

ctau 10mm

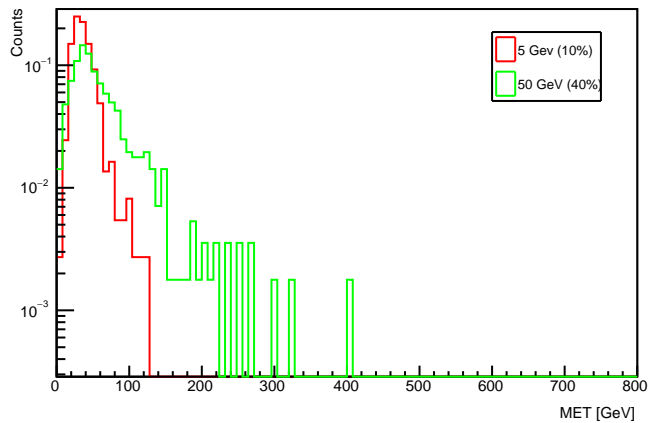
Gen 5 Gev (10%): 368(c1:272(73.91%[73.91%]),c2:1(0.27%[0.37%]),c3:0(0.00%[0.00%]),c4:0(0.00%[0.00%]))

Reco 5 Gev (10%): 368(c1:212(57.61%[57.61%]),c2:1(0.27%[0.47%]),c3:0(0.00%[0.00%]),c4:0(0.00%[0.00%]))

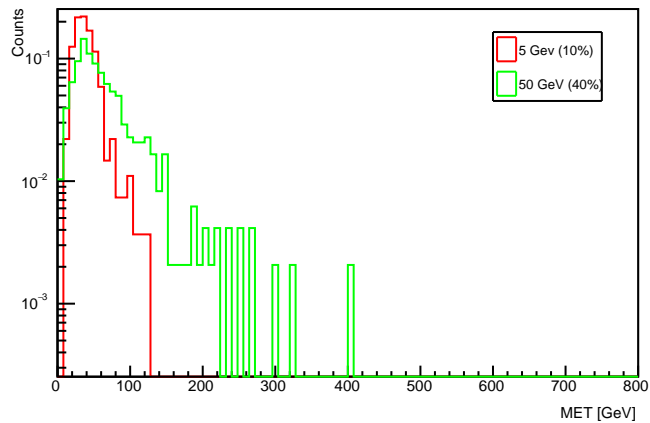
Gen 50 GeV (40%): 563(c1:483(85.79%[85.79%]),c2:53(9.41%[10.97%]),c3:40(7.10%[75.47%]),c4:16(2.84%[40.00%]))

Reco 50 GeV (40%): 563(c1:419(74.42%[74.42%]),c2:47(8.35%[11.22%]),c3:37(6.57%[78.72%]),c4:14(2.49%[37.84%]))

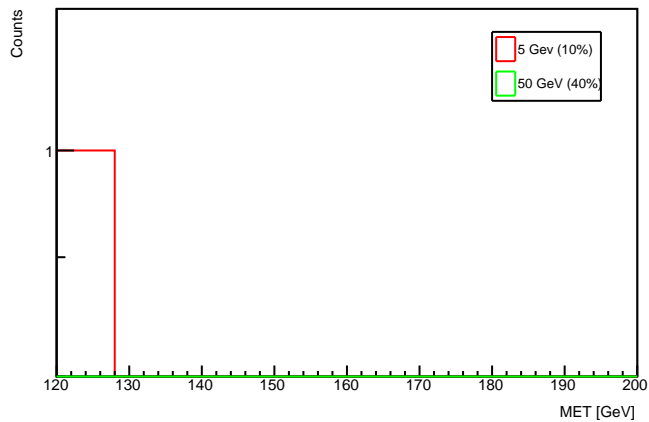
gen leading MET: no cuts



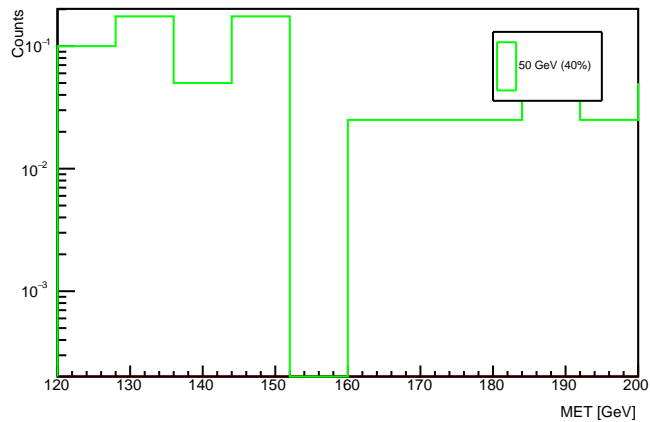
gen leading MET: n_jet >=1, j1pt > 30 GeV



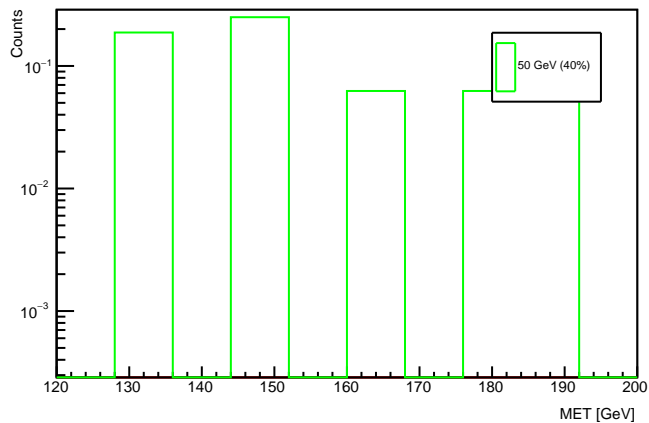
gen leading MET: MET > 120 GeV



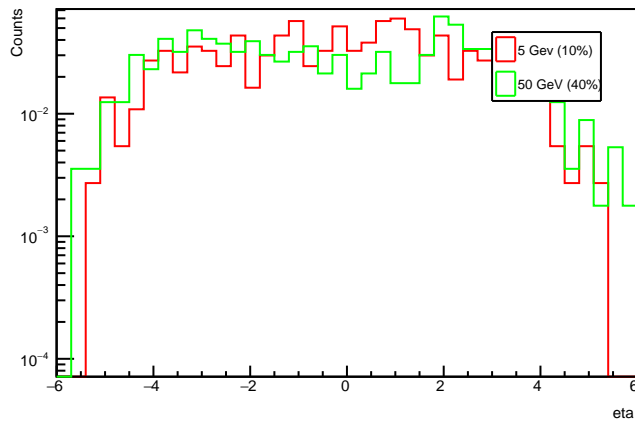
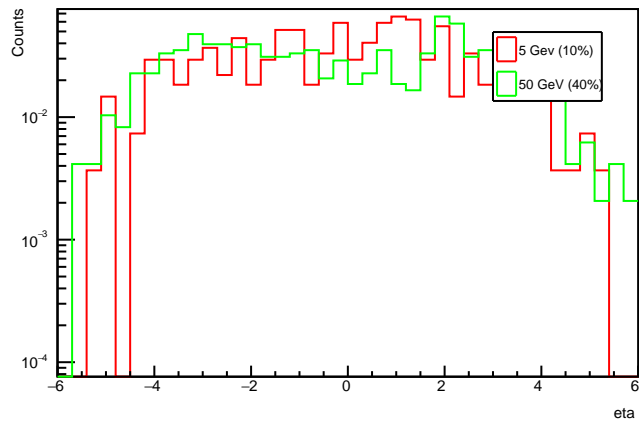
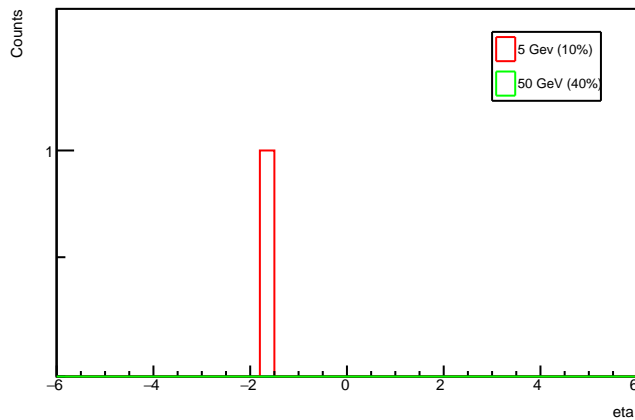
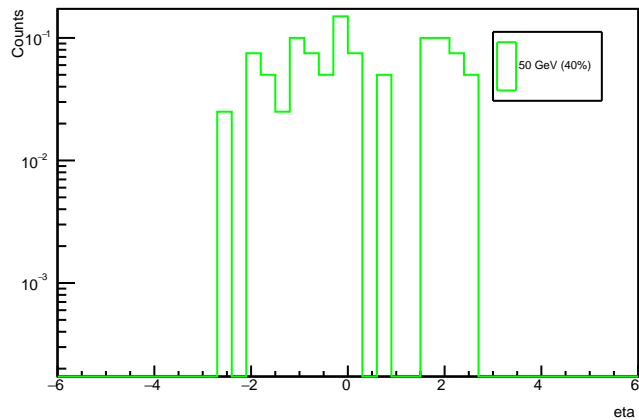
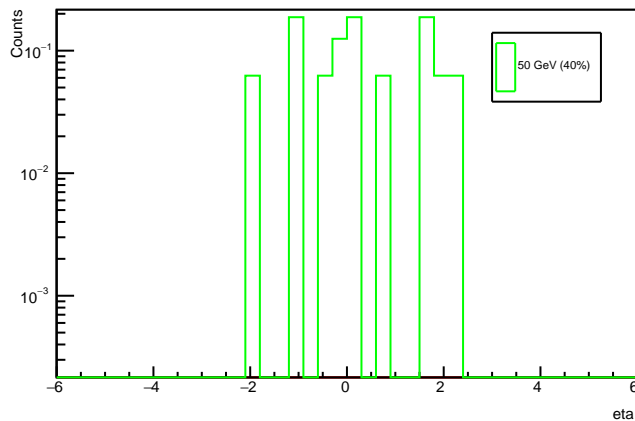
gen leading MET: j1pt >120, at most 2 jets w/ pt >30 GeV



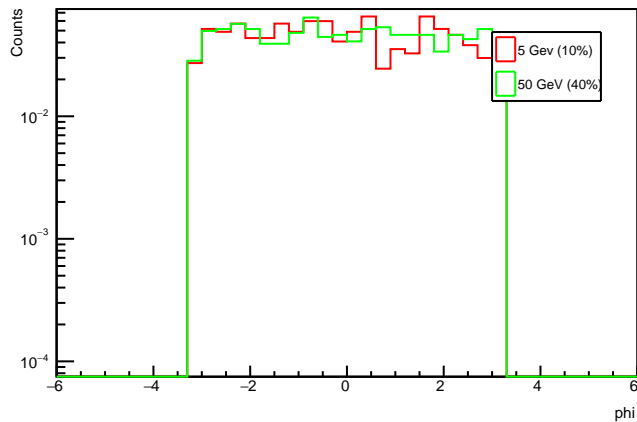
gen leading MET: at least 2 mu w/ vxy< 740 cm, |vz|<960cm & |eta|<2.4



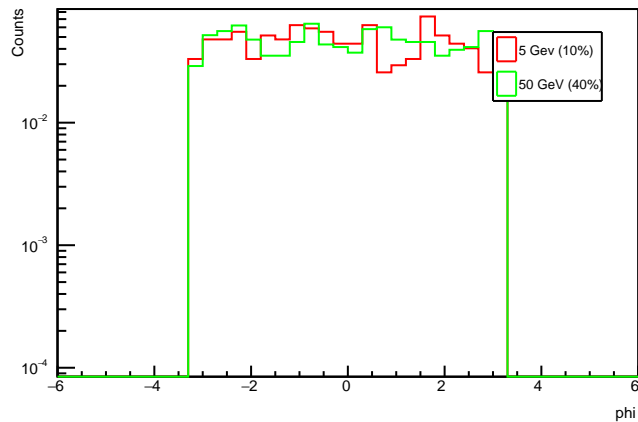
gen leading Met eta: no cuts

gen leading Met eta: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30 \text{ GeV}$ gen leading Met eta: $\text{MET} > 120 \text{ GeV}$ gen leading Met eta: $j_{1\text{pt}} > 120$, at most 2 jets w/ $\text{pt} > 30 \text{ GeV}$ gen leading Met eta: at least 2 mu w/ $v_{xy} < 740 \text{ cm}$, $|v_z| < 960 \text{ cm}$ & $|\text{eta}| < 2.4$ 

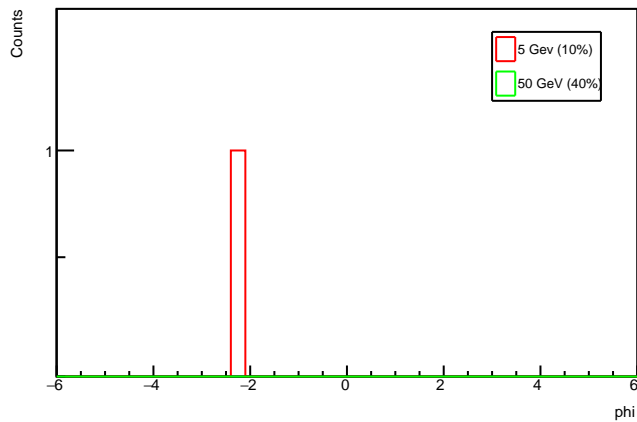
gen leading Met phi: no cuts



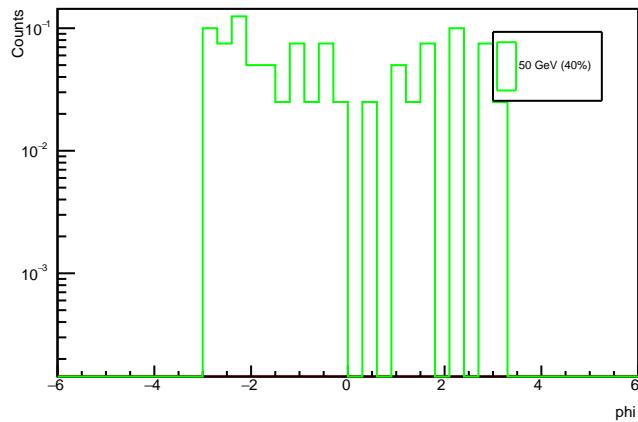
gen leading Met phi: n_jet >= 1, j1pt > 30 GeV



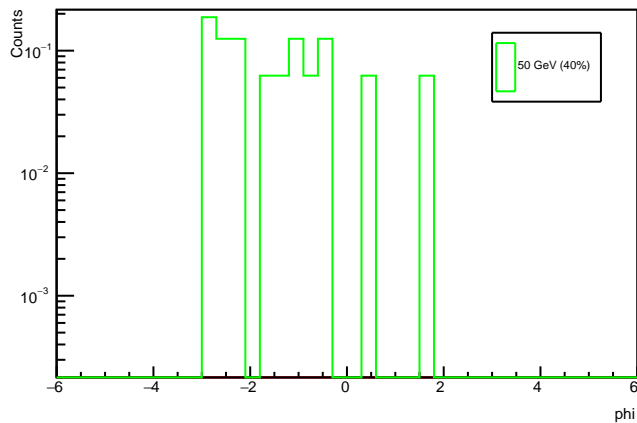
gen leading Met phi: MET > 120 GeV



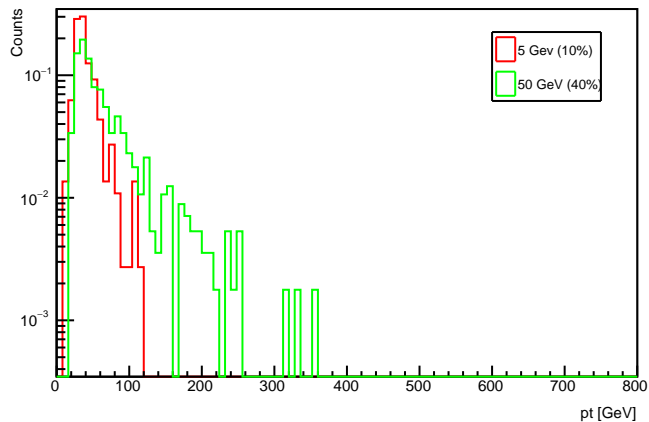
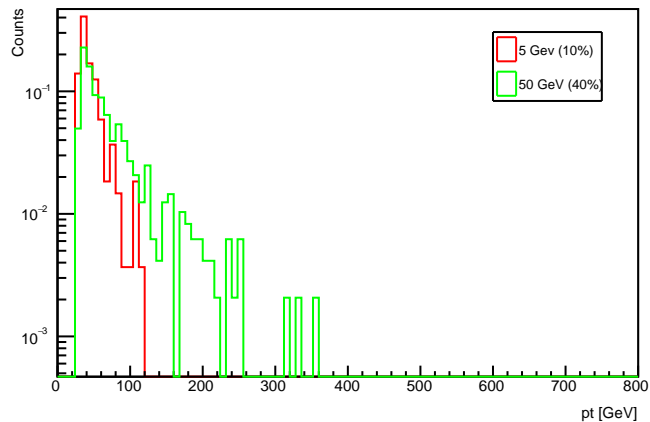
gen leading Met phi: j1pt > 120, at most 2 jets w/ pt > 30 GeV



