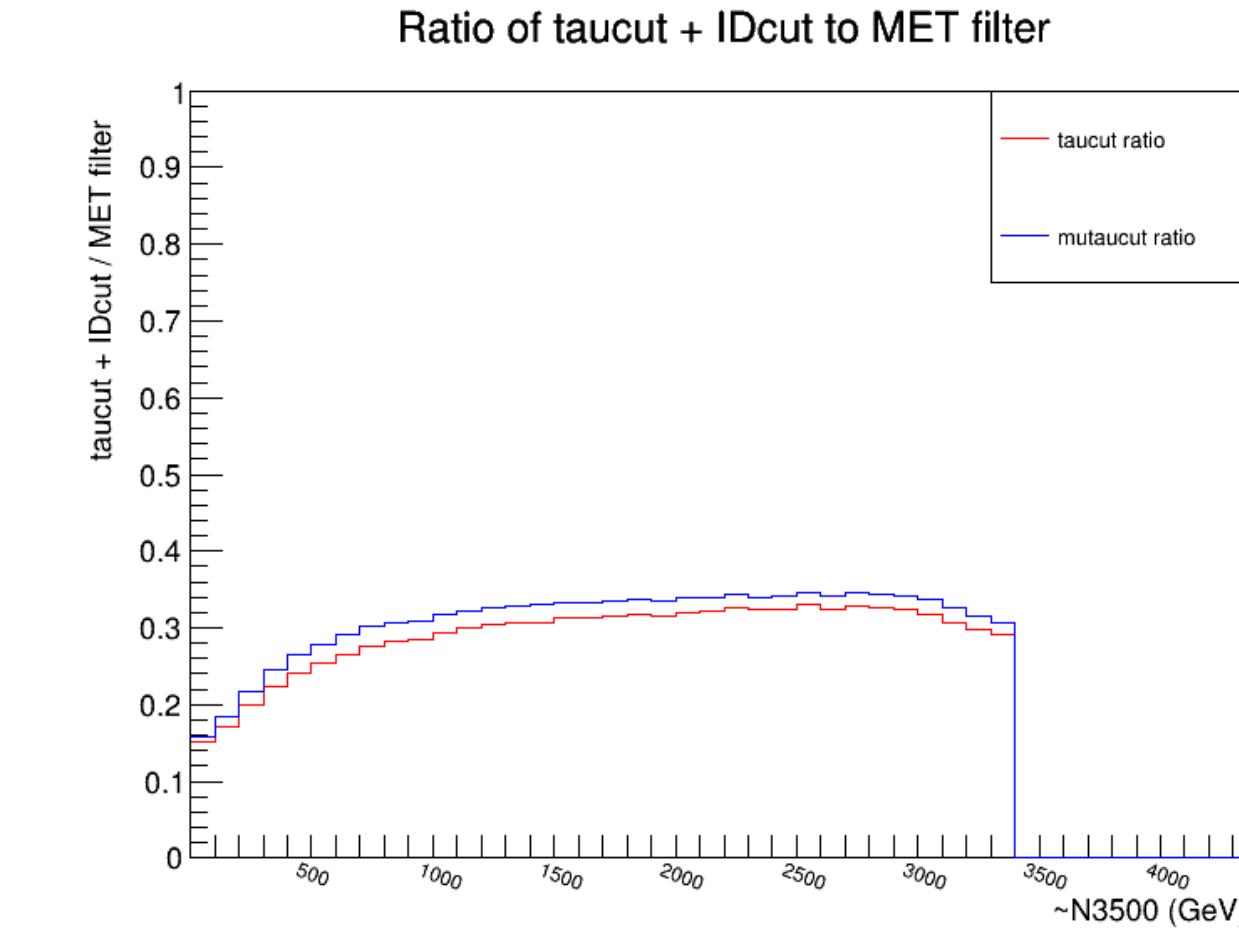
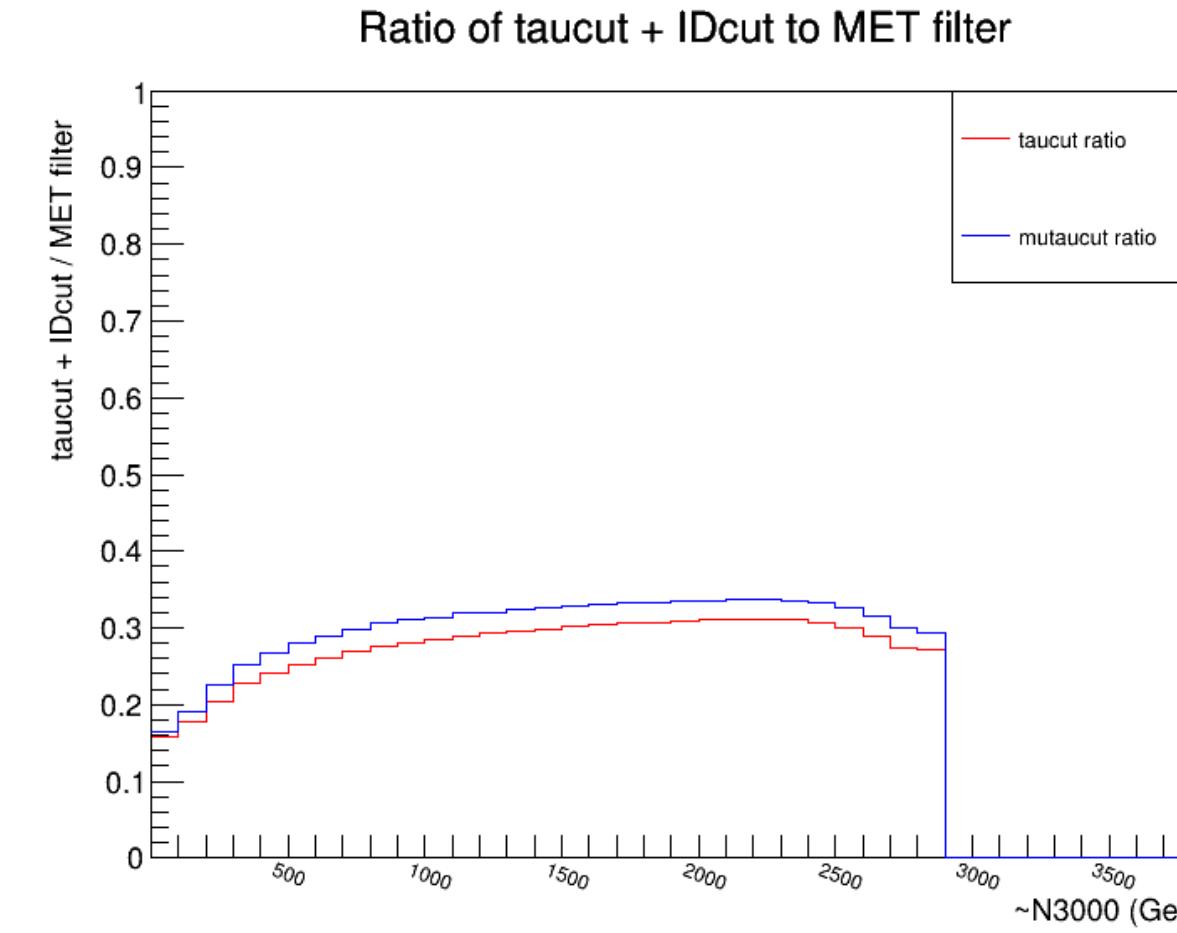
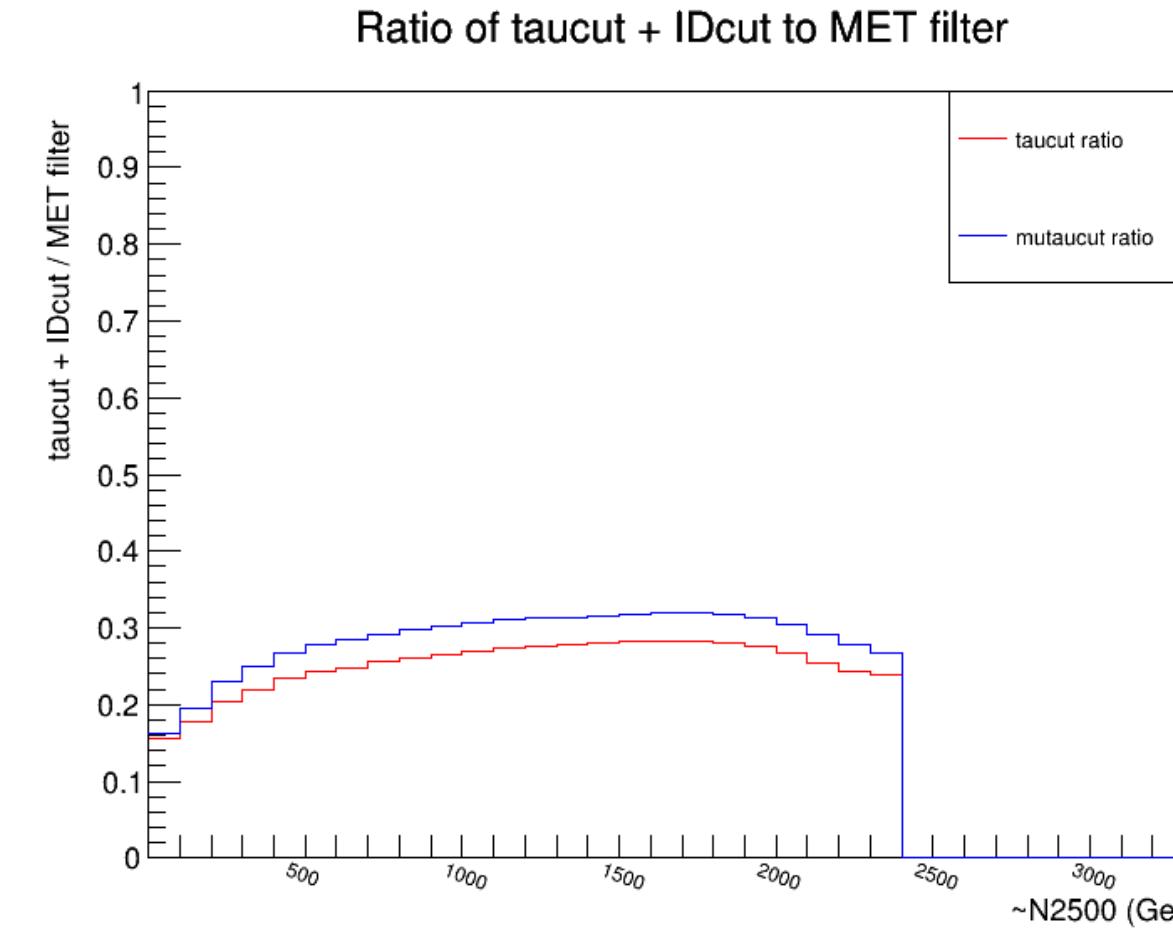