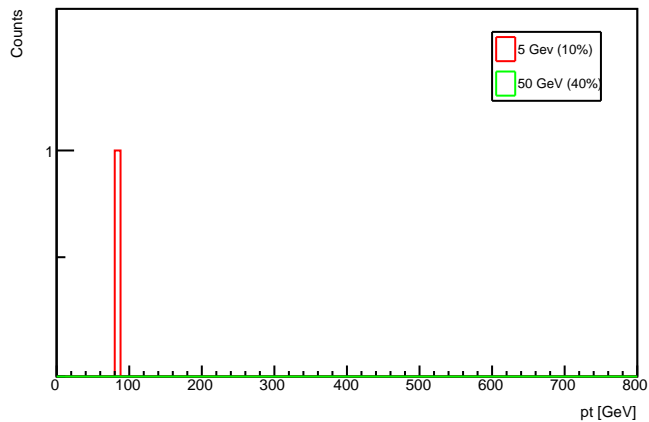
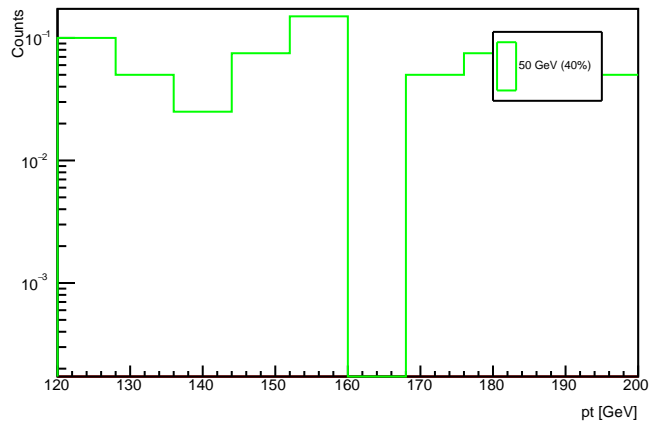
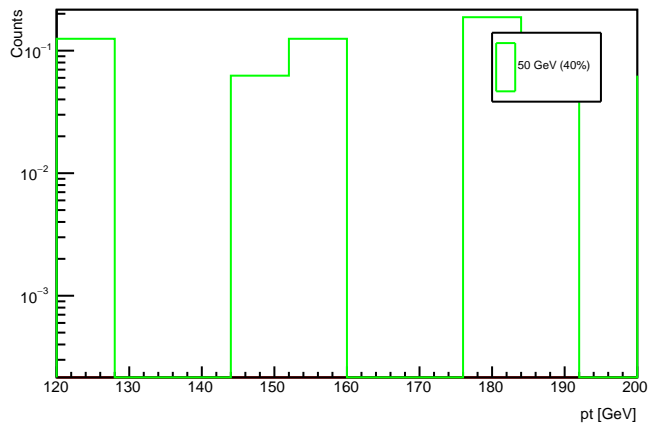
gen leading Met phi: at least 2 mu w/ vx < 740 cm, |vz| < 960 cm & |eta| < 2.4



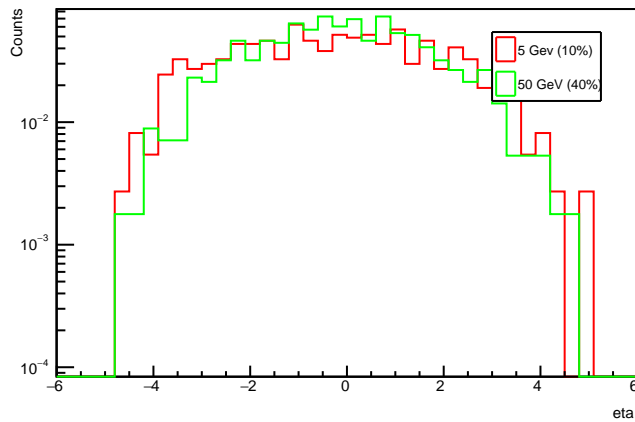
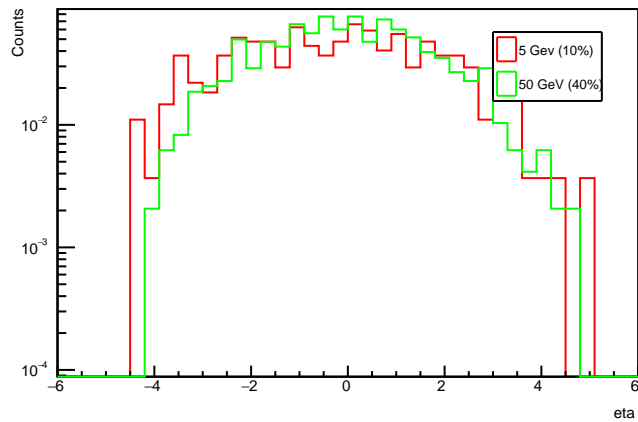
gen leading Jet pt: no cuts

gen leading Jet pt: $n_{\text{jet}} \geq 1$, $j1pt > 30$ GeV

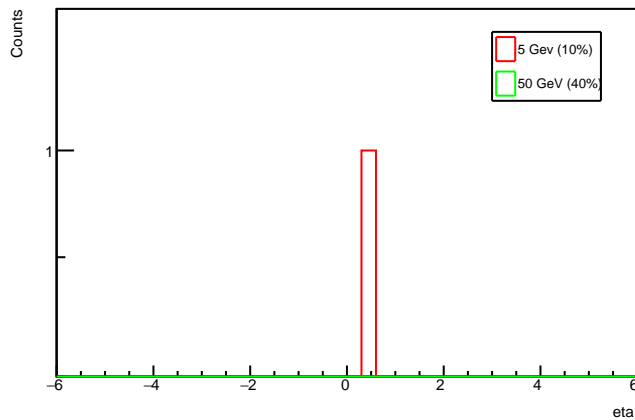
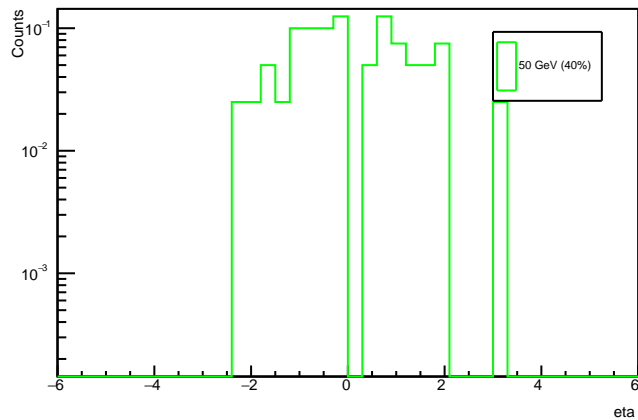
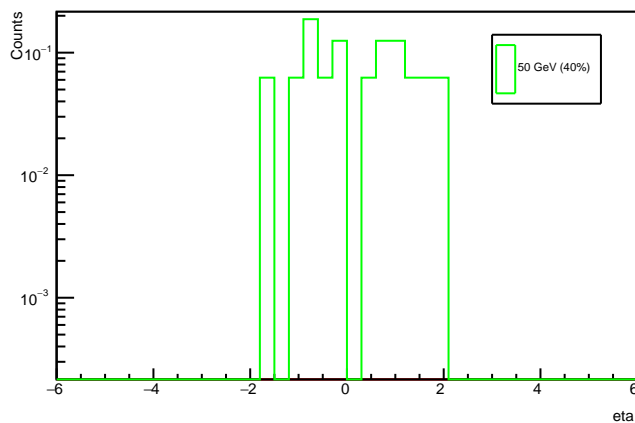
gen leading Jet pt: MET > 120 GeV

gen leading Jet pt: $j1pt > 120$, at most 2 jets w/ pt > 30 GeVgen leading Jet pt: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

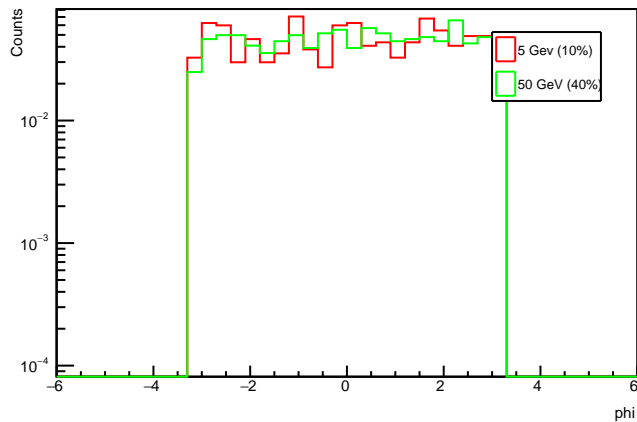
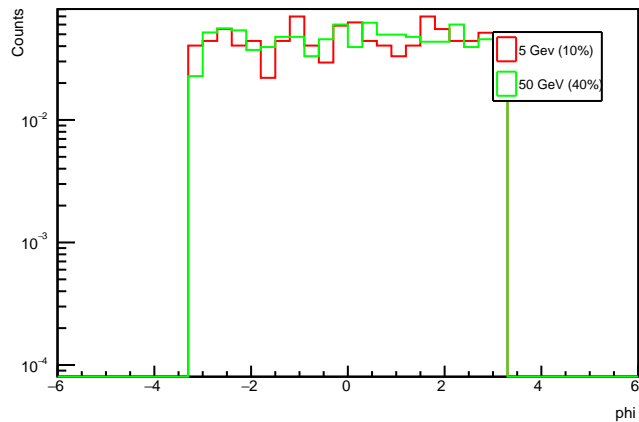
gen leading Jet eta: no cuts

gen leading Jet eta: $n_{\text{jet}} \geq 1$, $j1pt > 30$ GeV

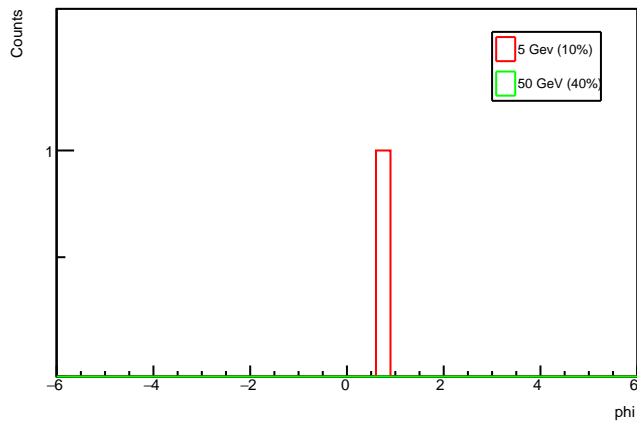
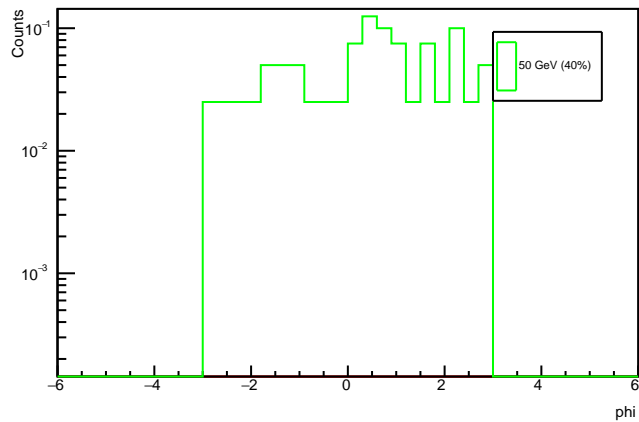
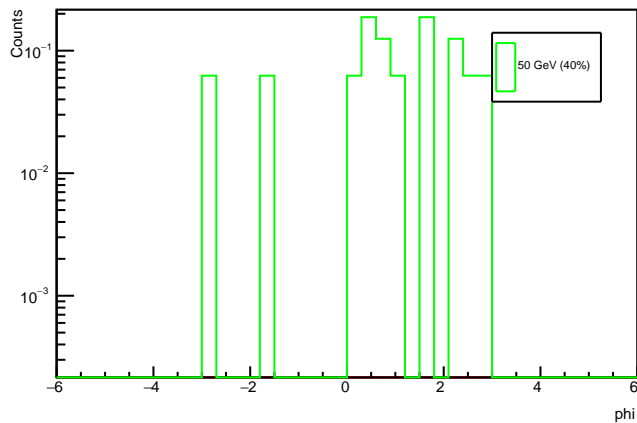
gen leading Jet eta: MET > 120 GeV

gen leading Jet eta: $j1pt > 120$, at most 2 jets w/ $pt > 30$ GeVgen leading Jet eta: at least 2 mu w/ $vxy < 740$ cm, $|vz| < 960$ cm & $|\eta| < 2.4$ 

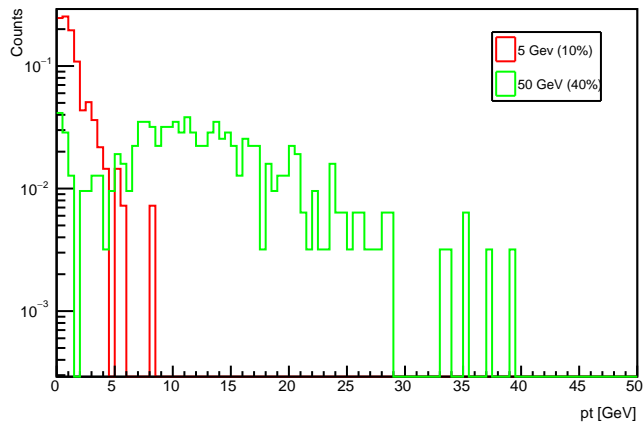
gen leading Jet phi: no cuts

gen leading Jet phi: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

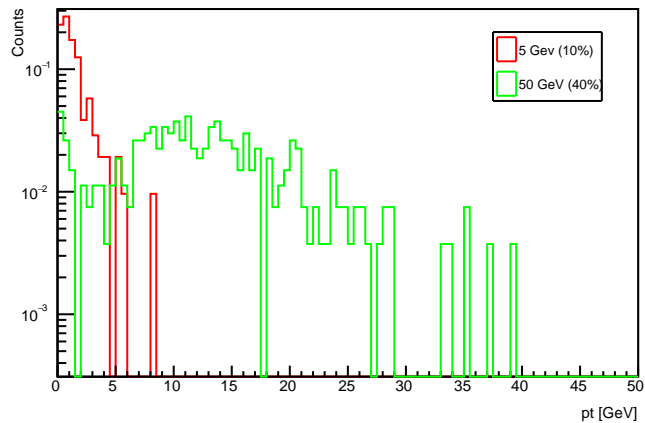
gen leading Jet phi: MET > 120 GeV

gen leading Jet phi: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen leading Jet phi: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

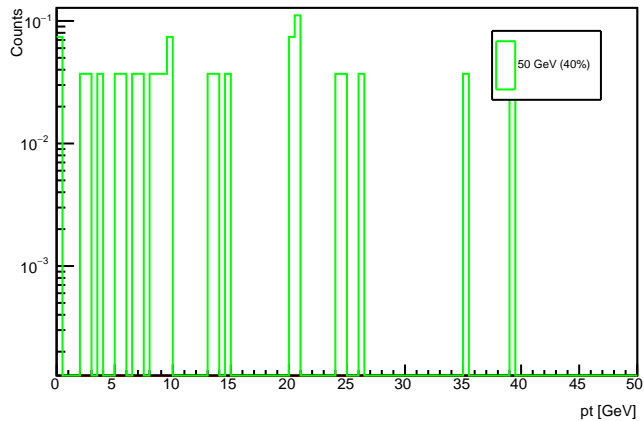
ctau 10mm leading vs subleading Mu pt: no cuts



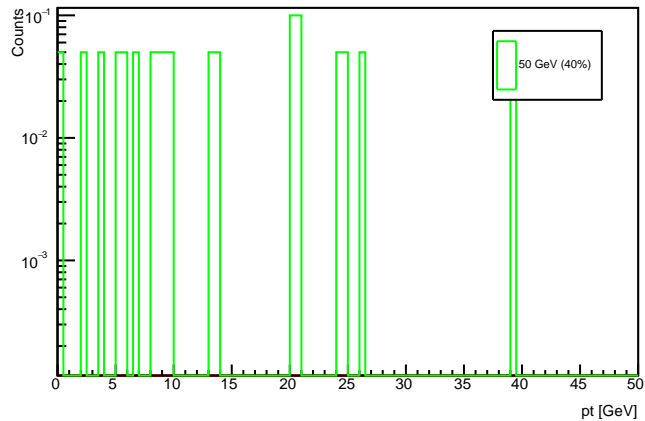
ctau 10mm leading vs subleading Mu pt: $n_{\text{jet}} \geq 1$, $j1pt > 30$ GeV



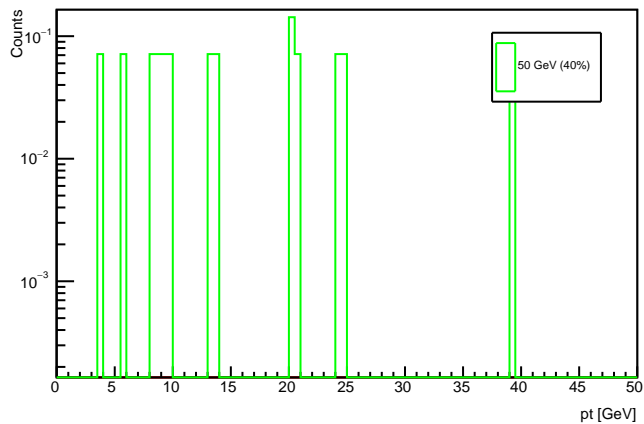
ctau 10mm leading vs subleading Mu pt: MET > 120 GeV



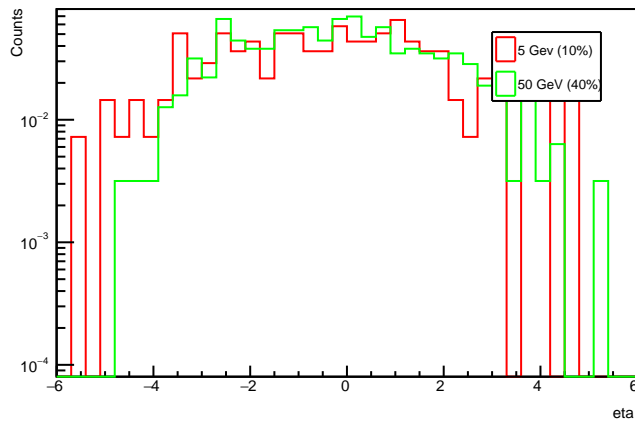
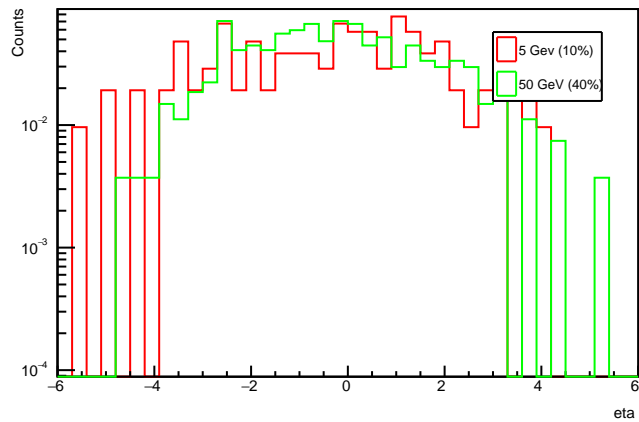
ctau 10mm leading vs subleading Mu pt: $j1pt > 120$, at most 2 jets w/ $pt > 30$ GeV



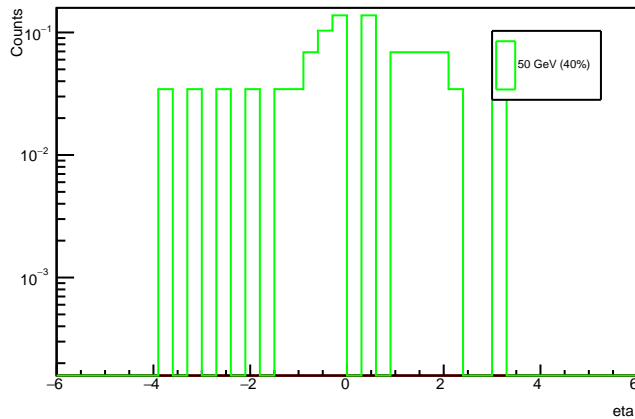
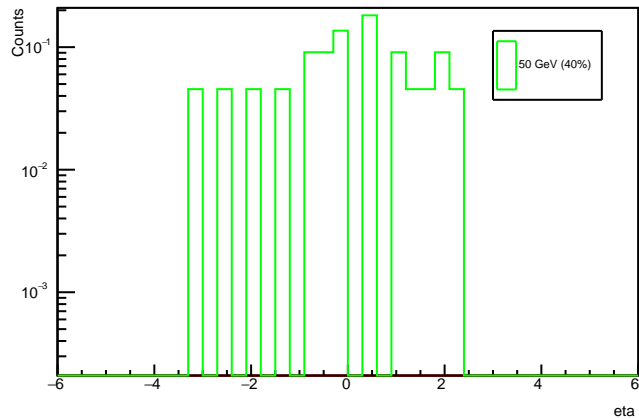
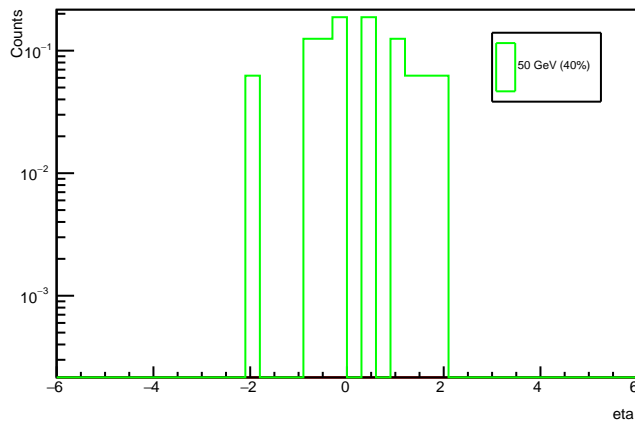
ctau 10mm leading vs subleading Mu pt: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$



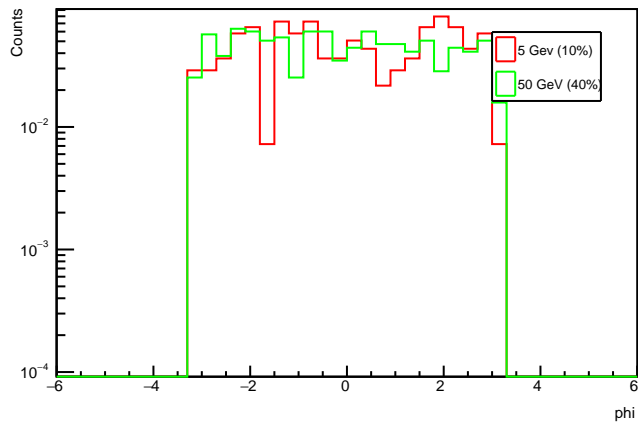
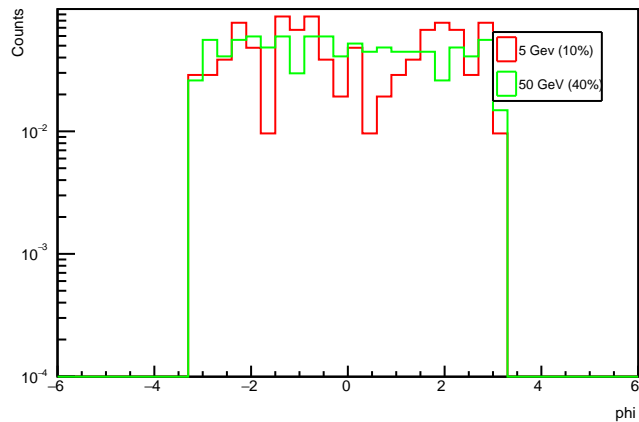
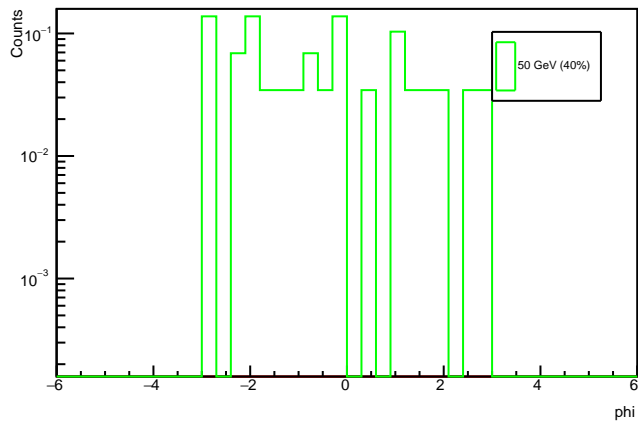
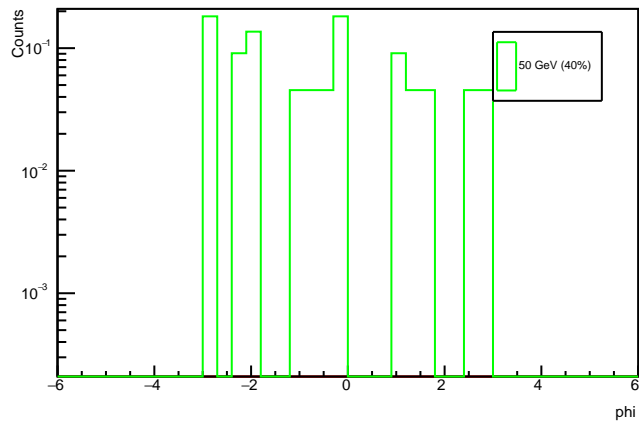
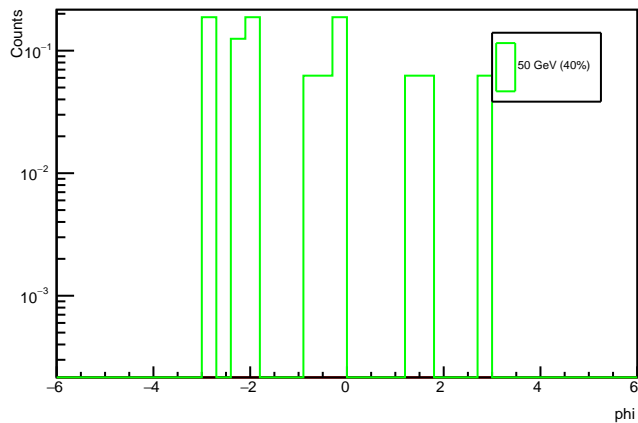
gen leading Mu eta: no cuts

gen leading Mu eta: $n_{\text{jet}} \geq 1$, $j1_{\text{pt}} > 30$ GeV

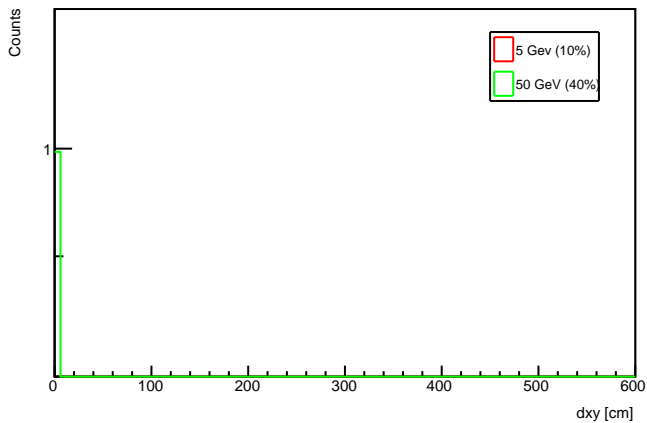
gen leading Mu eta: MET > 120 GeV

gen leading Mu eta: $j1_{\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeVgen leading Mu eta: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\text{eta}| < 2.4$ 

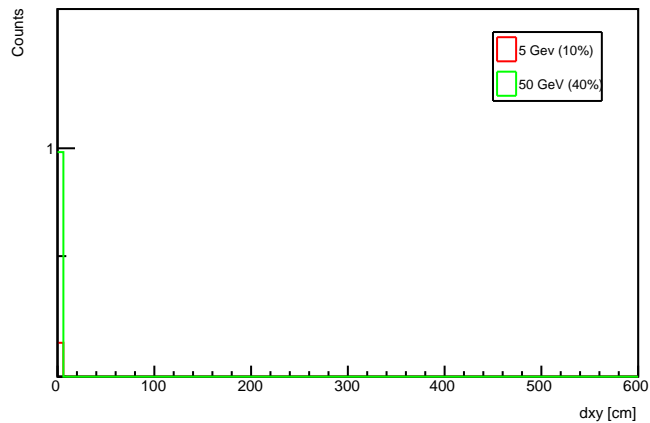
gen leading Mu phi: no cuts

gen leading Mu phi: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeVgen leading Mu phi: $\text{MET} > 120$ GeVgen leading Mu phi: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen leading Mu phi: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

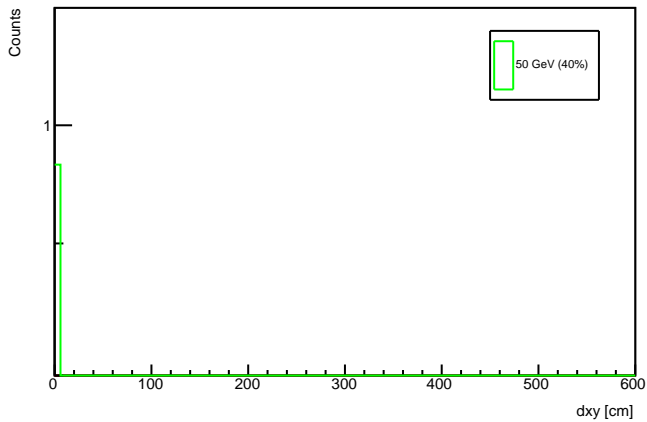
gen leading Mu vxy: no cuts



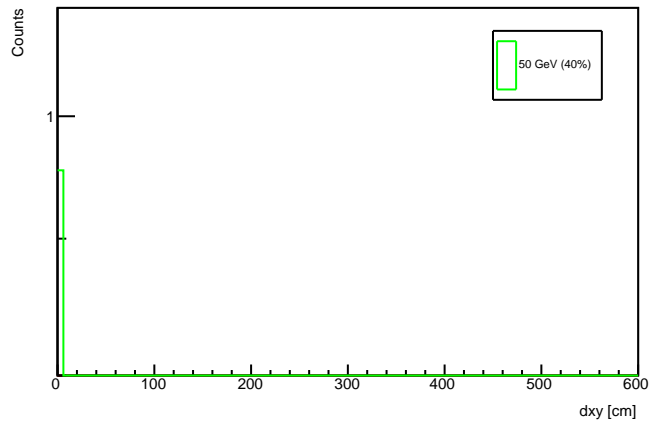
gen leading Mu vxy: n_jet >=1, j1pt > 30 GeV



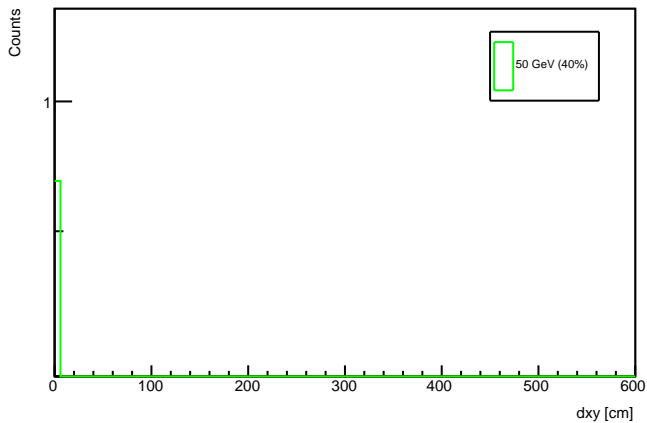
gen leading Mu vxy: MET > 120 GeV



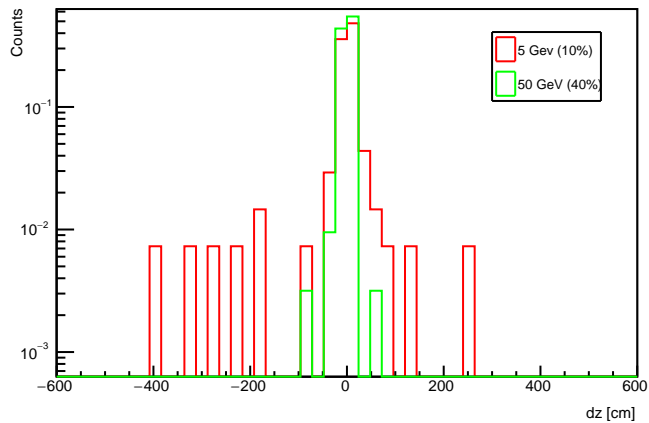
gen leading Mu vxy: j1pt >120, at most 2 jets w/ pt >30 GeV



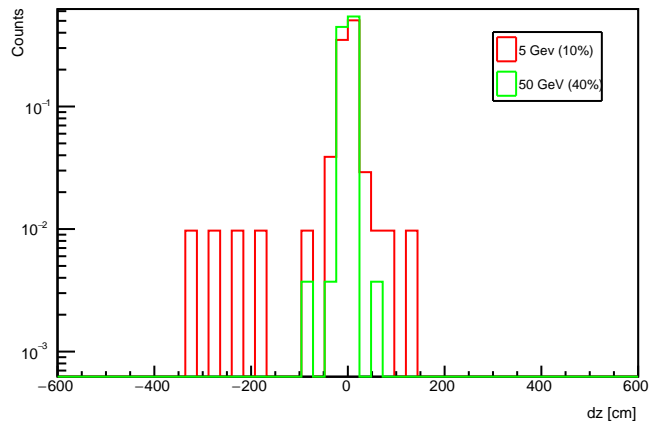
gen leading Mu vxy: at least 2 mu w/ vxy < 740 cm, |vz| < 960 cm & |eta| < 2.4



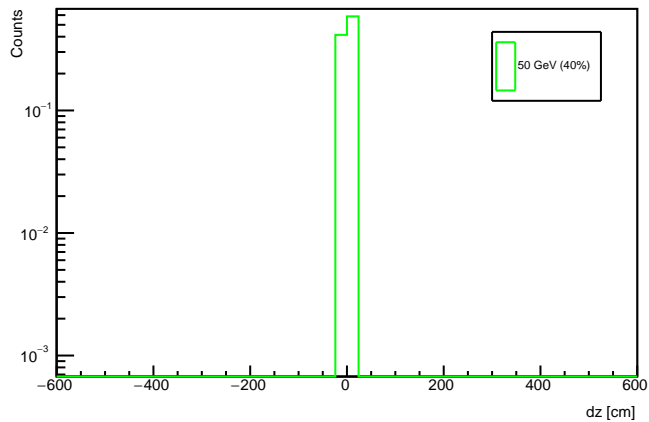
gen leading Mu vz: no cuts



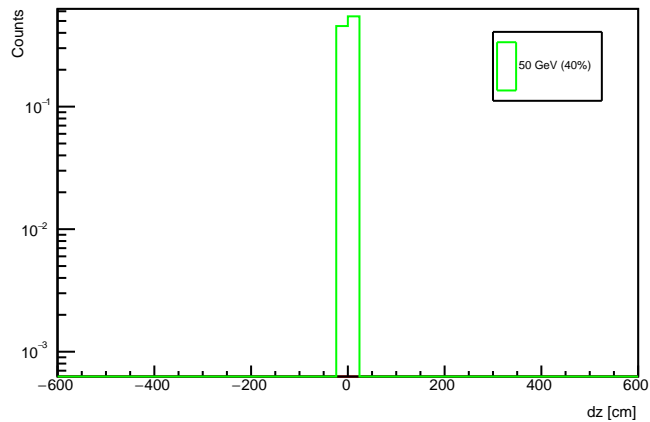
gen leading Mu vz: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV