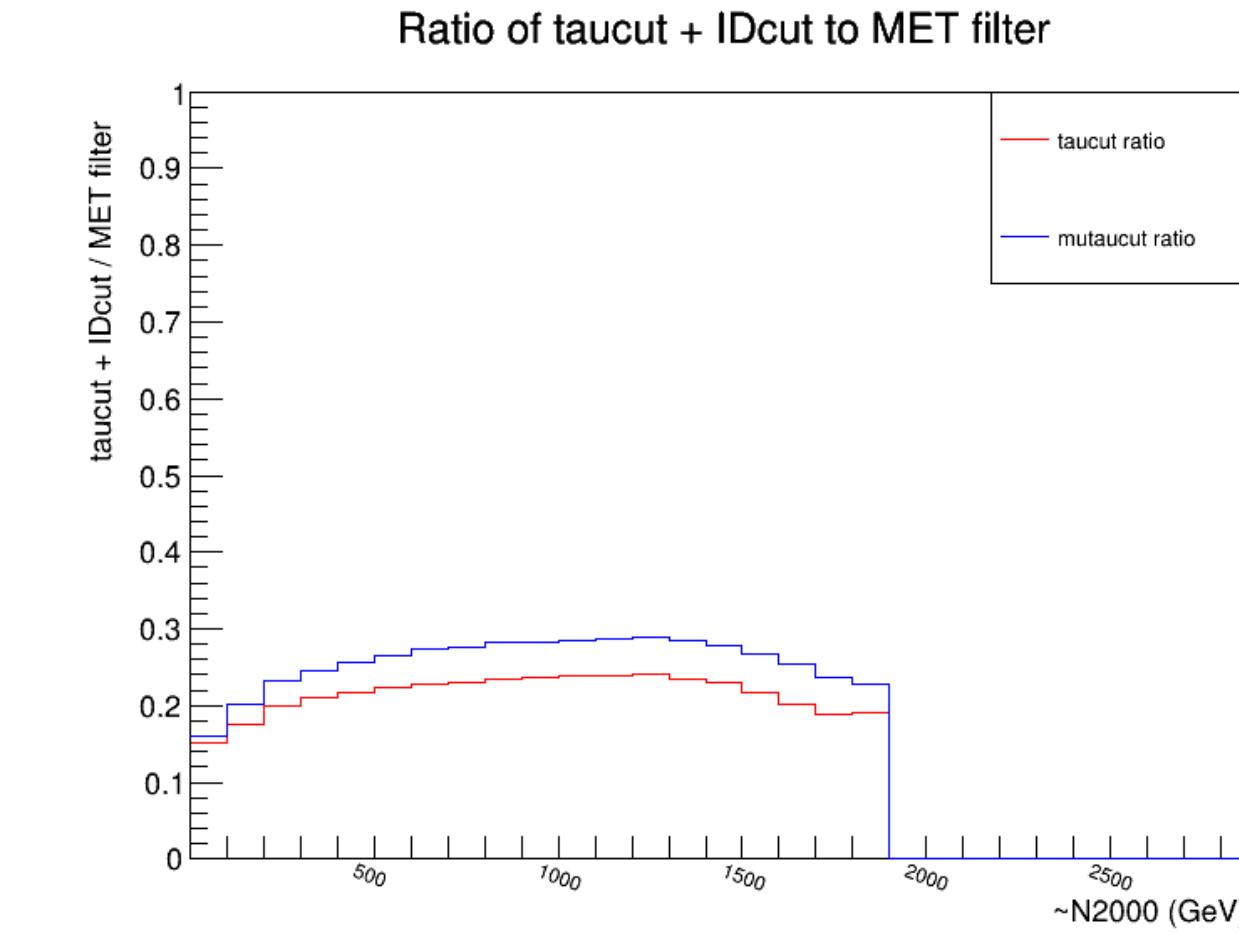
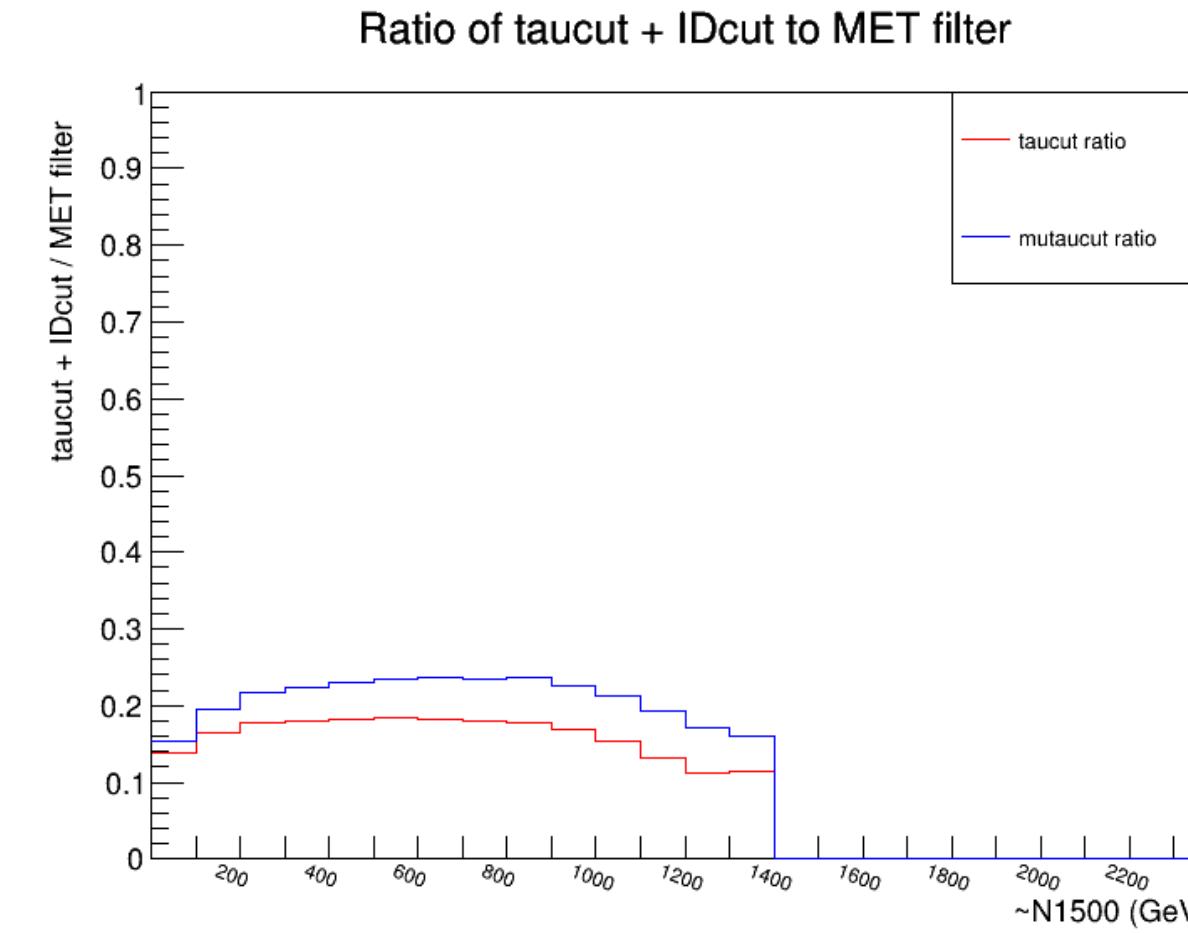
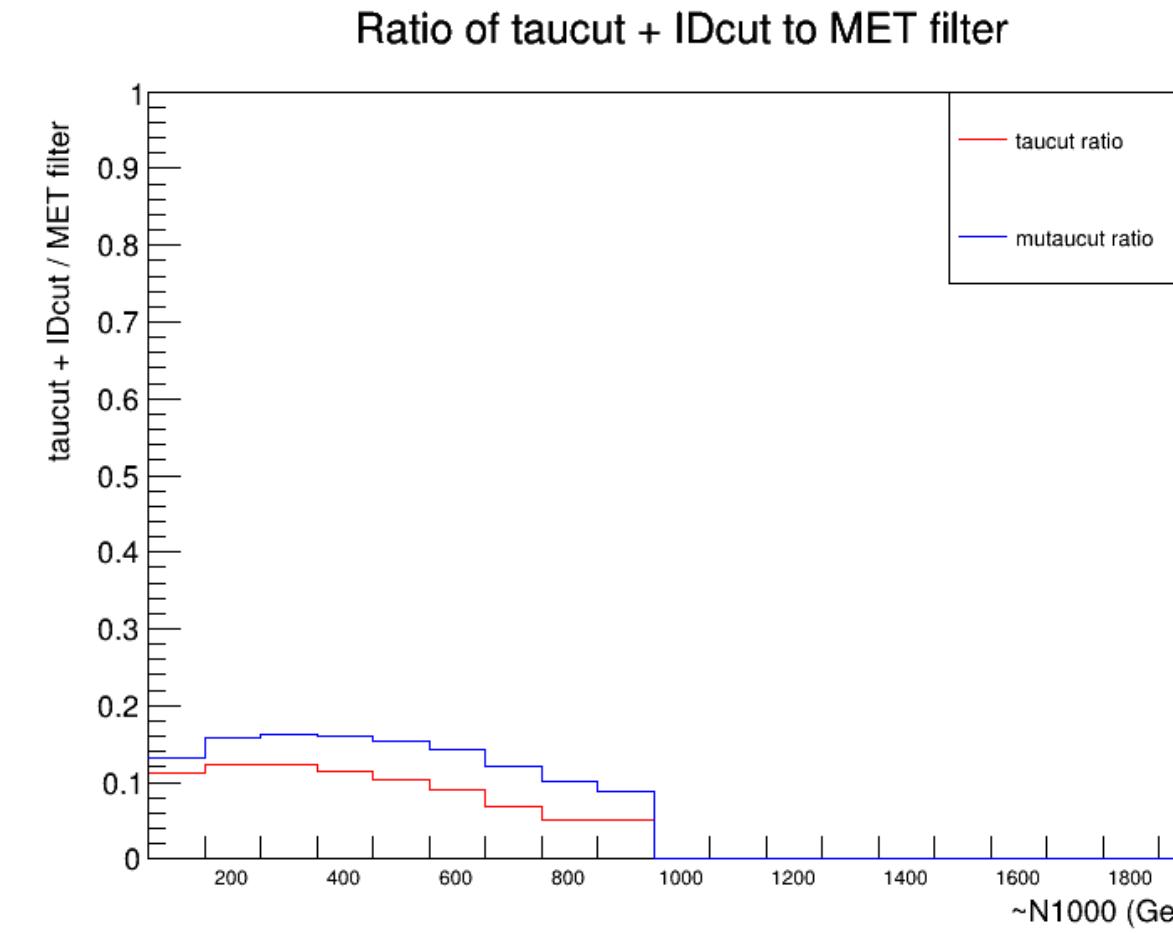
μ or τ trigger & τ trigger



- W_R 4000 ~ 6500

τ ID

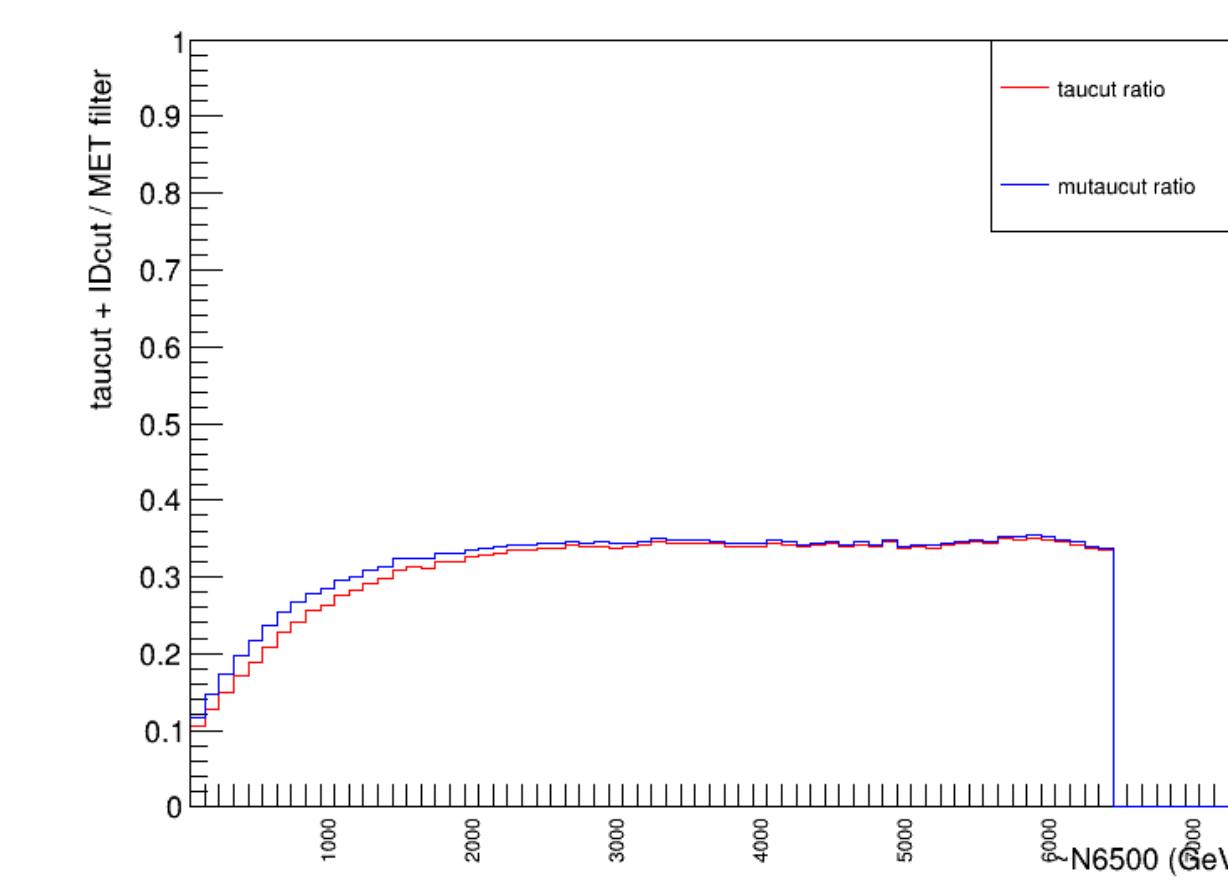
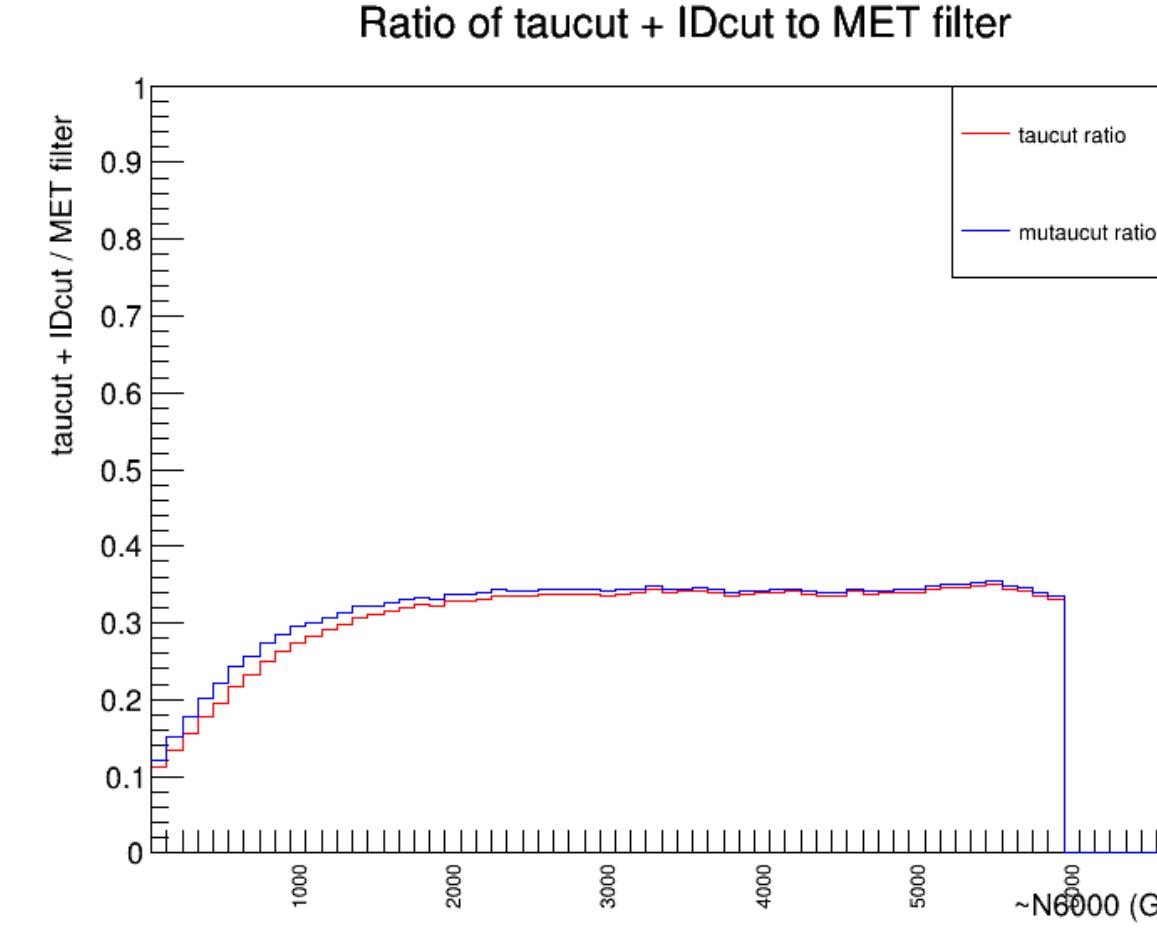
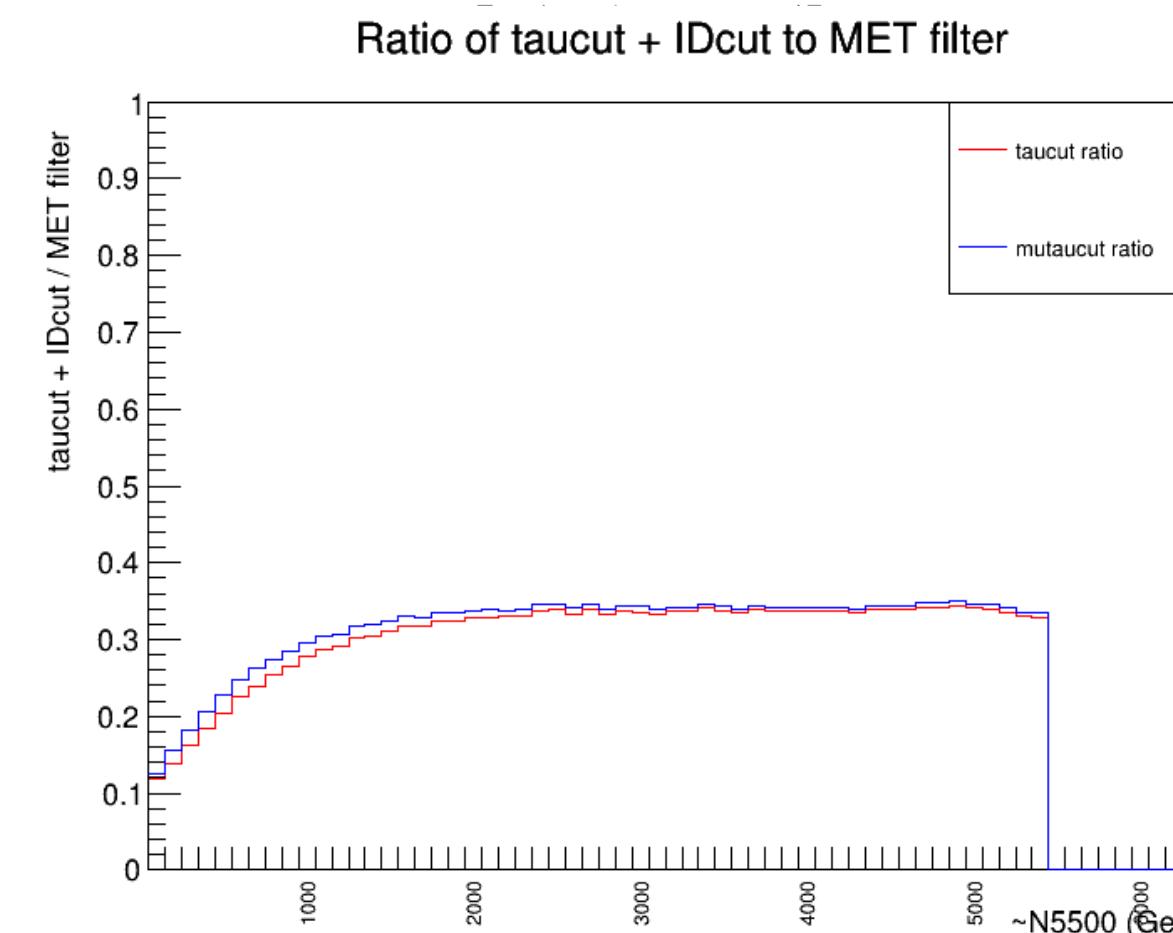
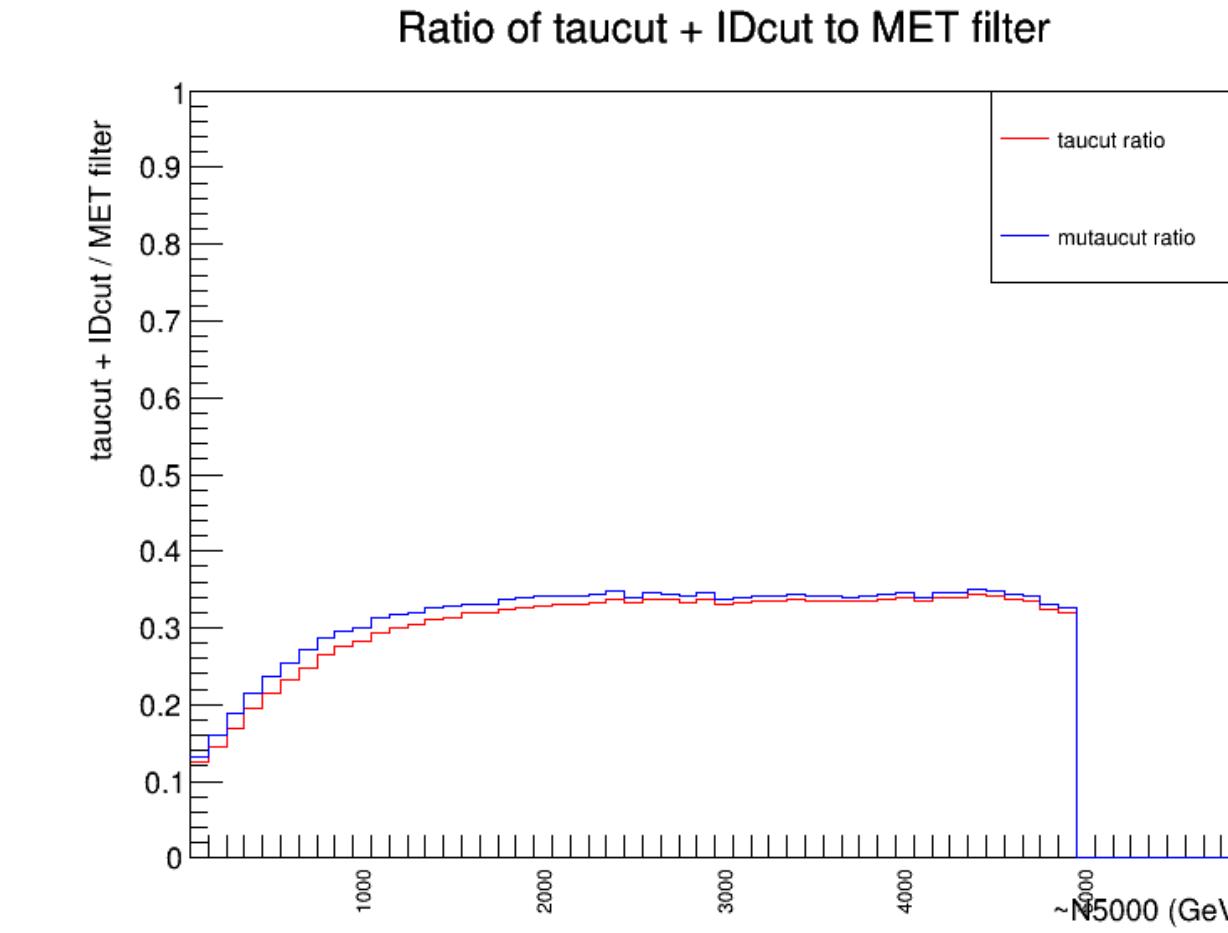
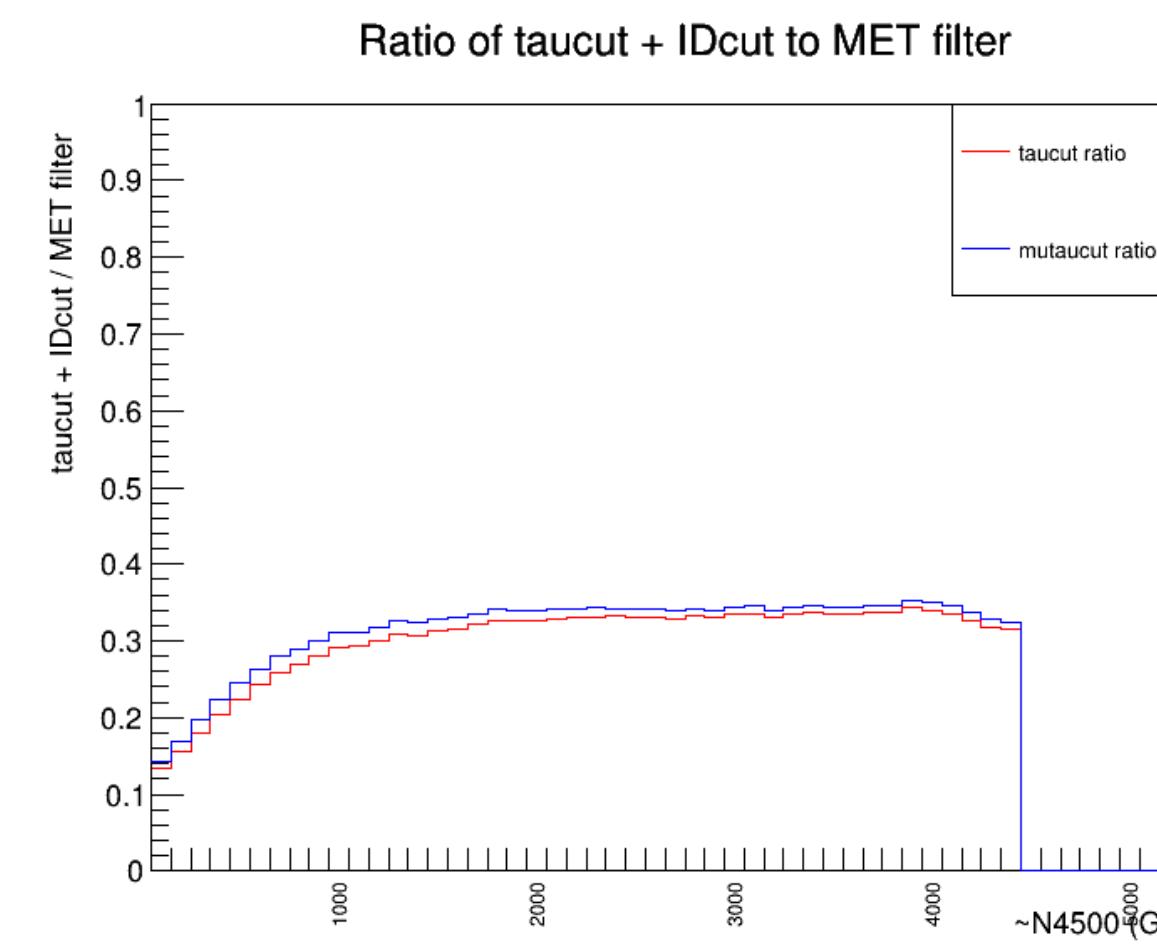
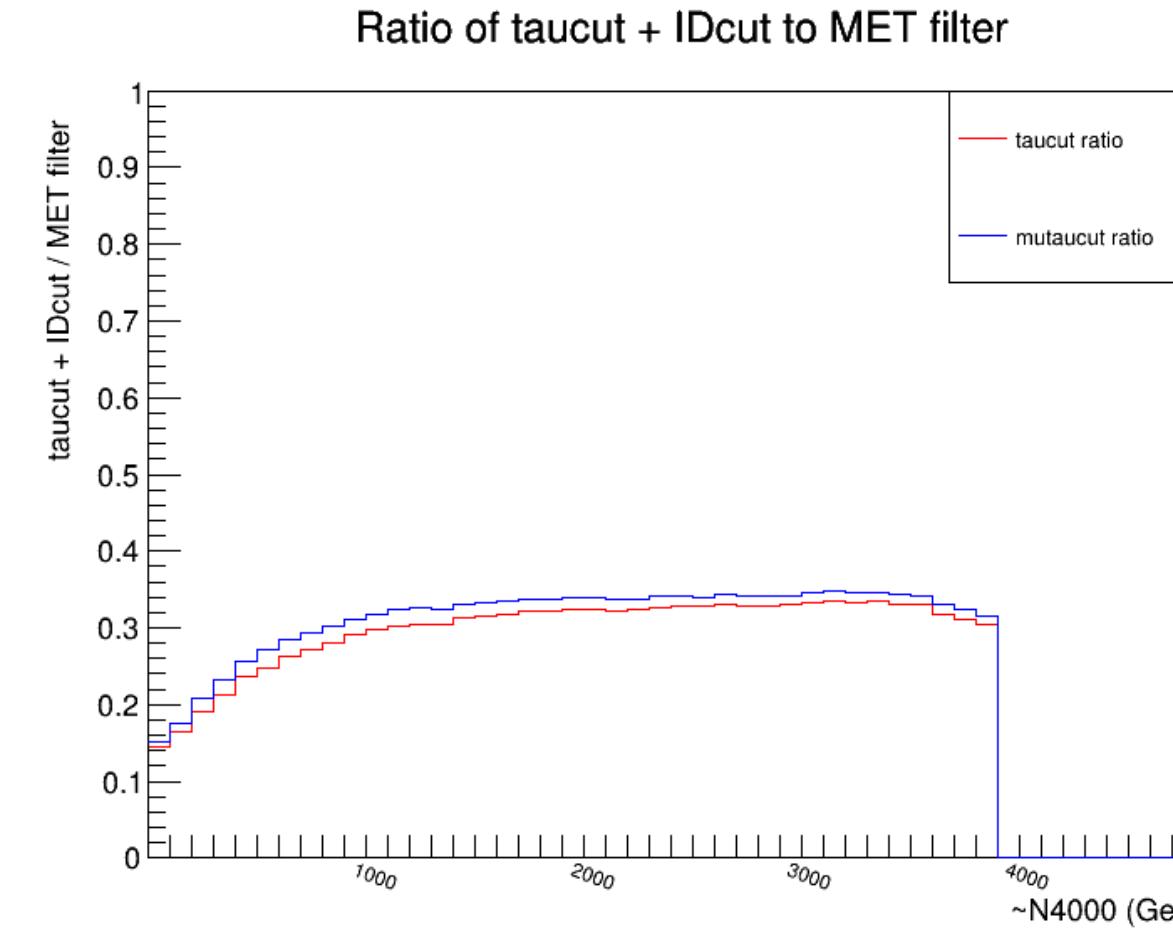
($\tau^{\text{ID}} + \tau^{\text{trigger}} + \text{MET filter}$) / MET filter
 ($\tau^{\text{ID}} + \tau^{\text{trigger or } \mu^{\text{trigger}}} + \text{MET filter}$) / MET filter