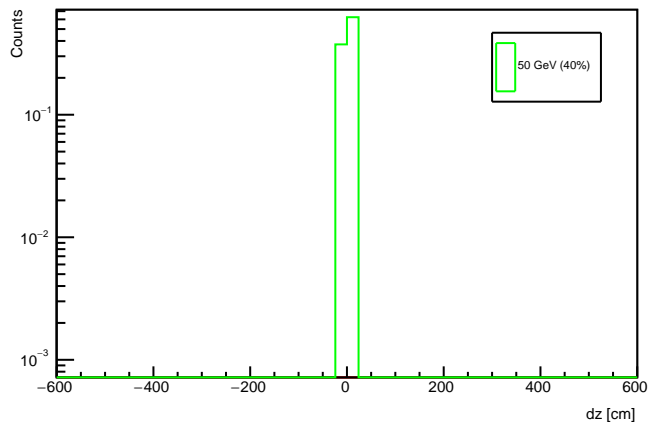
gen leading Mu vz: MET > 120 GeV



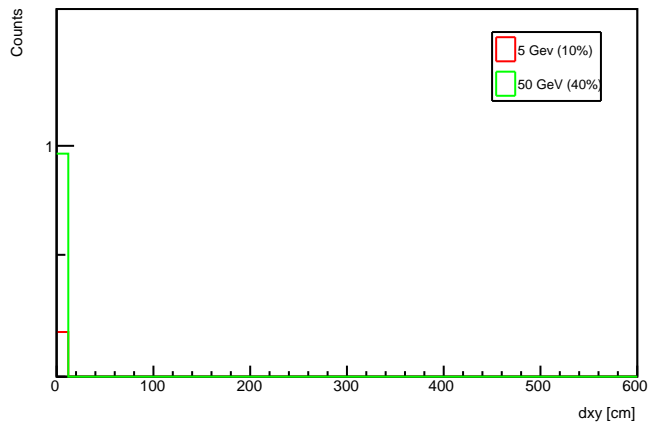
gen leading Mu vz: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeV



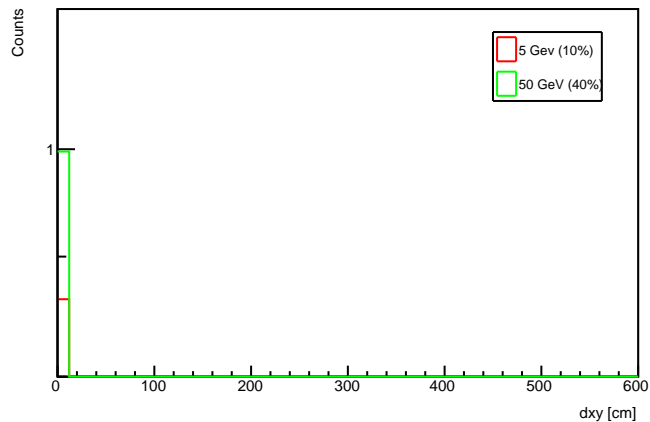
gen leading Mu vz: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$



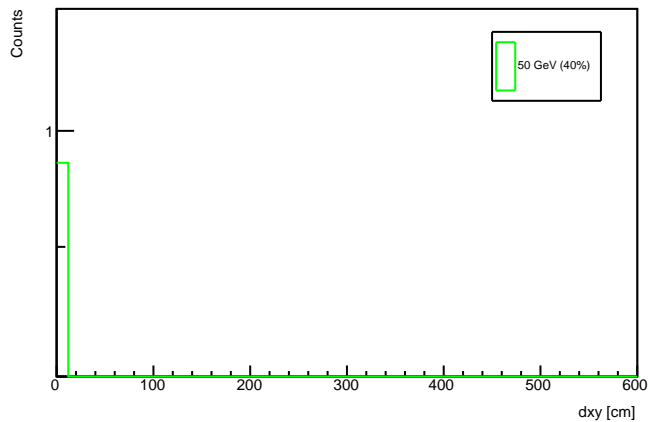
gen all Mu vxy: no cuts



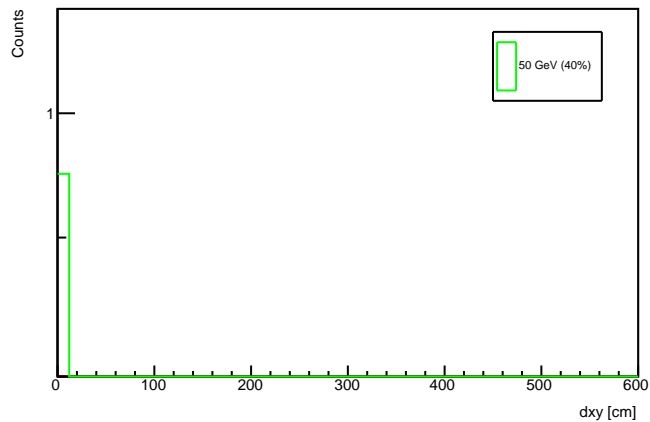
gen all Mu vxy: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV



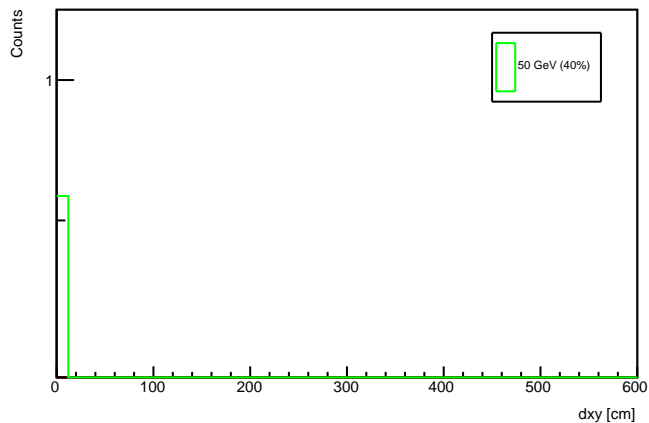
gen all Mu vxy: MET > 120 GeV



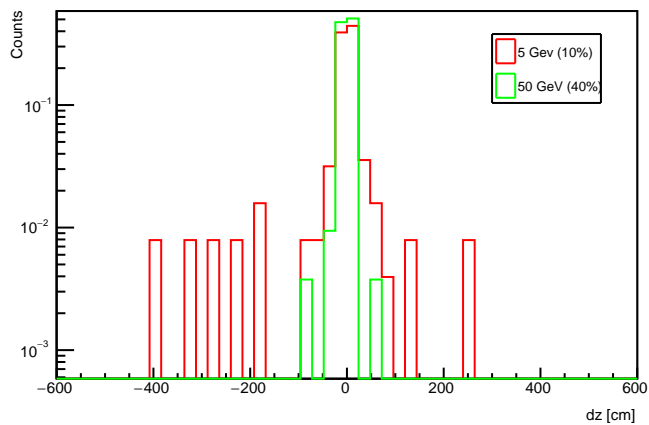
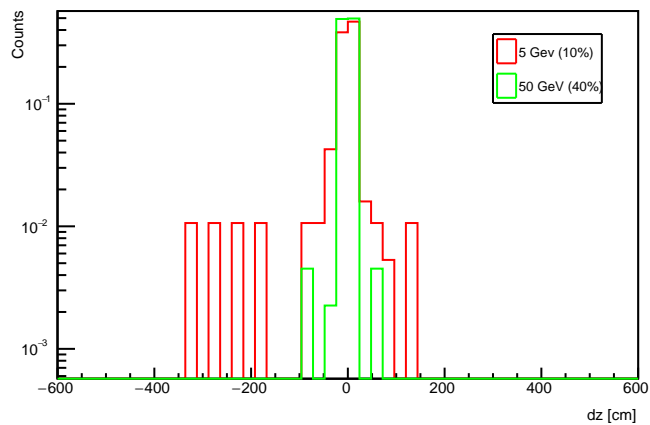
gen all Mu vxy: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeV



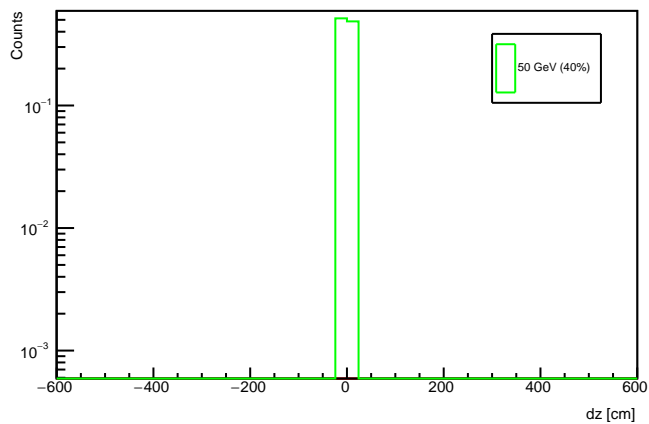
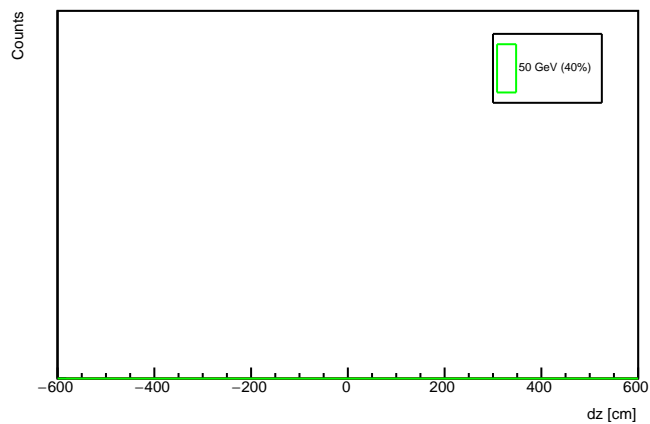
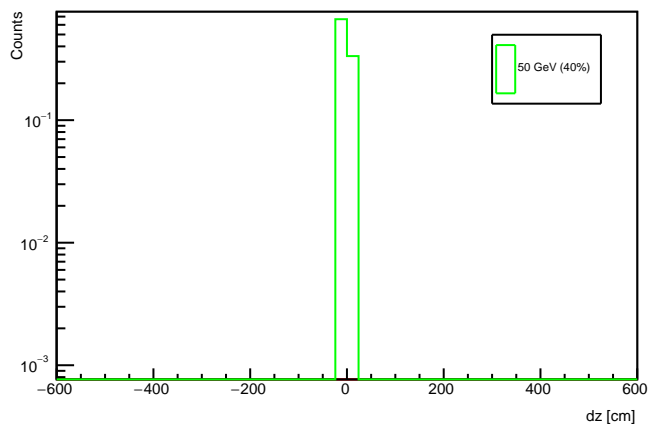
gen all Mu vxy: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$



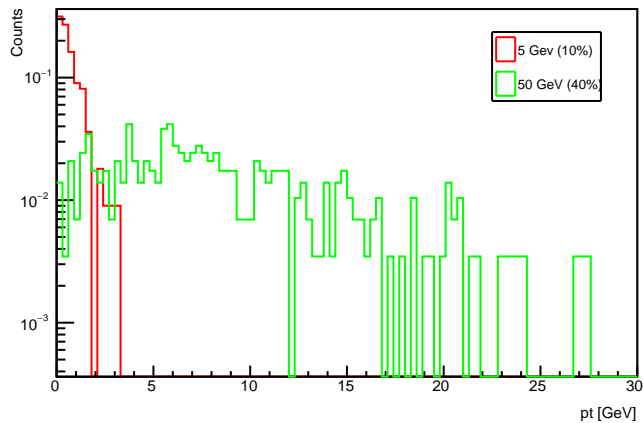
gen all Mu vz: no cuts

gen all Mu vz: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

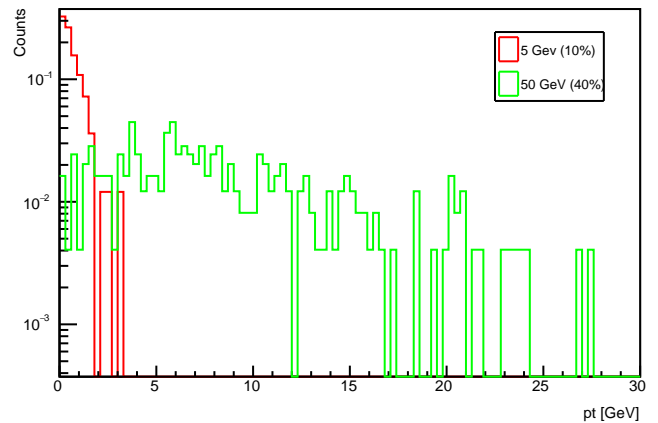
gen all Mu vz: MET > 120 GeV

gen all Mu vz: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen all Mu vz: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

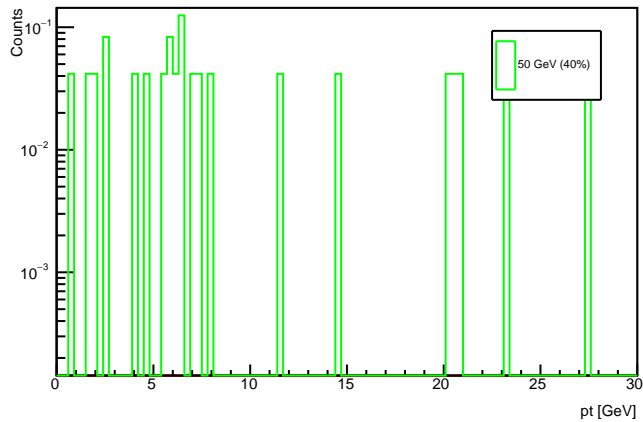
ctau 10mm leading vs subleading Mu pt: no cuts



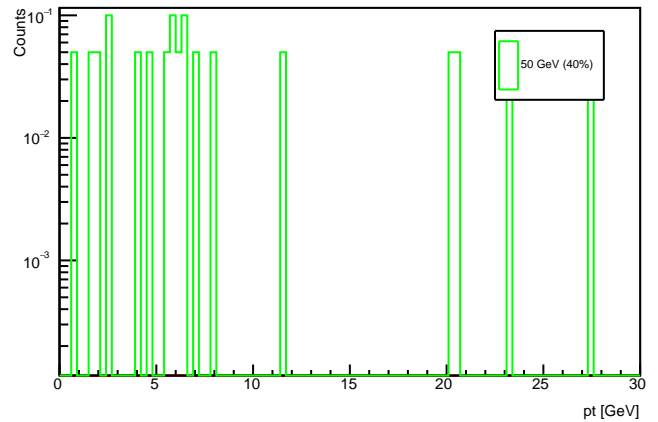
ctau 10mm leading vs subleading Mu pt: $n_{\text{jet}} \geq 1$, $j1_{\text{pt}} > 30$ GeV



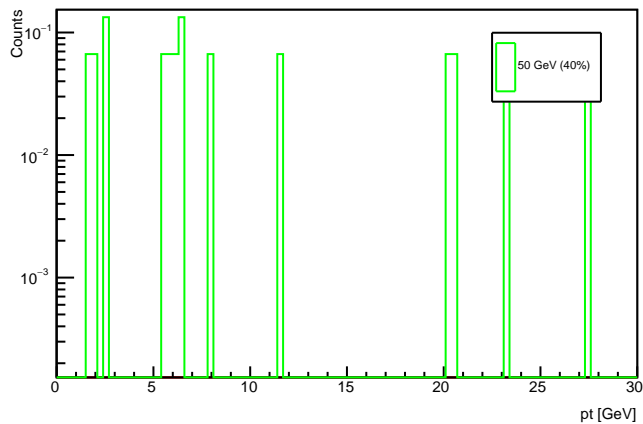
ctau 10mm leading vs subleading Mu pt: MET > 120 GeV