- W_R 1000 ~ 3500

τ ID

$(\tau^{\text{ID}} + \tau \text{ trigger} + \text{MET filter}) / \text{MET filter}$
 $(\tau^{\text{ID}} + \tau \text{ trigger or } \mu \text{ trigger} + \text{MET filter}) / \text{MET filter}$

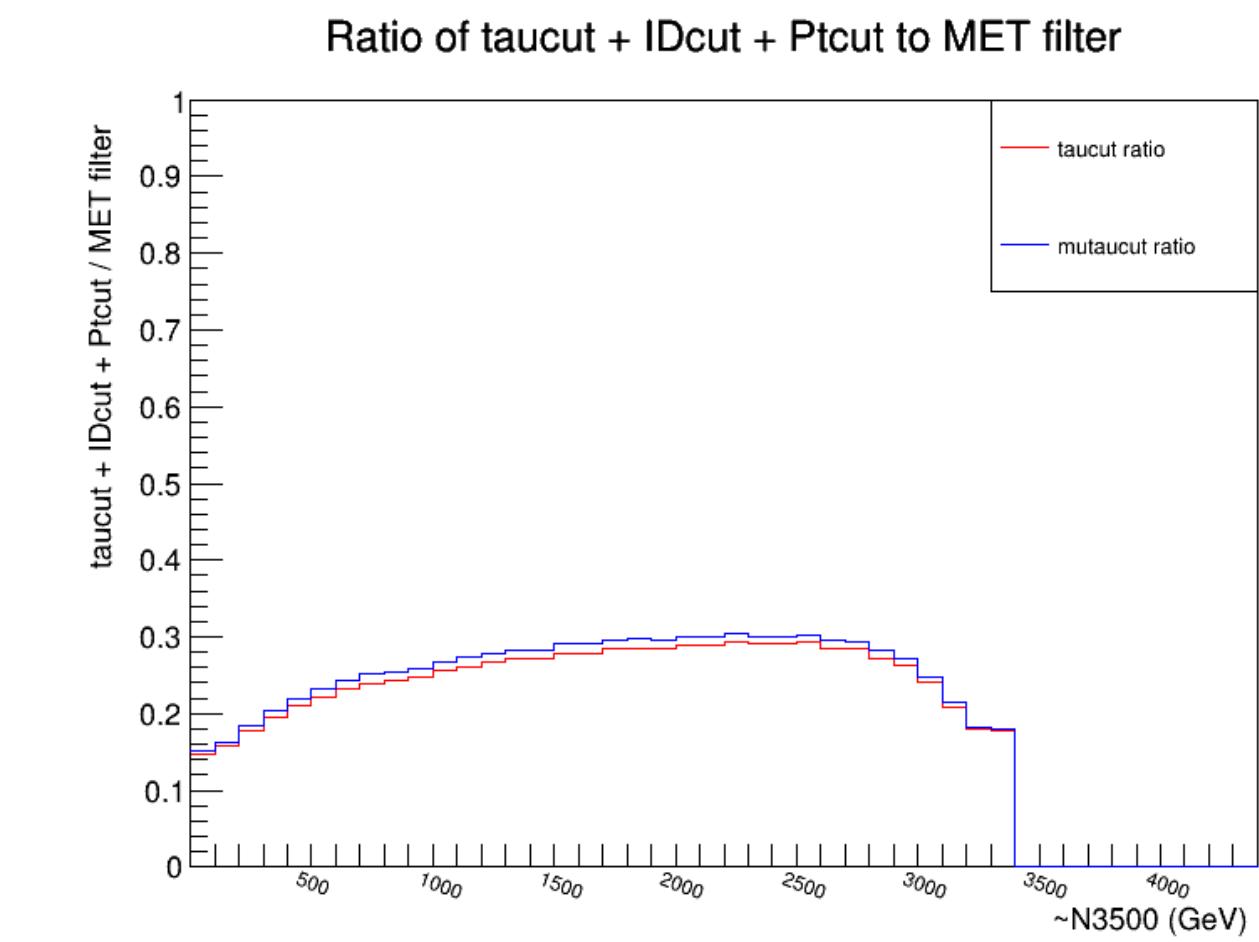
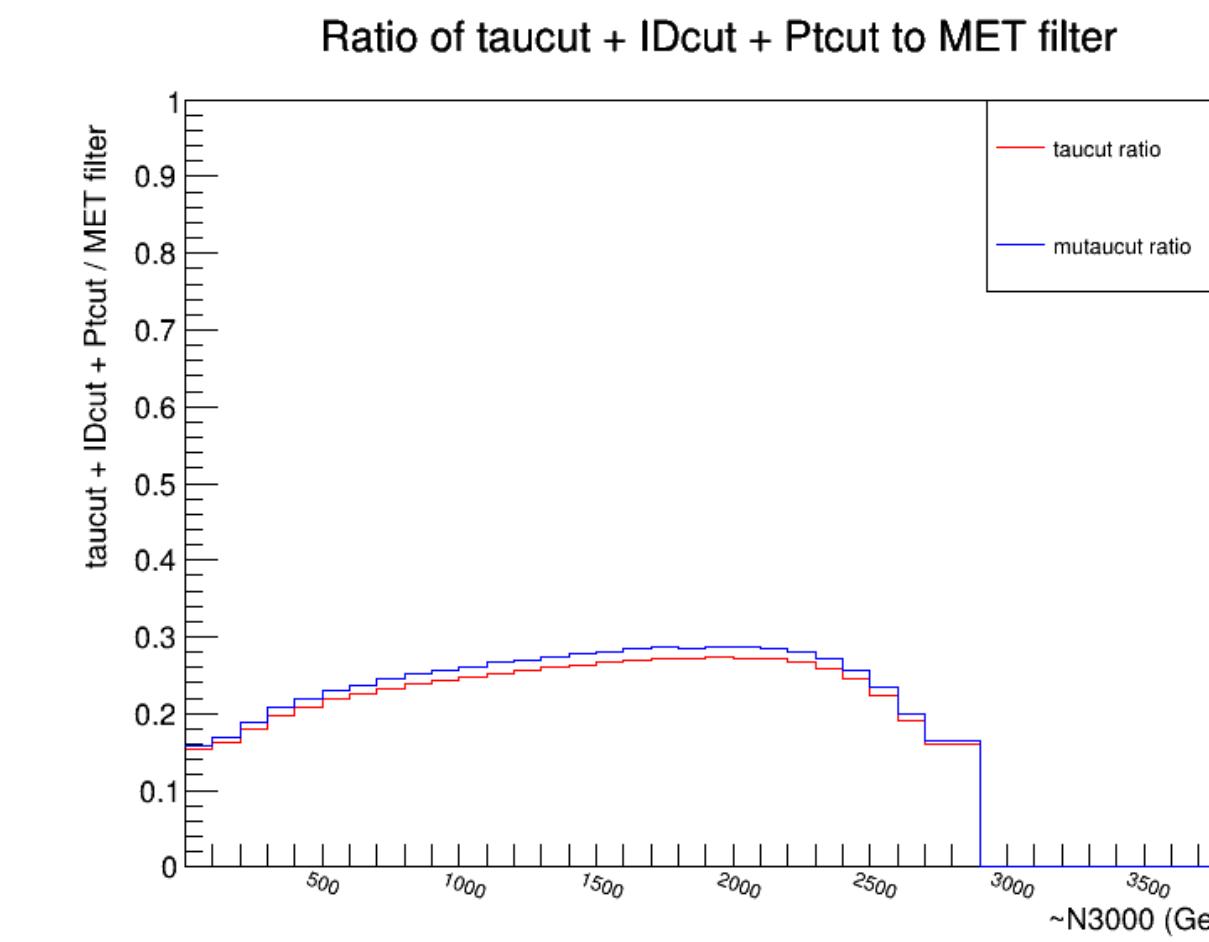
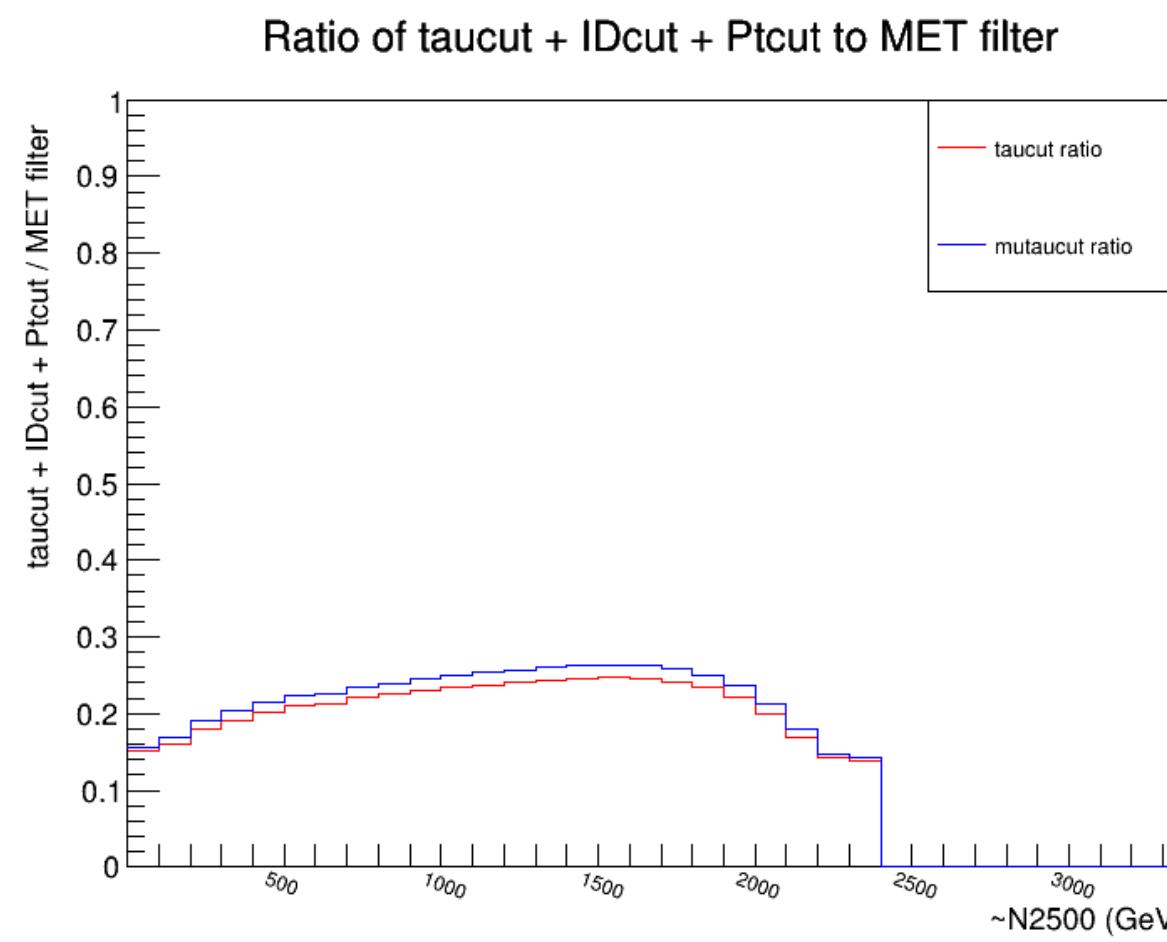
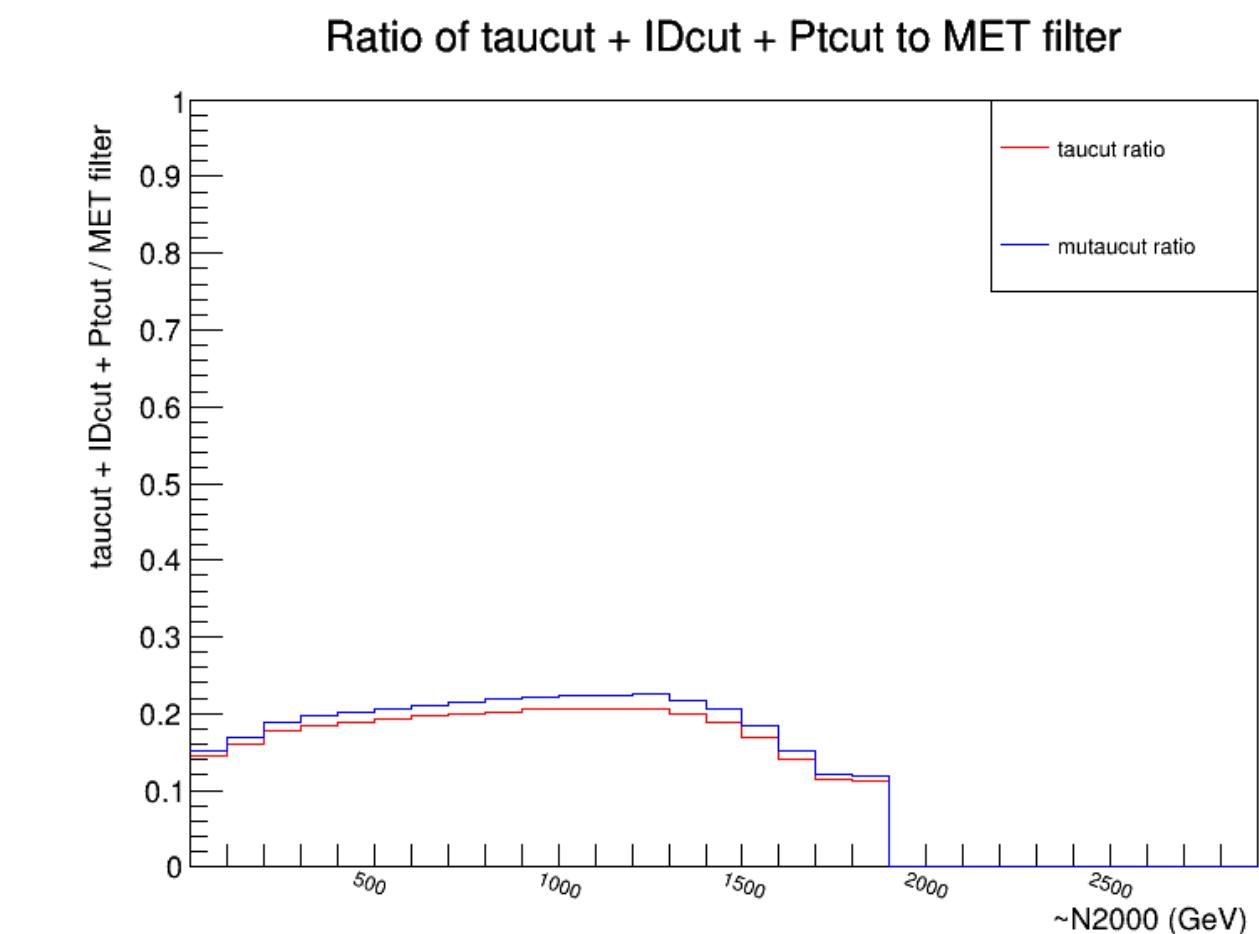
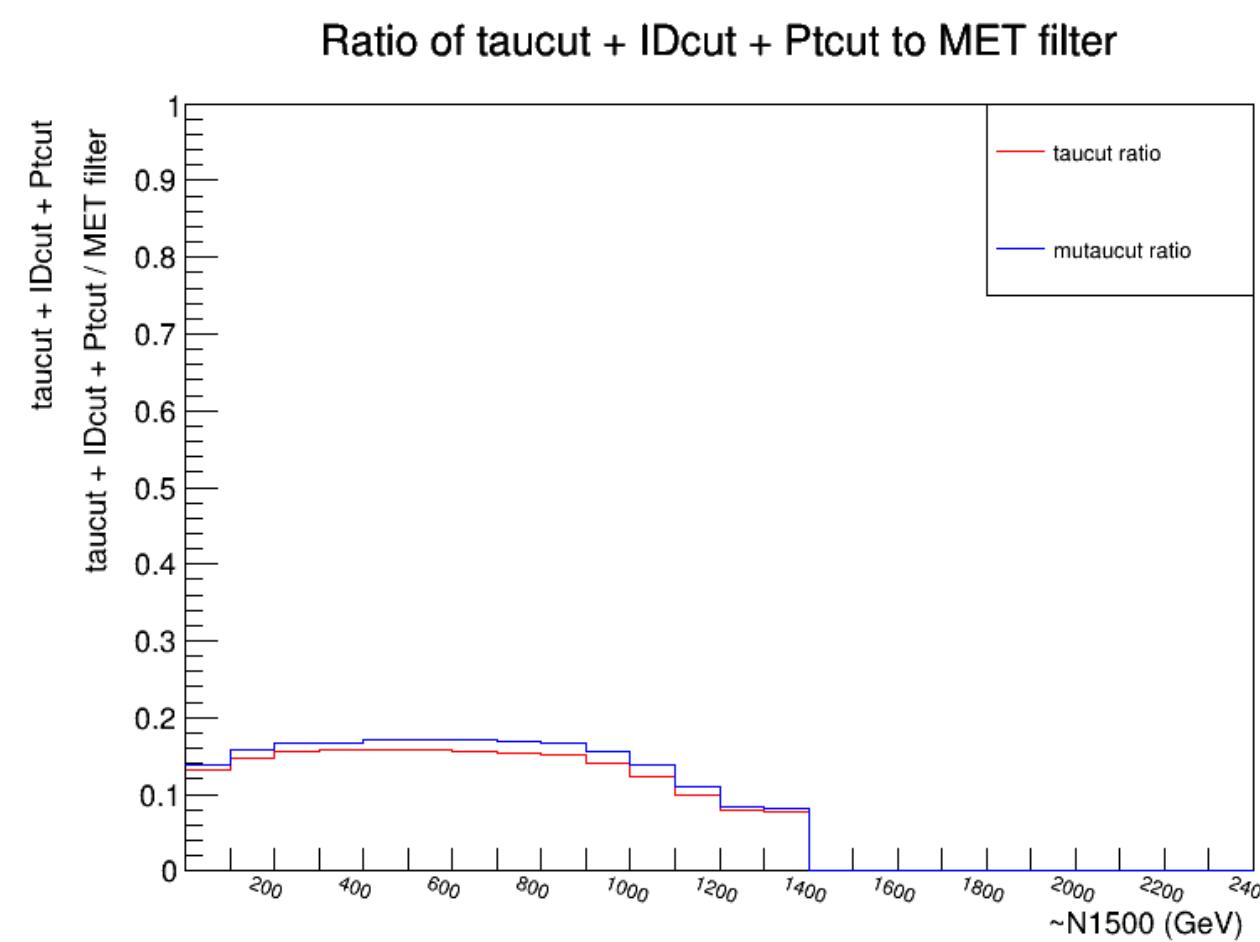
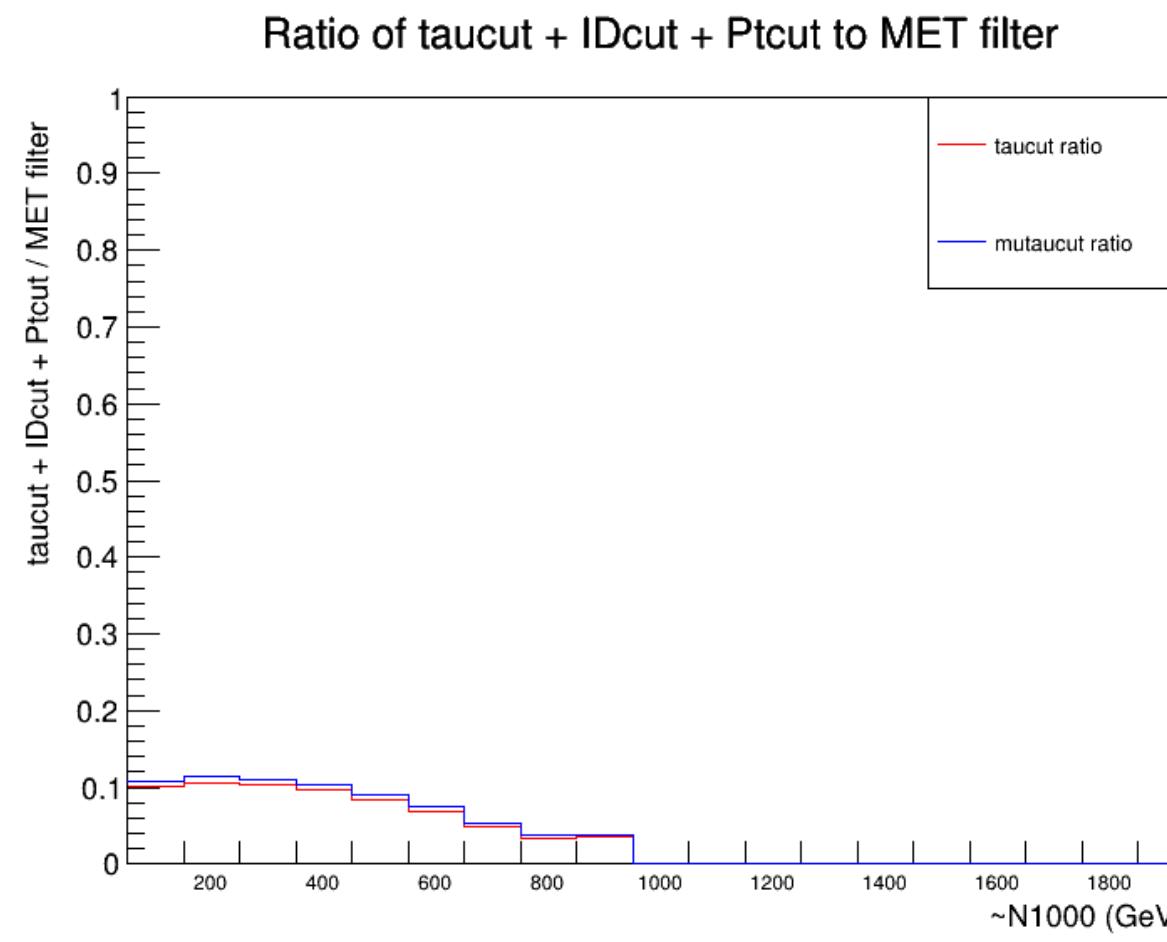