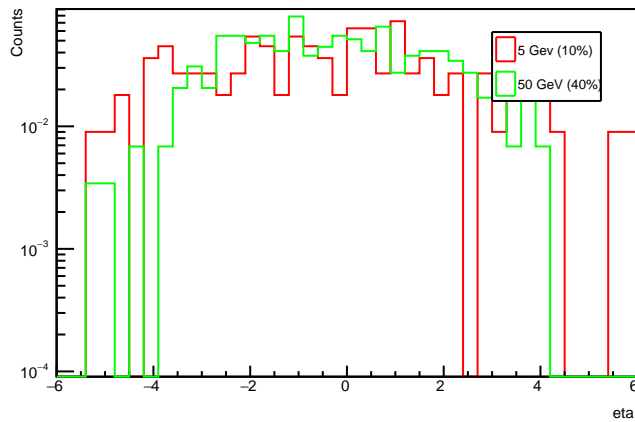
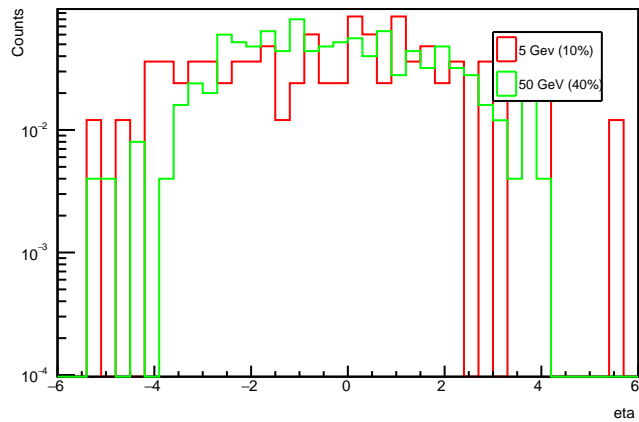
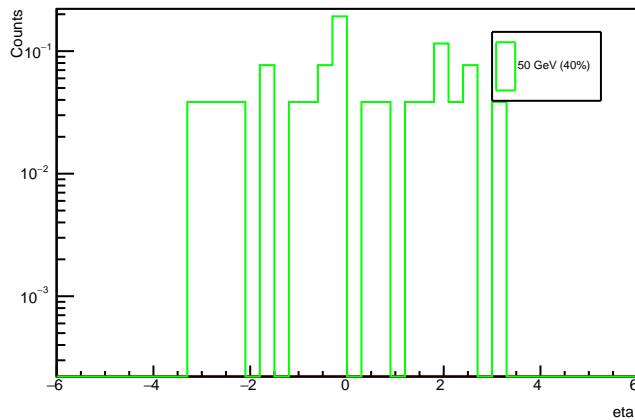
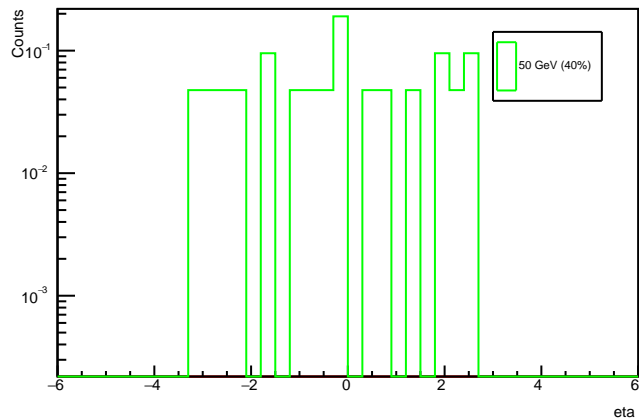
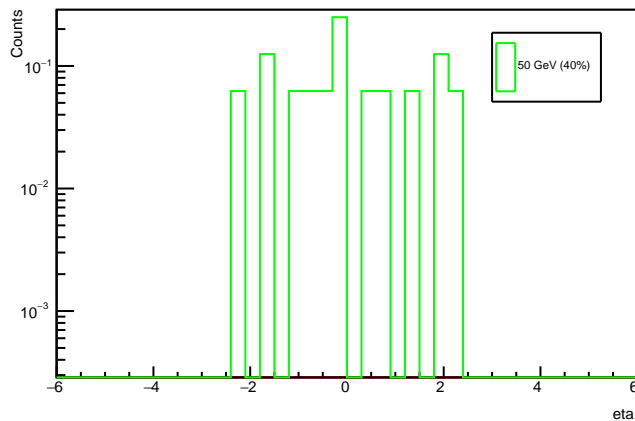
ctau 10mm leading vs subleading Mu pt: $j1_{\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeV



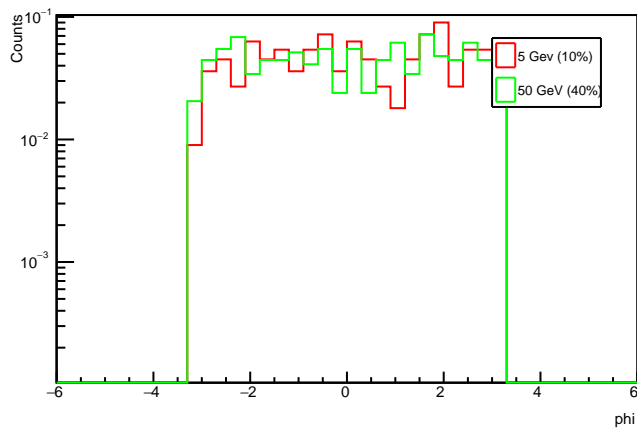
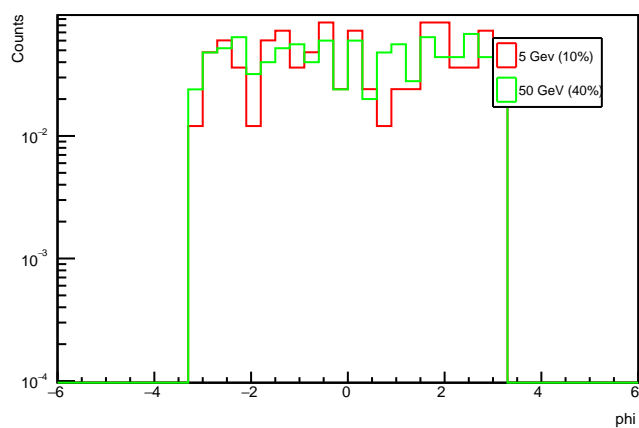
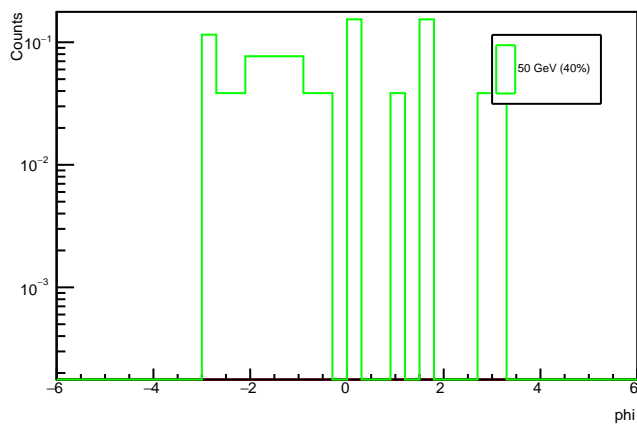
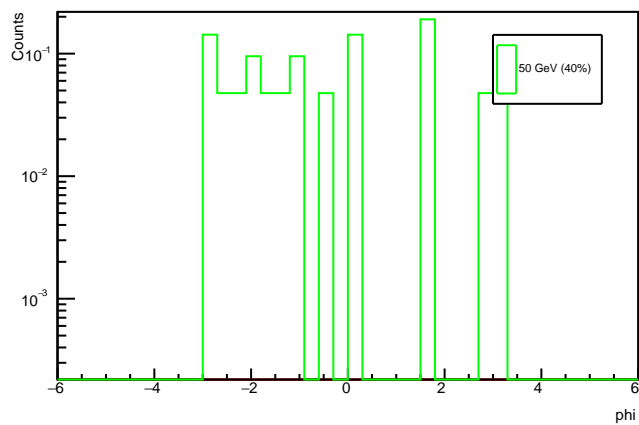
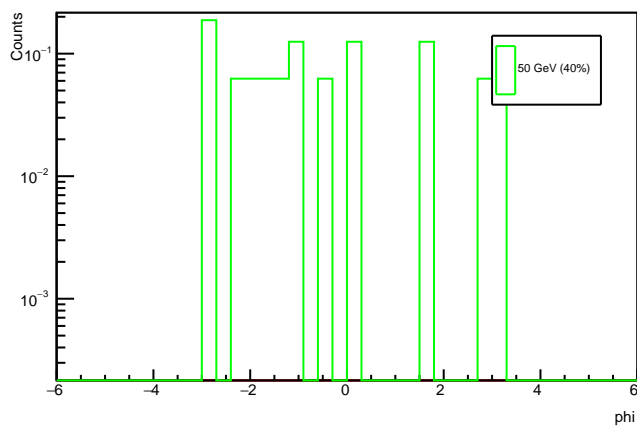
ctau 10mm leading vs subleading Mu pt: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\text{eta}| < 2.4$



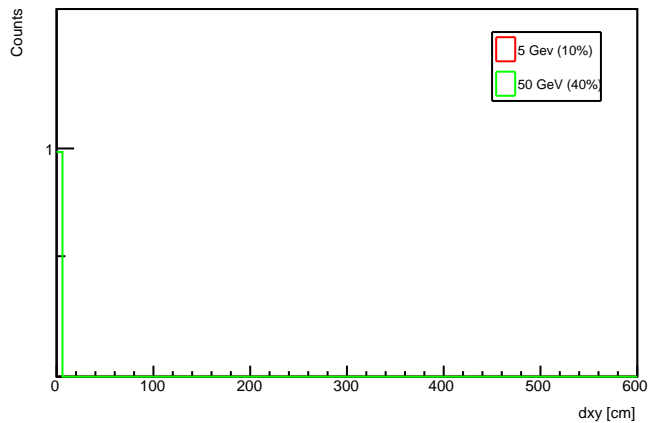
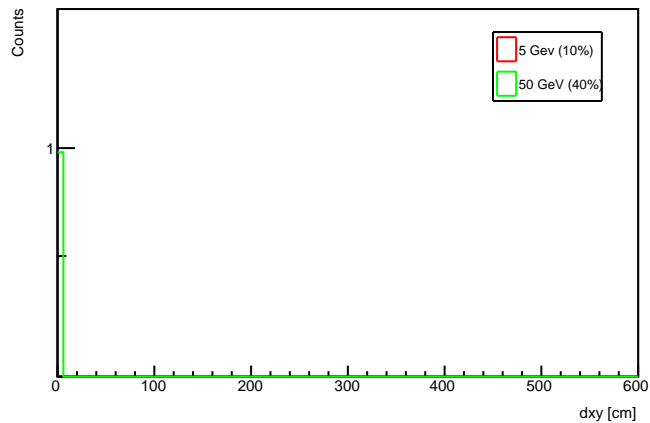
gen subleading Mu eta: no cuts

gen subleading Mu eta: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeVgen subleading Mu eta: $\text{MET} > 120$ GeVgen subleading Mu eta: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen subleading Mu eta: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\text{eta}| < 2.4$ 

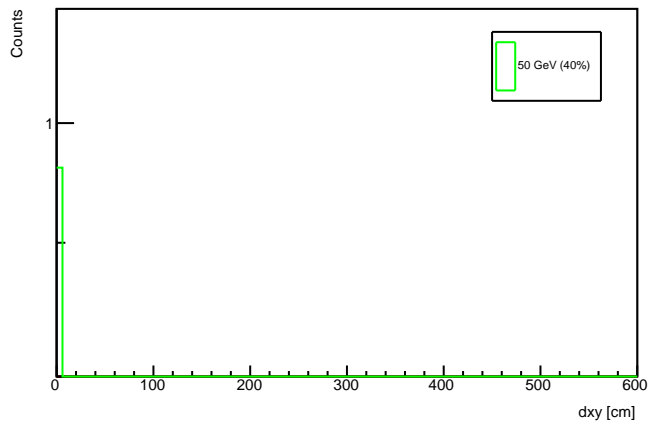
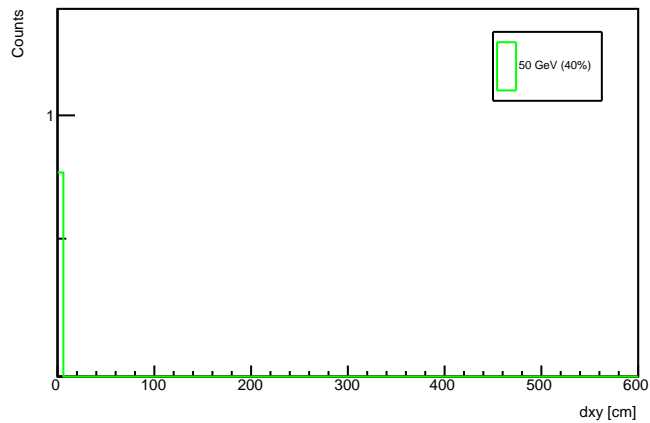
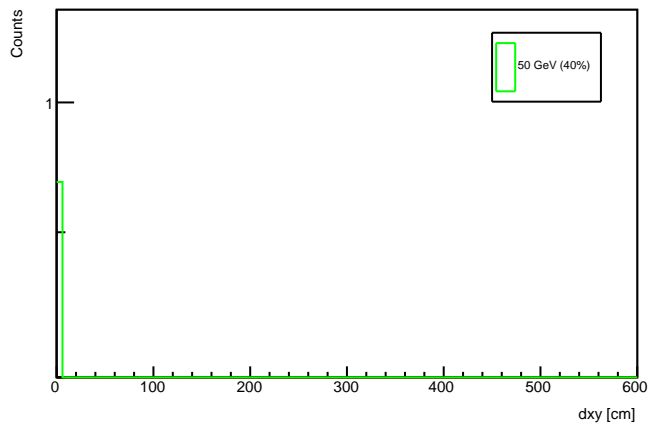
gen subleading Mu phi: no cuts

gen subleading Mu phi: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeVgen subleading Mu phi: $\text{MET} > 120$ GeVgen subleading Mu phi: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen subleading Mu phi: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{ta}}| < 2.4$ 

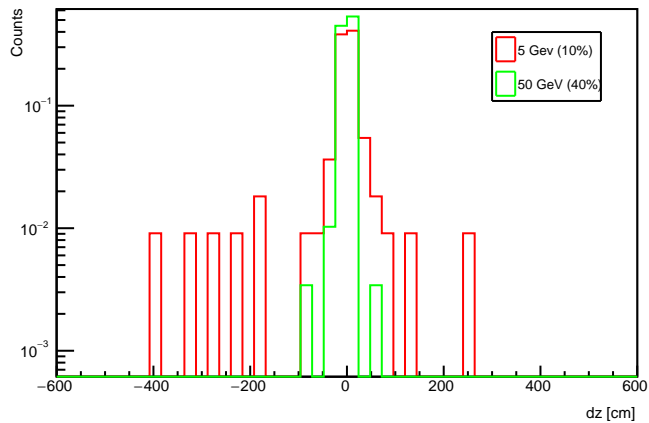
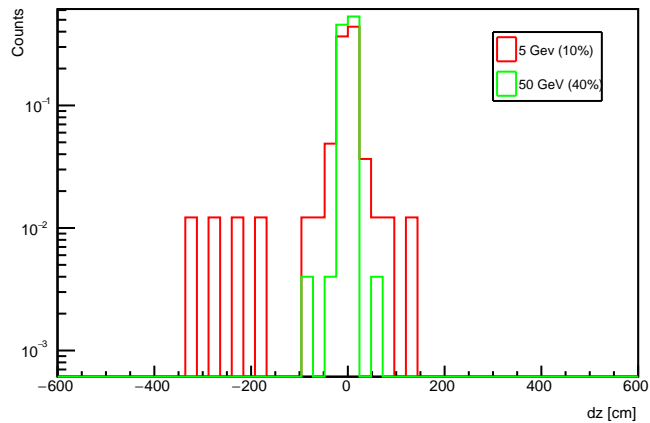
gen subleading Mu vxy: no cuts

gen subleading Mu vxy: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

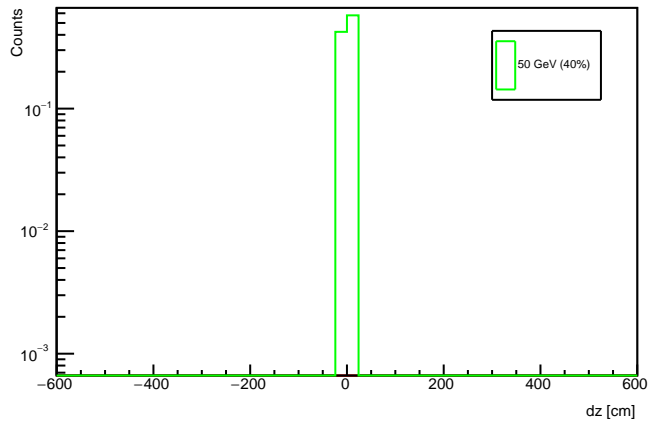
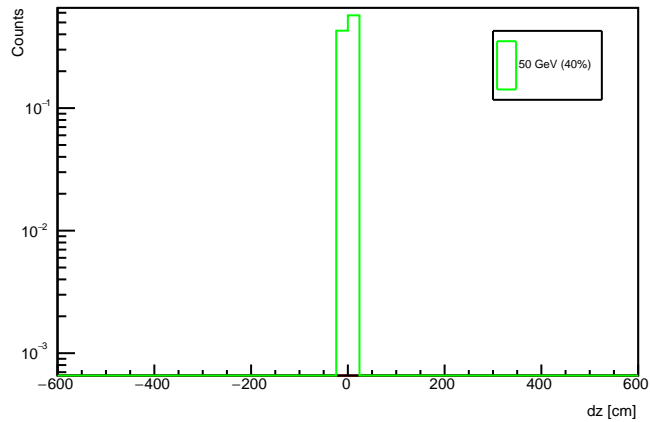
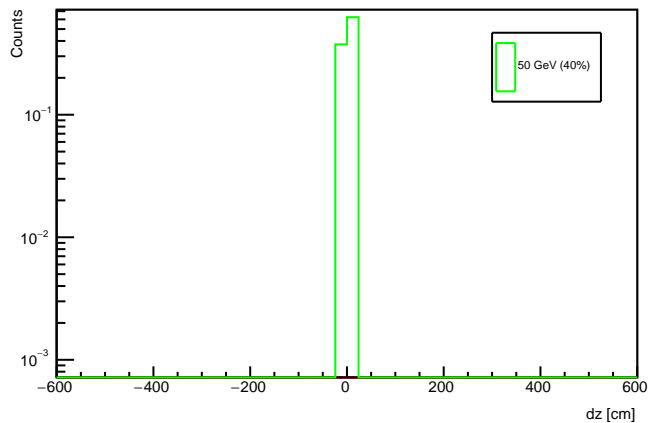
gen subleading Mu vxy: MET > 120 GeV

gen subleading Mu vxy: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen subleading Mu vxy: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

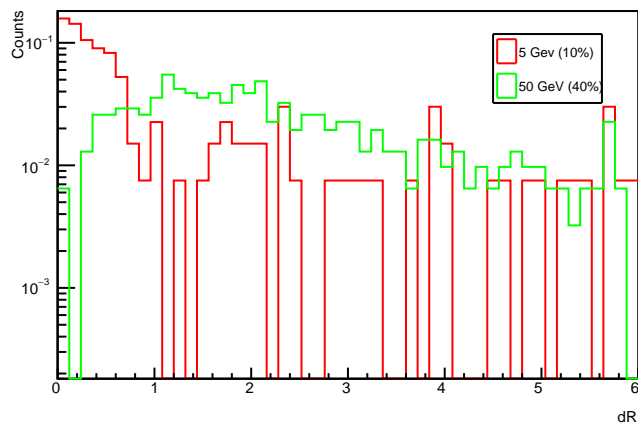
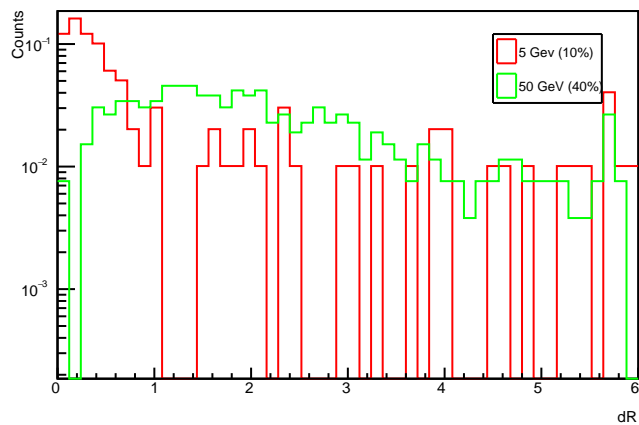
gen subleading Mu vz: no cuts

gen subleading Mu vz: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

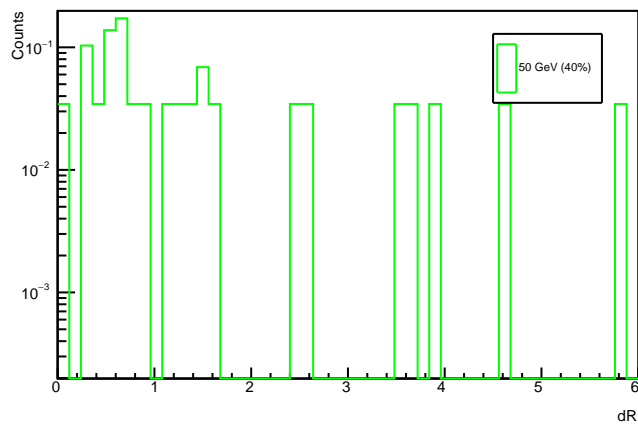
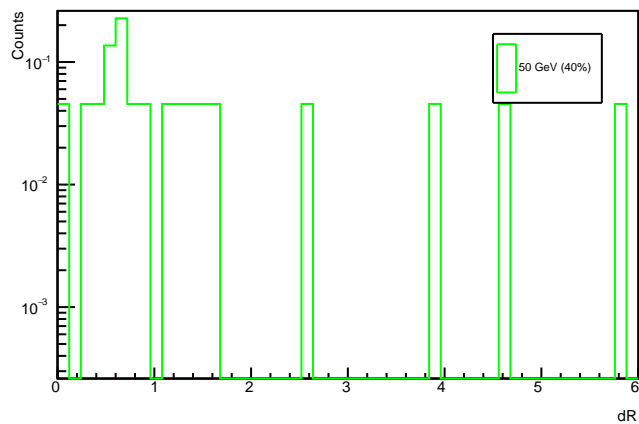
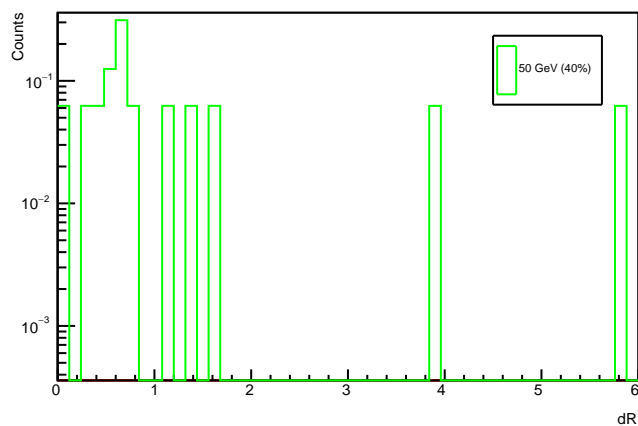
gen subleading Mu vz: MET > 120 GeV

gen subleading Mu vz: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVgen subleading Mu vz: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\text{jeta}| < 2.4$ 

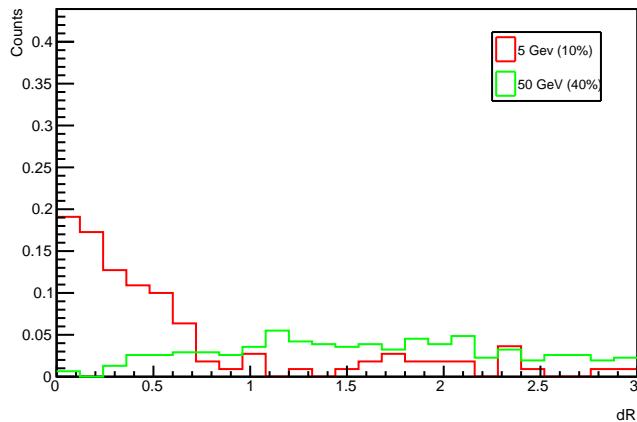
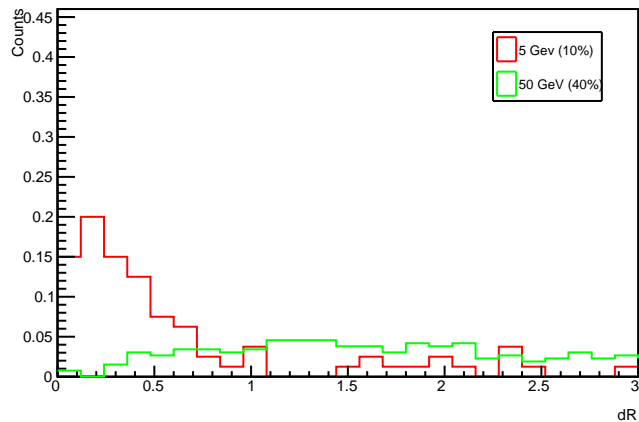
dR: gen leading mu and subleading mu: no cuts

dR: gen leading mu and subleading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

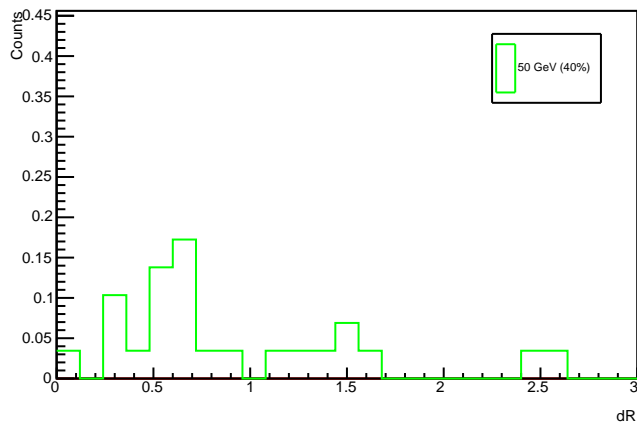
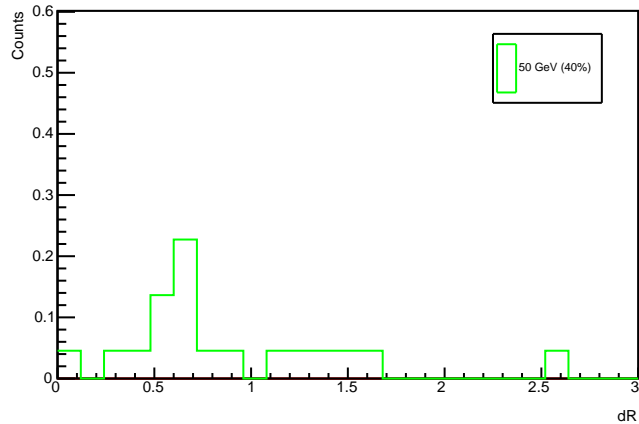
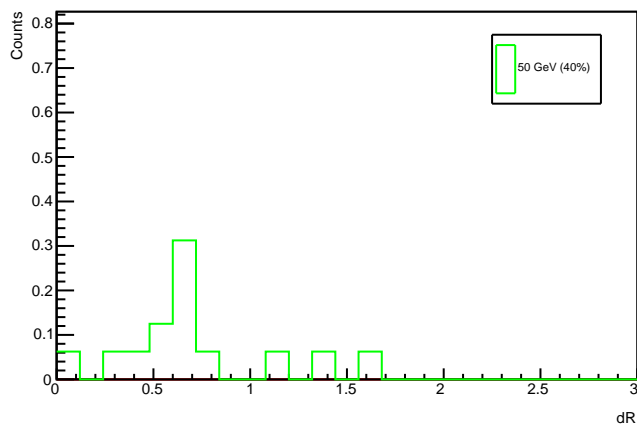
dR: gen leading mu and subleading mu: MET > 120 GeV

dR: gen leading mu and subleading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVdR: gen leading mu and subleading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$ 

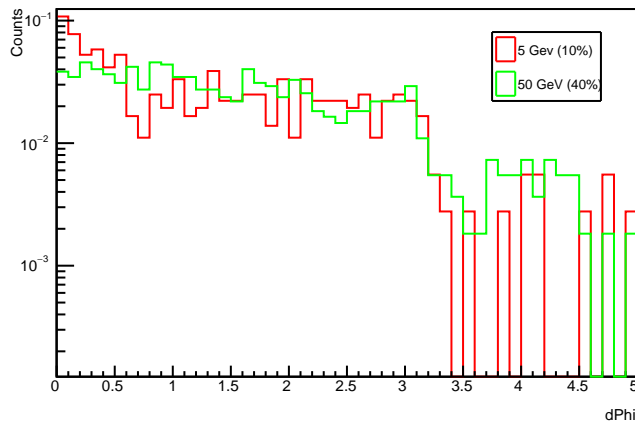
dR: gen leading mu and subleading mu: no cuts

dR: gen leading mu and subleading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

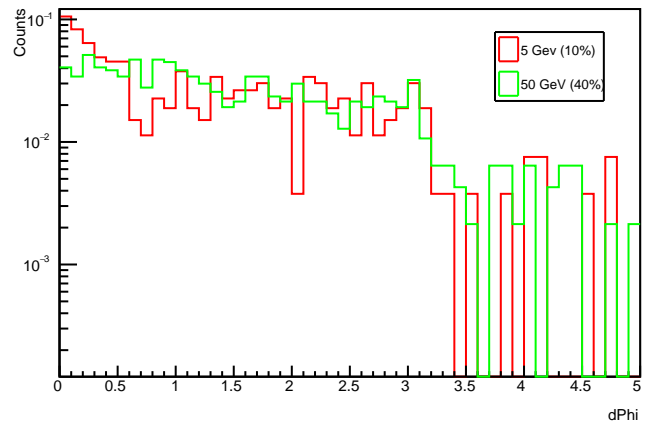
dR: gen leading mu and subleading mu: MET > 120 GeV

dR: gen leading mu and subleading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeVdR: gen leading mu and subleading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$ 

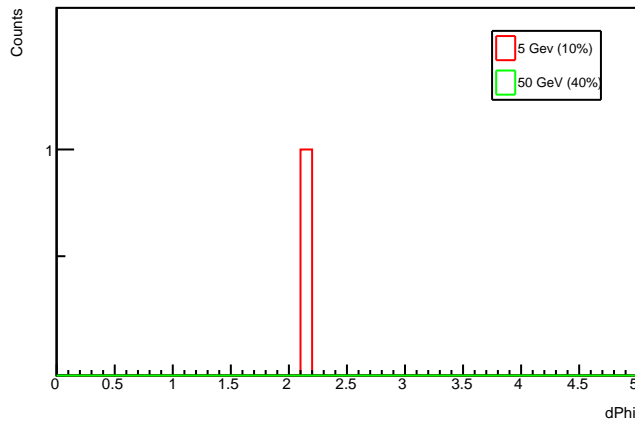
dPhi: gen MET and leading mu: no cuts



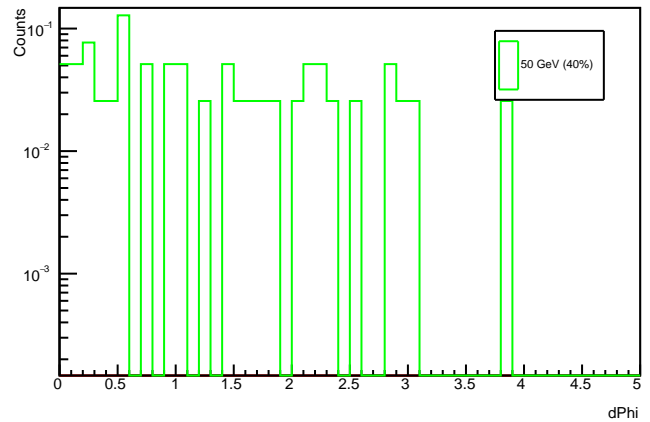
dPhi: gen MET and leading mu: n_jet >=1, j1pt > 30 GeV



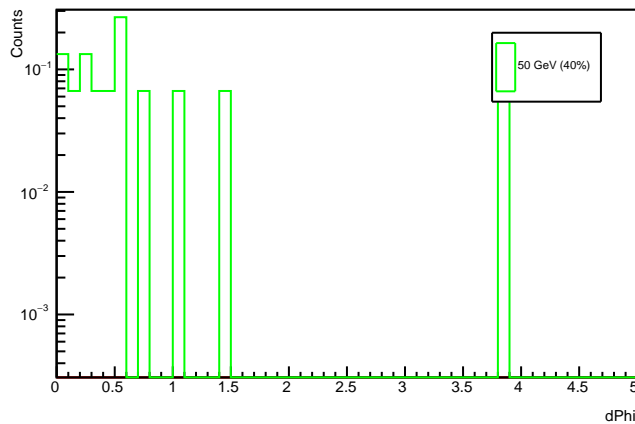
dPhi: gen MET and leading mu: MET > 120 GeV



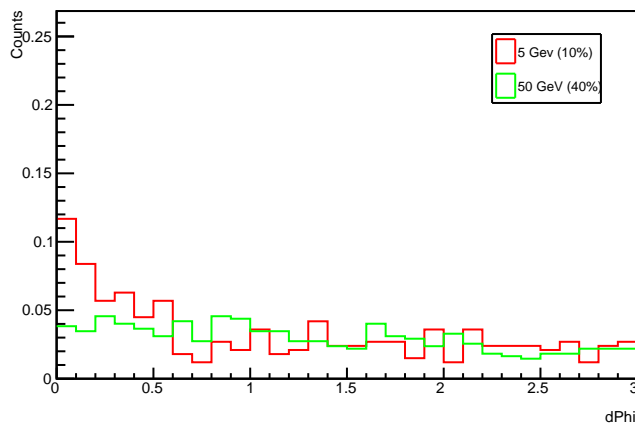
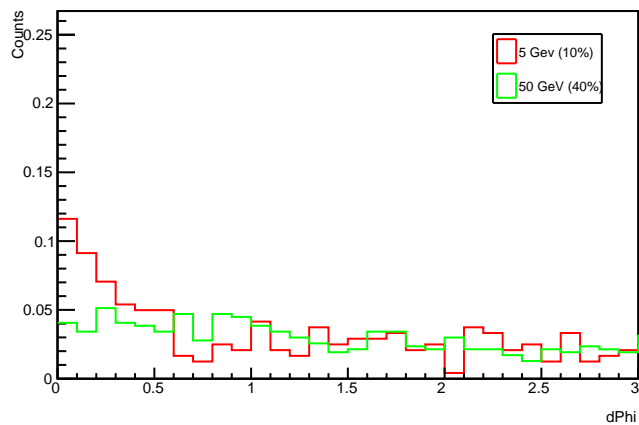
dPhi: gen MET and leading mu: j1pt >120, at most 2 jets w/ pt >30 GeV