- W_R 4000~6500

P_T

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger} + \text{MET filter}) / \text{MET filter}$

$(P_T + \tau^{\text{ID}} + \tau \text{ trigger or } \mu \text{ trigger} + \text{MET filter}) / \text{MET filter}$

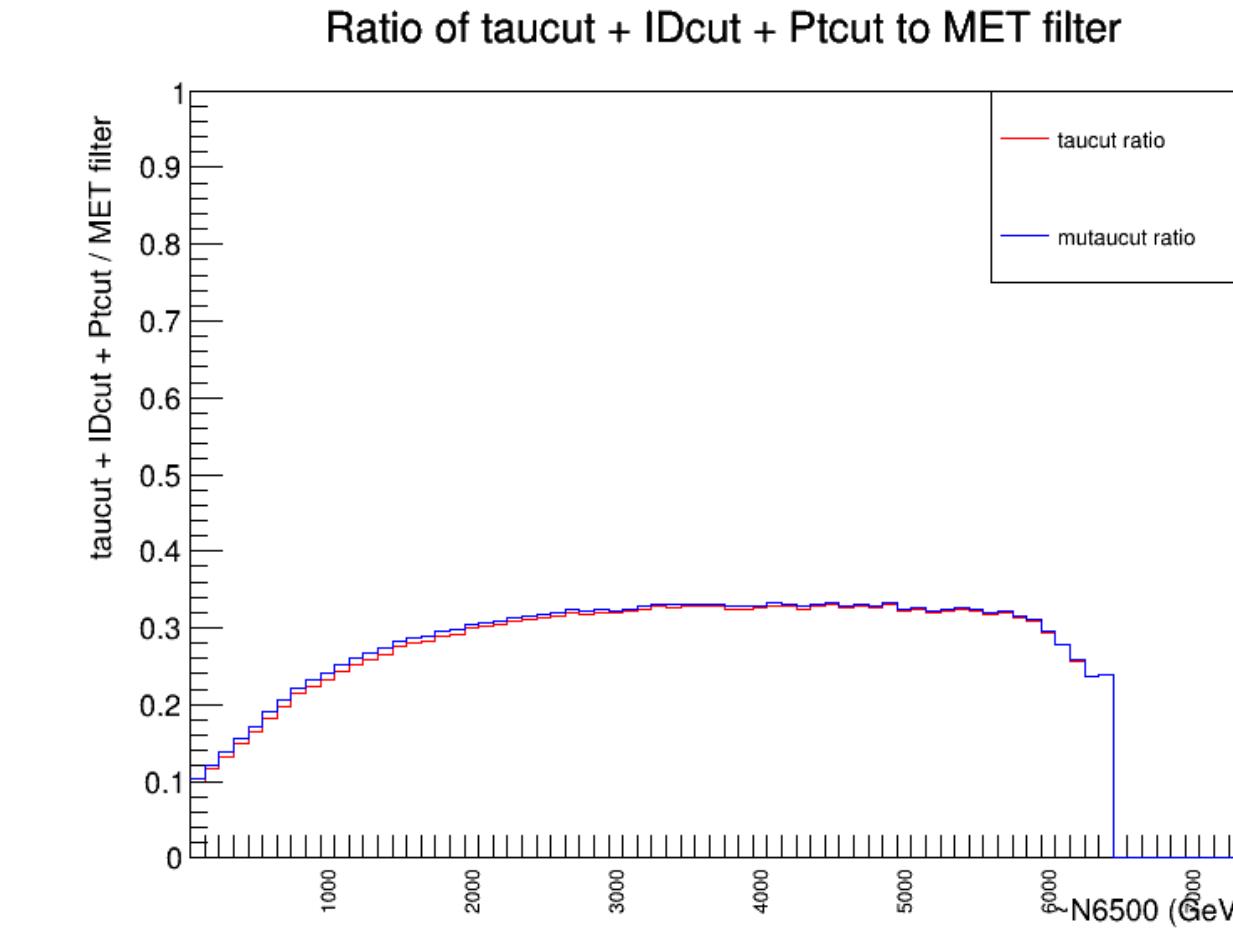
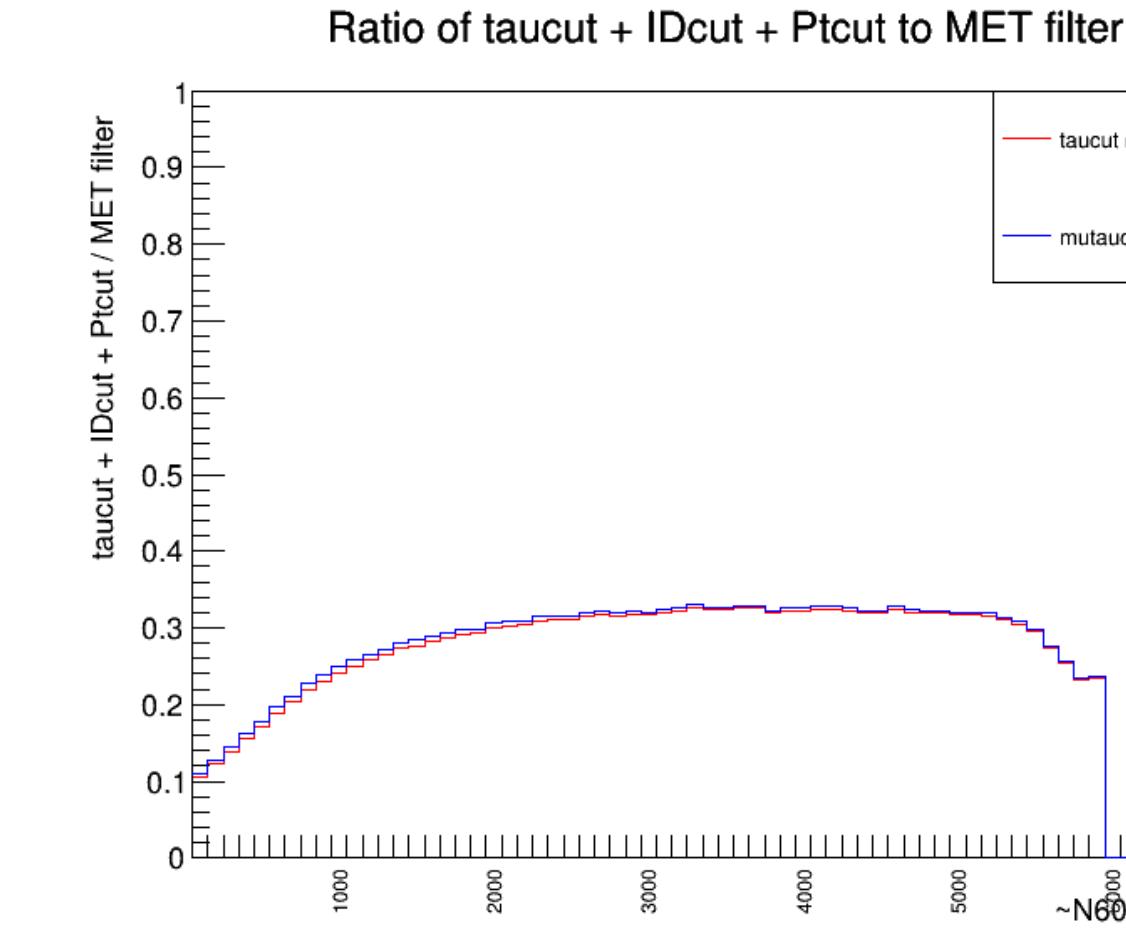
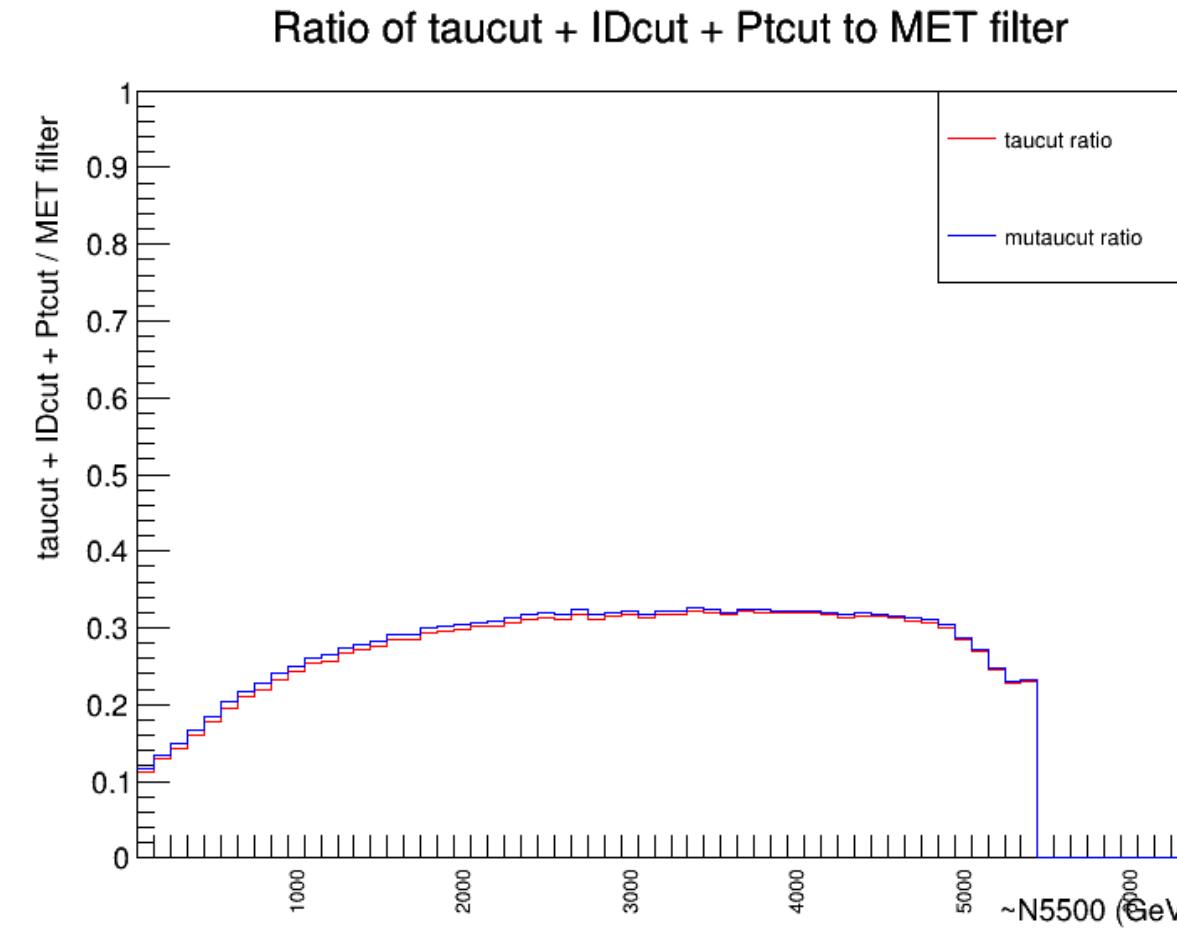
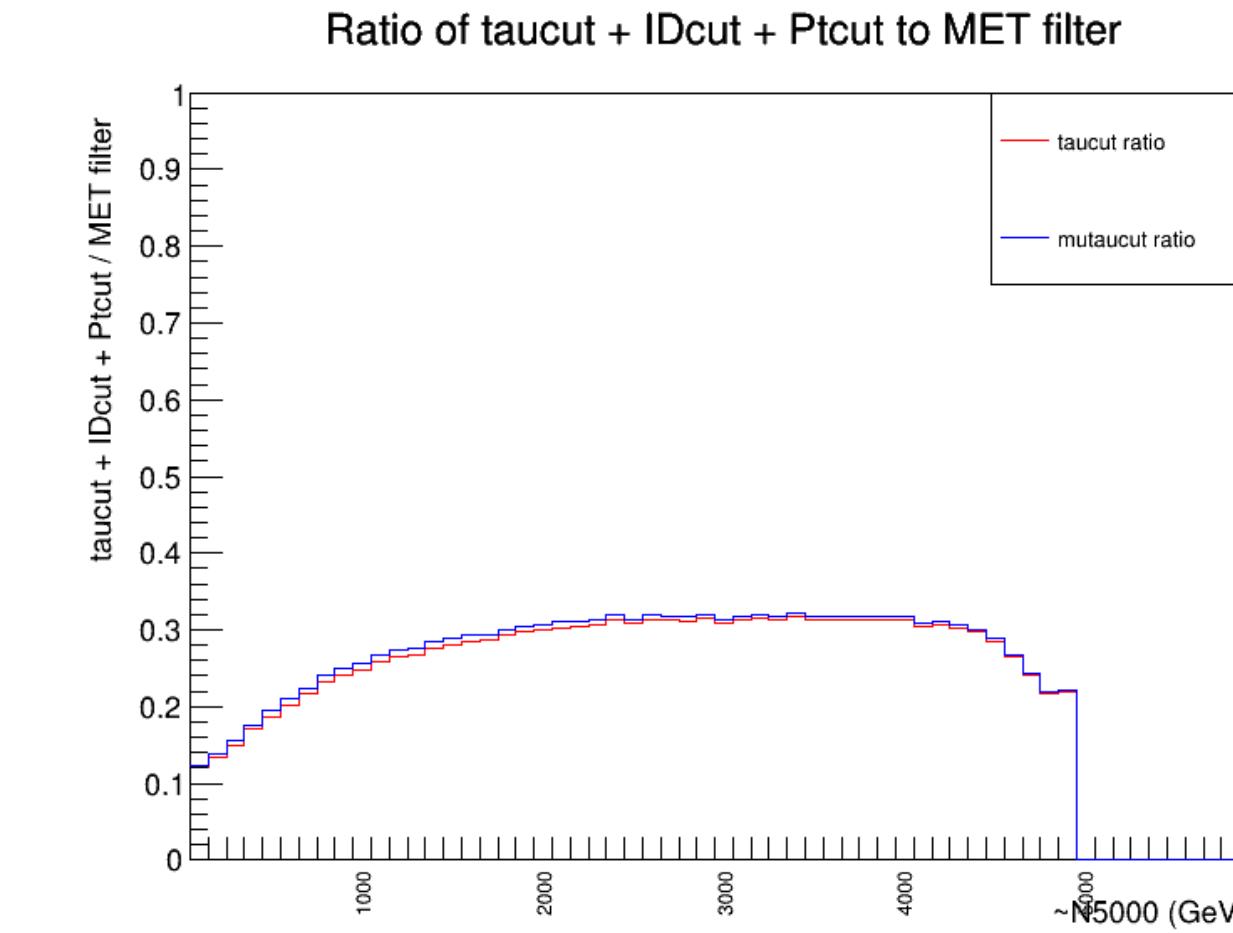
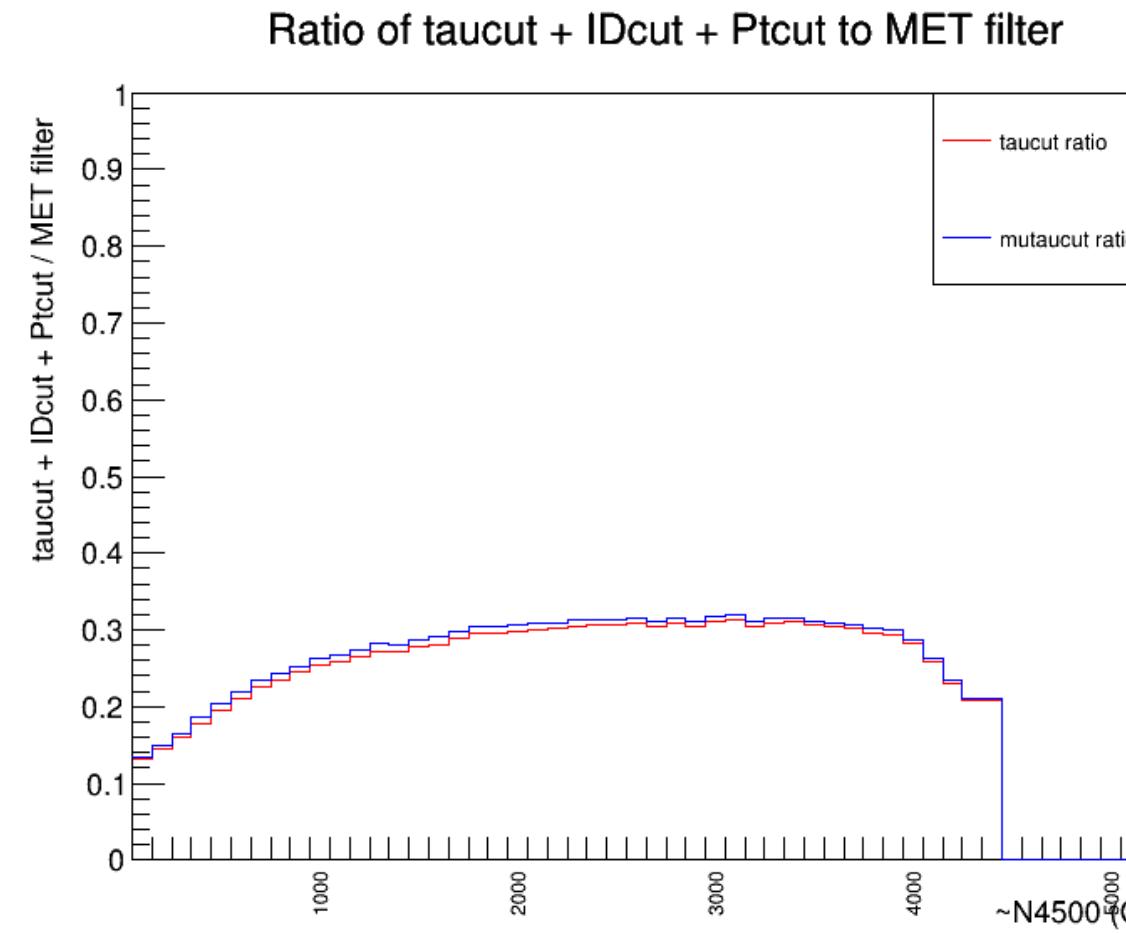
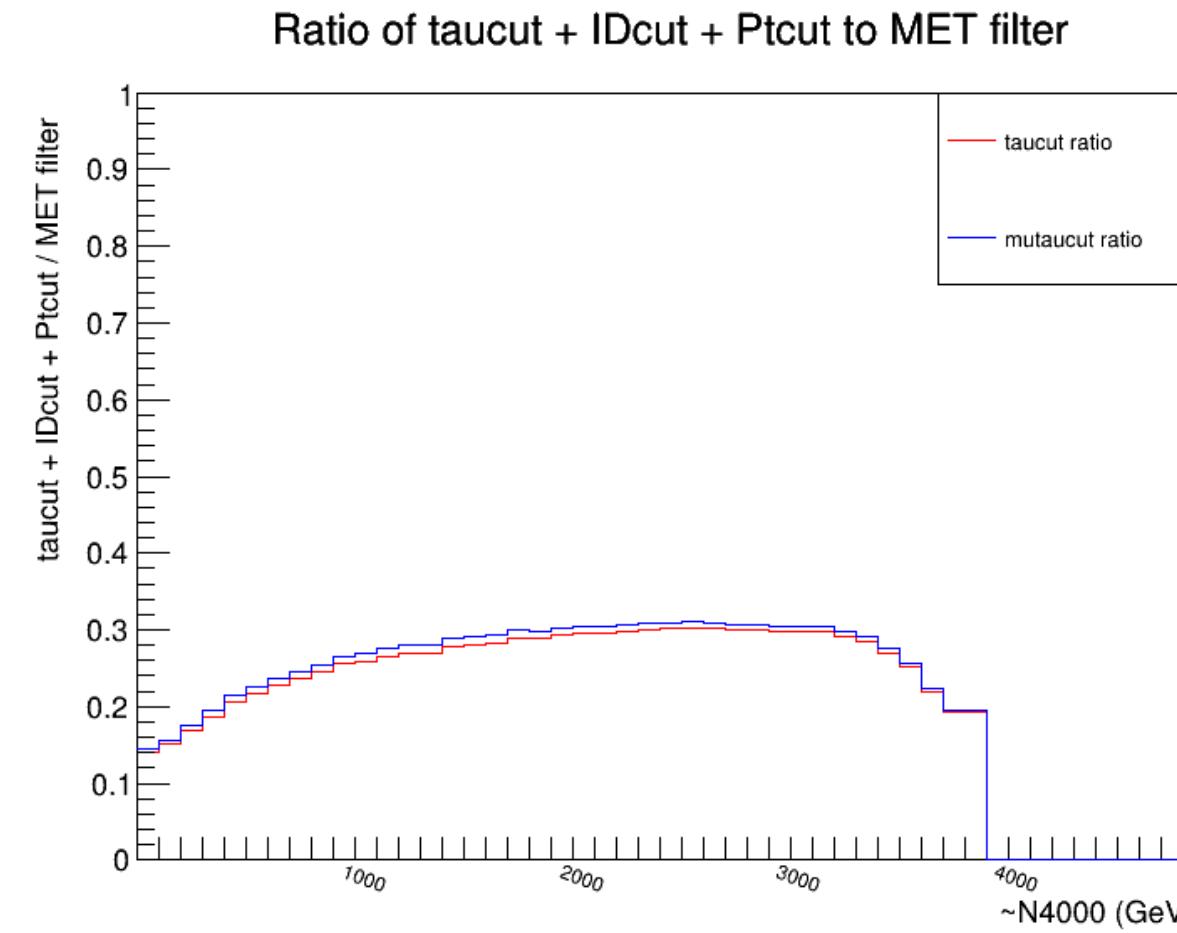