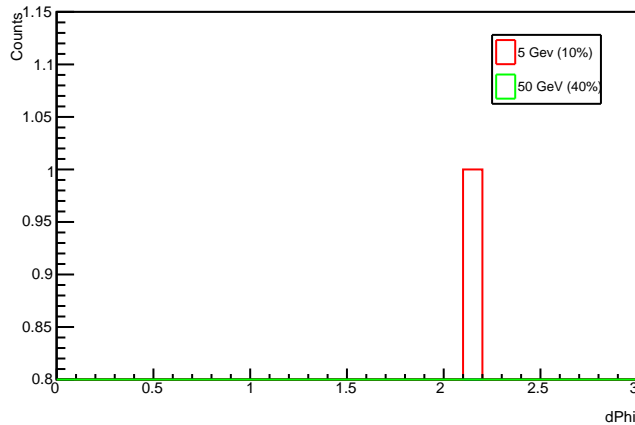
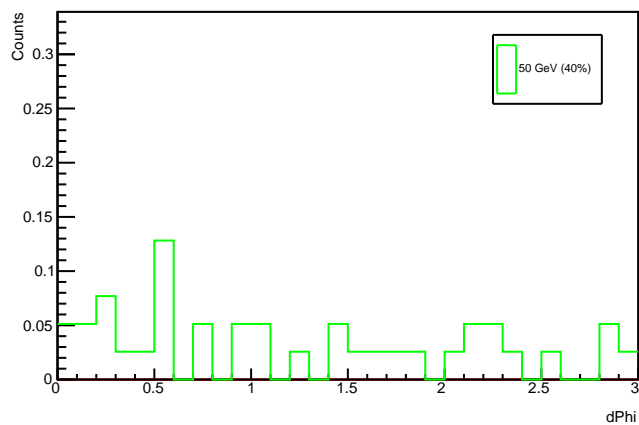
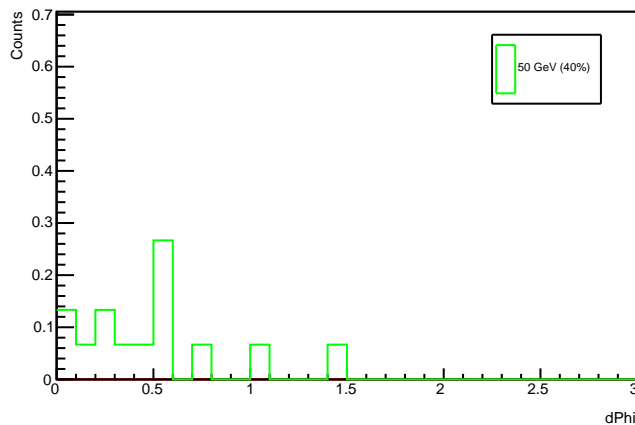
dPhi: gen MET and leading mu: at least 2 mu w/ vx y < 740 cm, |vz| < 960 cm & |eta| < 2.4



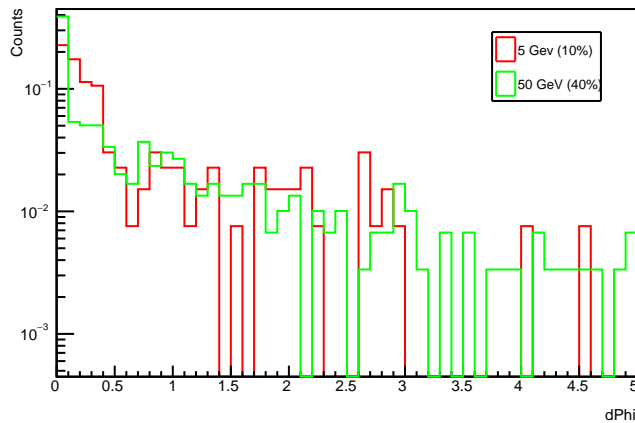
dPhi: gen MET and leading mu: no cuts

dPhi: gen MET and leading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

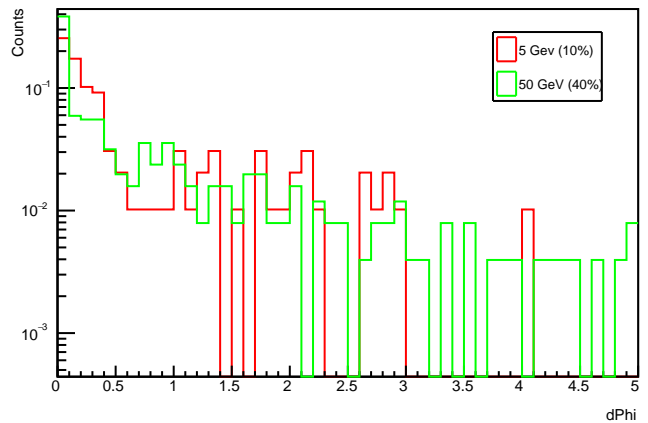
dPhi: gen MET and leading mu: MET > 120 GeV

dPhi: gen MET and leading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVdPhi: gen MET and leading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

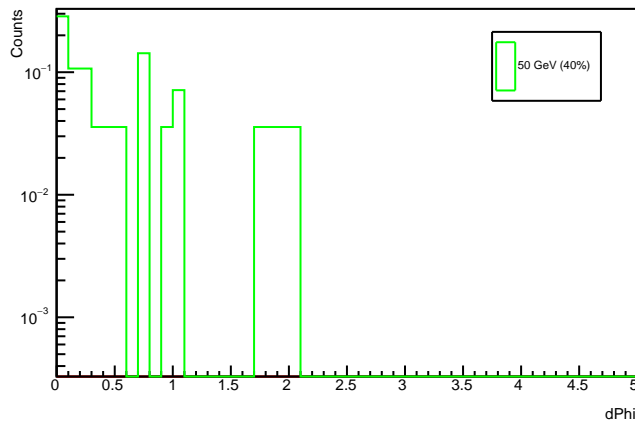
dPhi: gen leading mu and subleading mu: no cuts



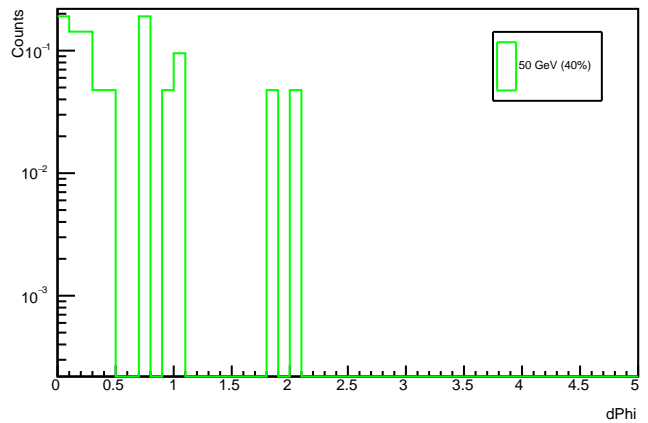
dPhi: gen leading mu and subleading mu: n_jet >=1, j1pt > 30 GeV



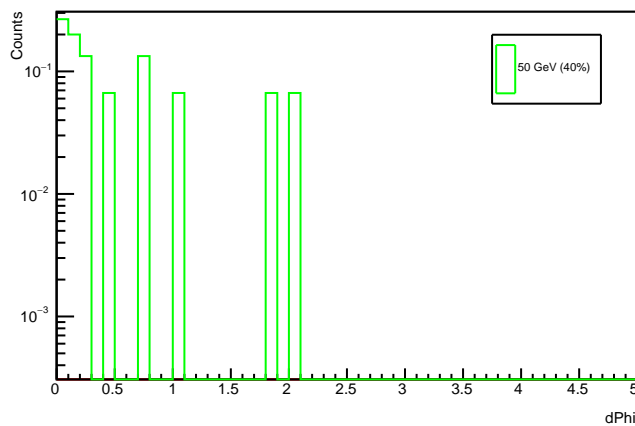
dPhi: gen leading mu and subleading mu: MET > 120 GeV



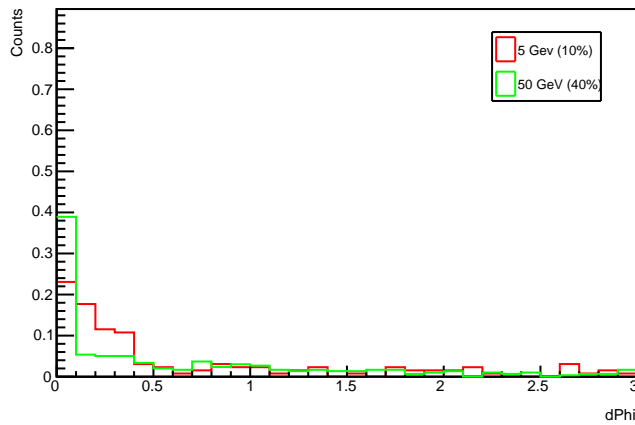
dPhi: gen leading mu and subleading mu: j1pt >120, at most 2 jets w/ pt >30 GeV



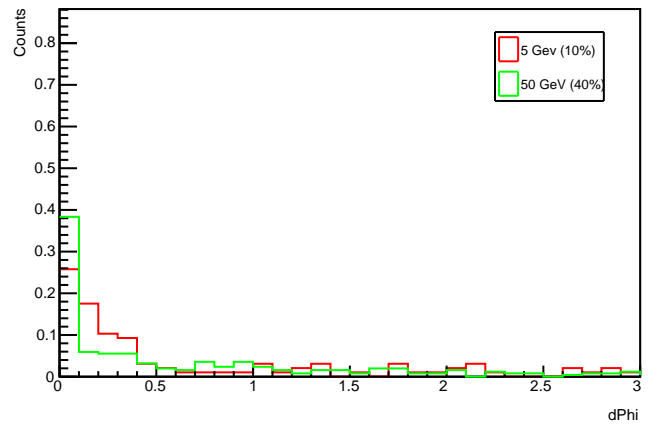
dPhi: gen leading mu and subleading mu: at least 2 mu w/ vx < 740 cm, |vz| < 960 cm & |eta| < 2.4



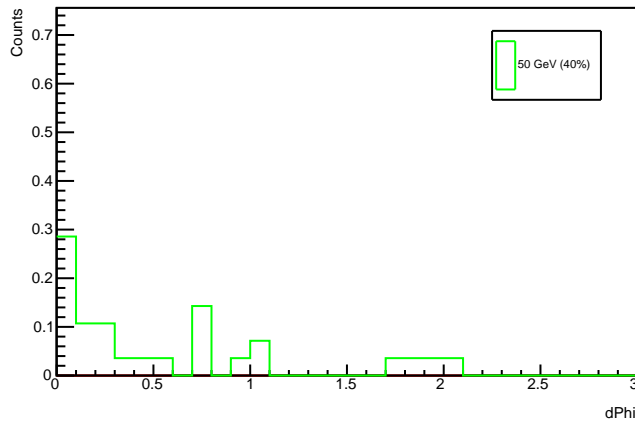
dPhi: gen leading mu and subleading mu: no cuts



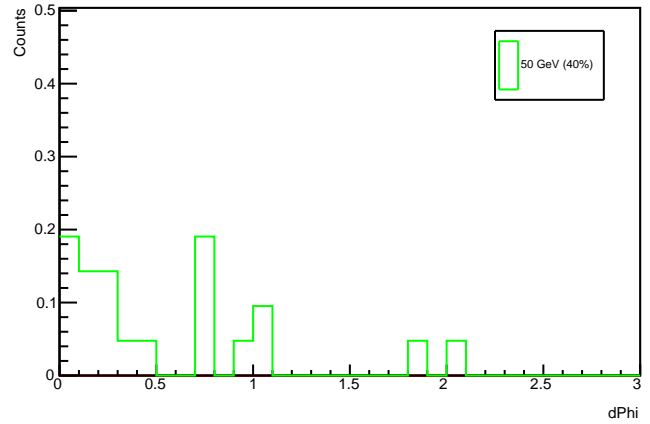
dPhi: gen leading mu and subleading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV



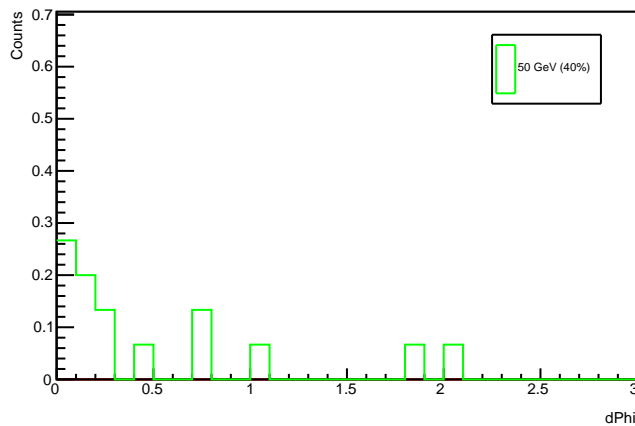
dPhi: gen leading mu and subleading mu: MET > 120 GeV



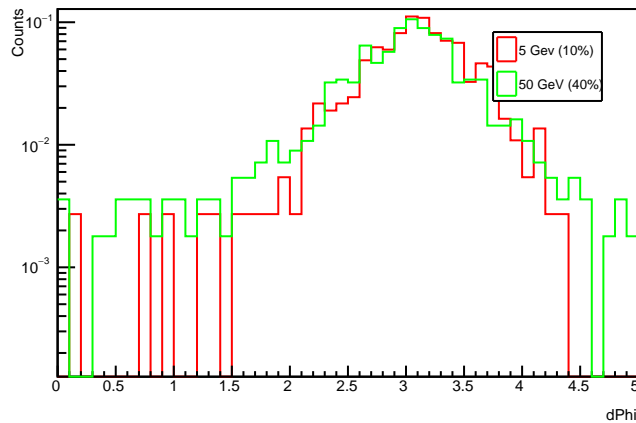
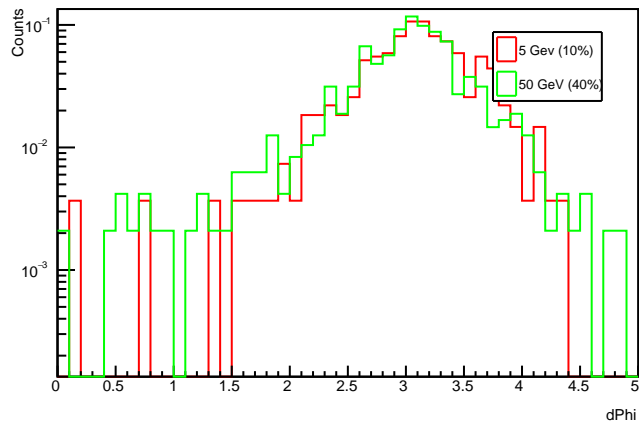
dPhi: gen leading mu and subleading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeV



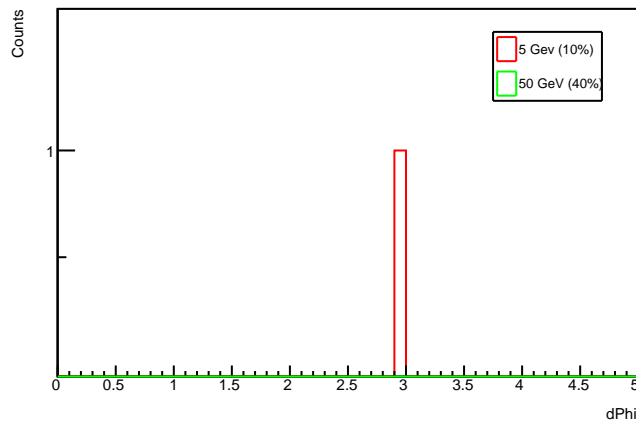
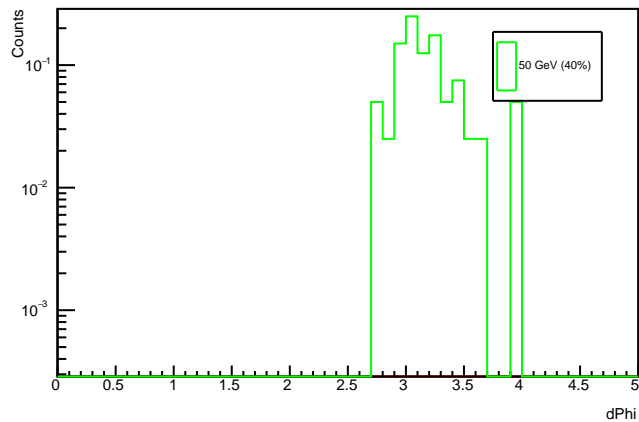
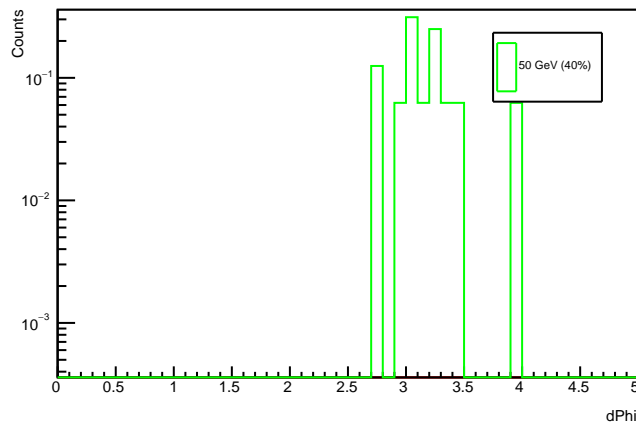
dPhi: gen leading mu and subleading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$