- W_R 1000 ~ 3500

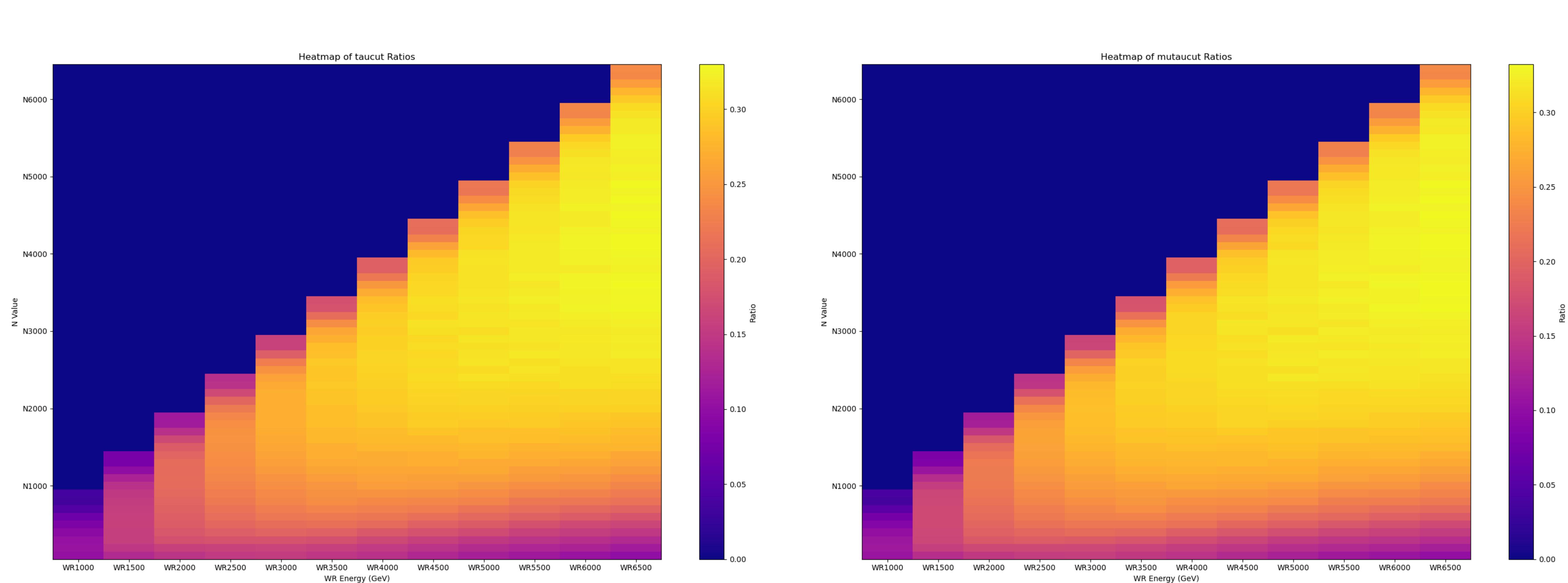
P_T

$(P_T + \tau^{\text{ID}} + \tau^{\text{trigger}} + \text{MET filter}) / \text{MET filter}$

$(P_T + \tau^{\text{ID}} + \tau^{\text{trigger or } \mu^{\text{trigger}}} + \text{MET filter}) / \text{MET filter}$



- W_R 4000~6500



$$(P_T + \tau^{\text{ID}} + \tau^{\text{trigger}} + \text{MET filter}) / \text{MET filter}$$

$$(P_T + \tau^{\text{ID}} + \tau^{\text{trigger or } \mu^{\text{trigger}}} + \text{MET filter}) / \text{MET filter}$$