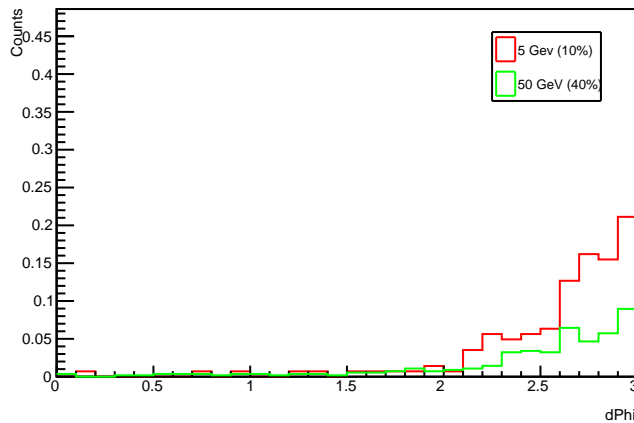
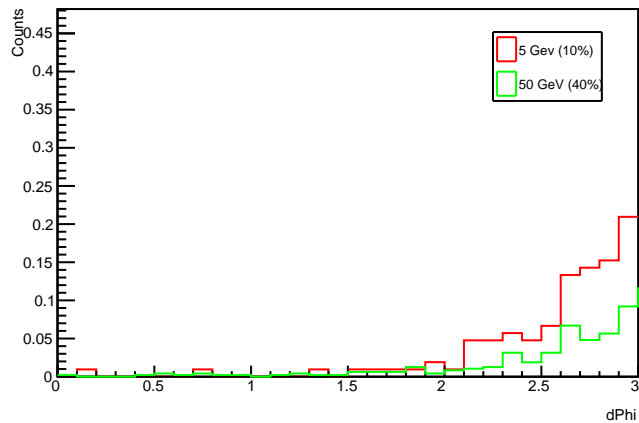
dPhi: gen MET and leading jet: no cuts

dPhi: gen MET and leading jet: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

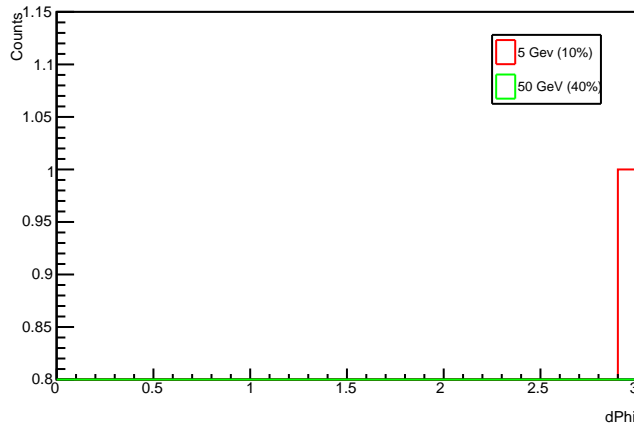
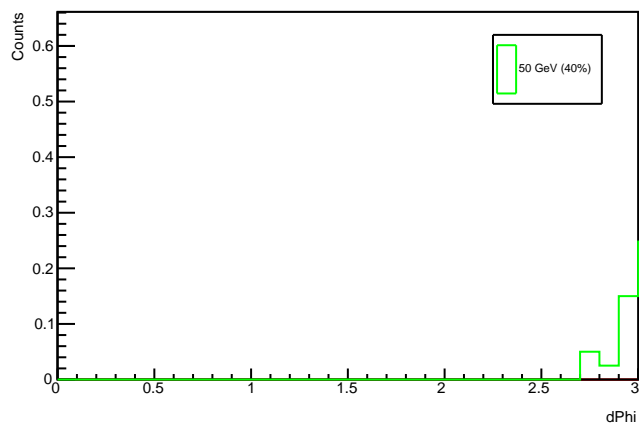
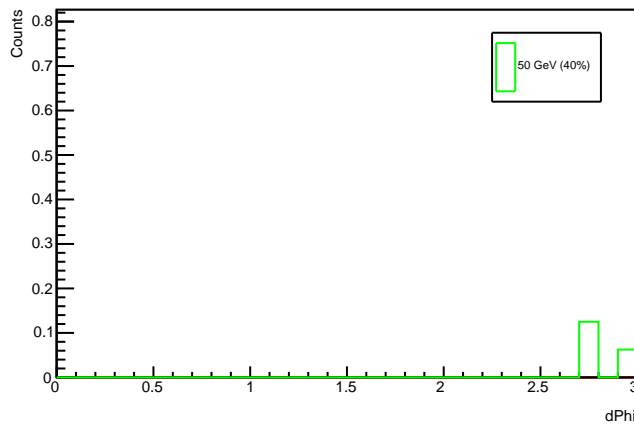
dPhi: gen MET and leading jet: MET > 120 GeV

dPhi: gen MET and leading jet: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVdPhi: gen MET and leading jet: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$ 

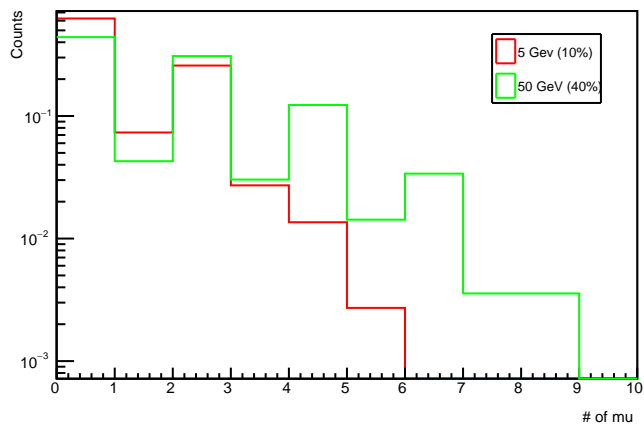
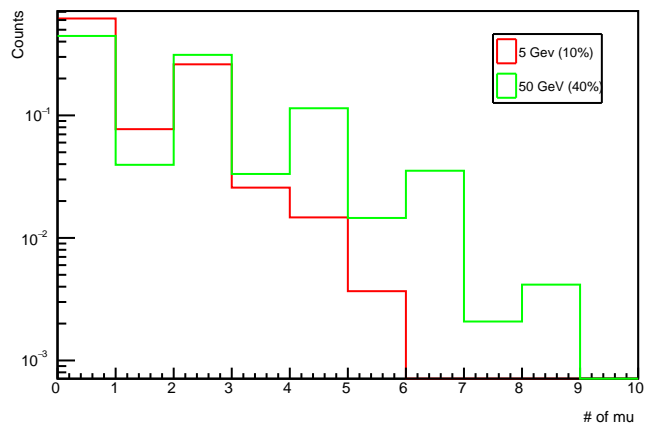
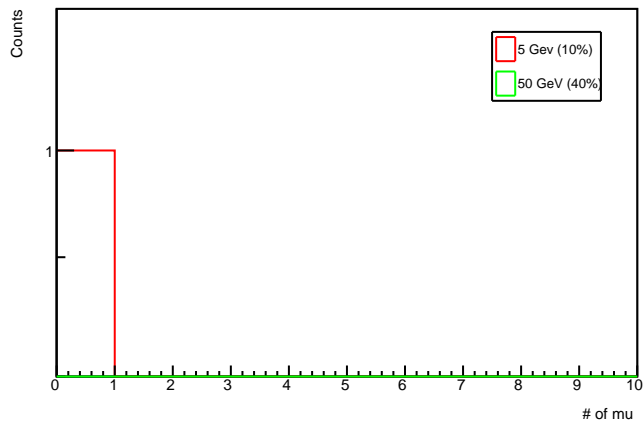
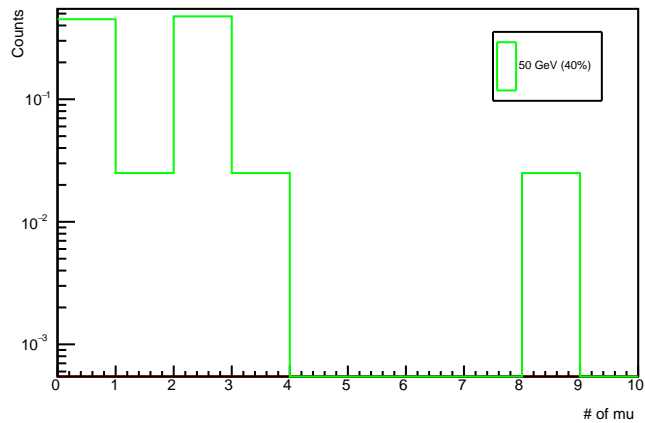
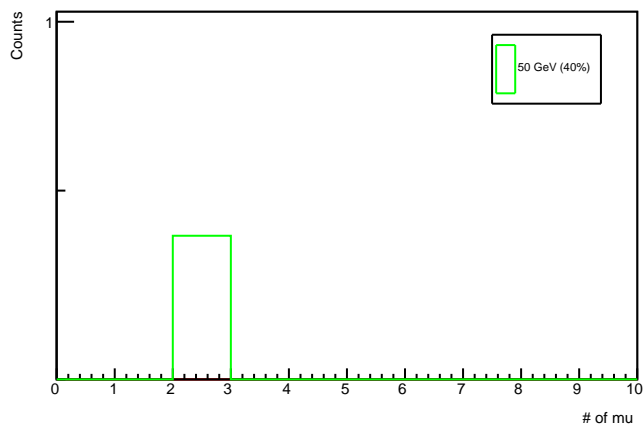
dPhi: gen MET and leading jet: no cuts

dPhi: gen MET and leading jet: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

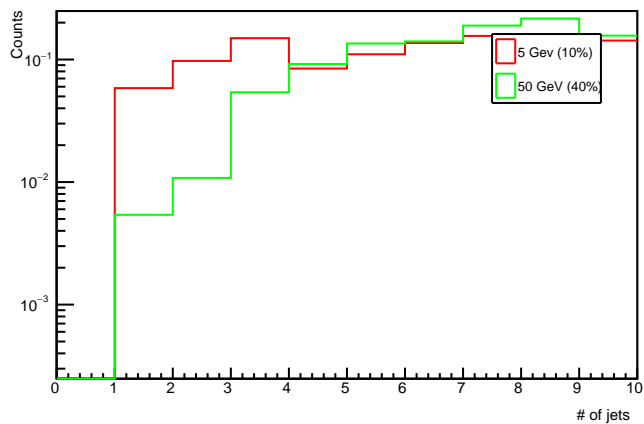
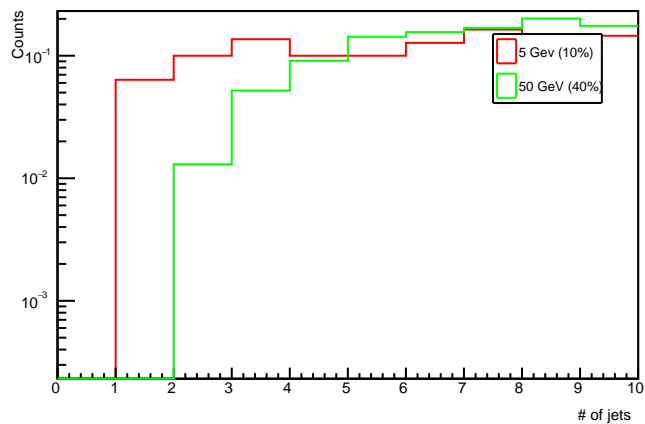
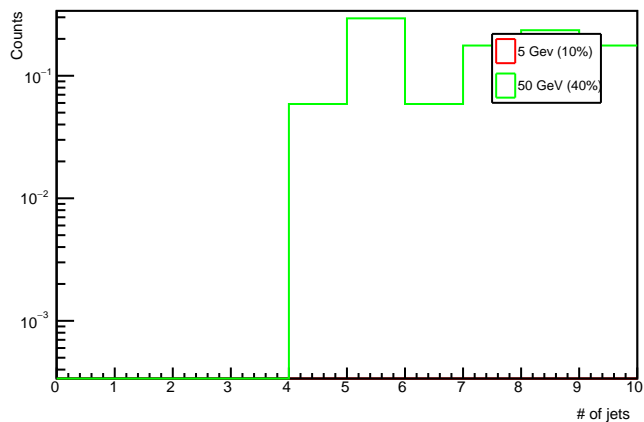
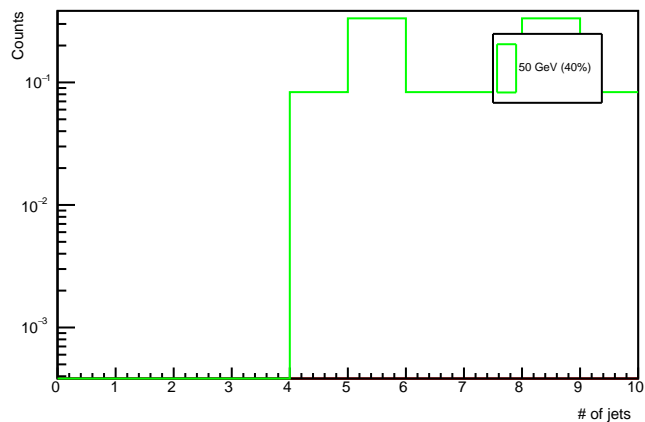
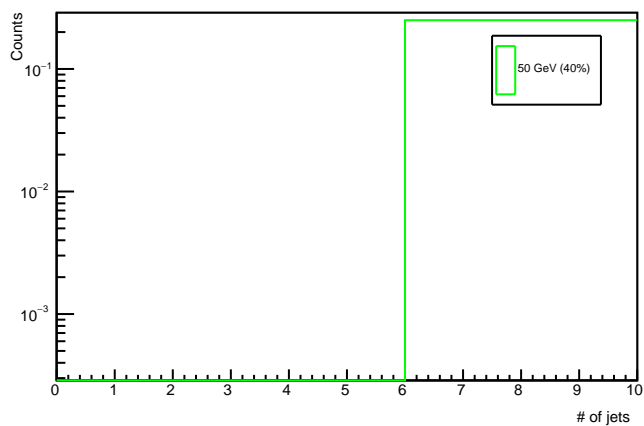
dPhi: gen MET and leading jet: MET > 120 GeV

dPhi: gen MET and leading jet: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVdPhi: gen MET and leading jet: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

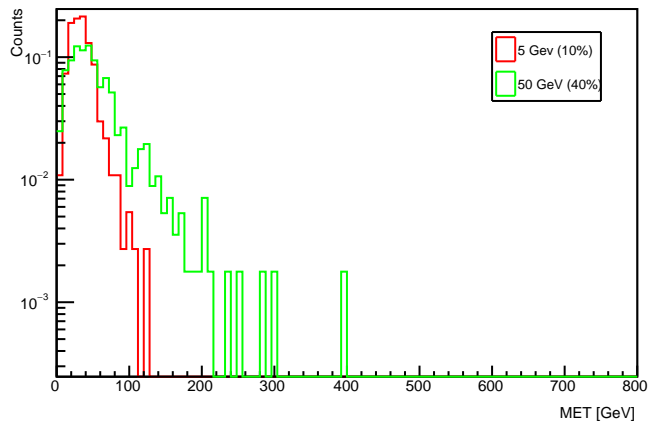
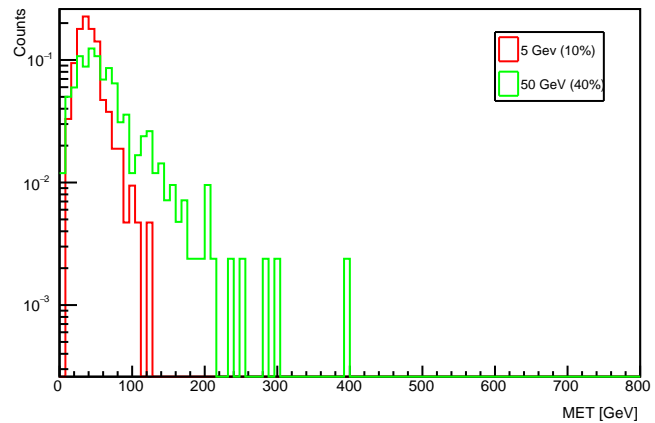
gen number of mu: no cuts

gen number of mu: $n_{\text{jet}} \geq 1, j_{1\text{pt}} > 30 \text{ GeV}$ gen number of mu: $\text{MET} > 120 \text{ GeV}$ gen number of mu: $j_{1\text{pt}} > 120, \text{ at most 2 jets w/ } p_{\text{T}} > 30 \text{ GeV}$ gen number of mu: at least 2 mu w/ $v_{xy} < 740 \text{ cm}, |v_z| < 960 \text{ cm} \text{ \& } |\text{eta}| < 2.4$ 

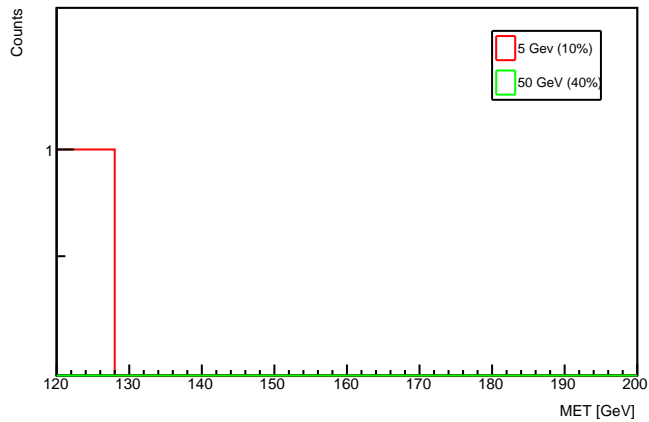
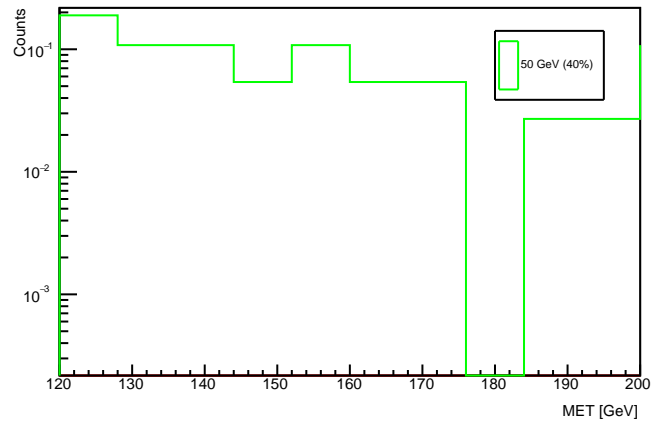
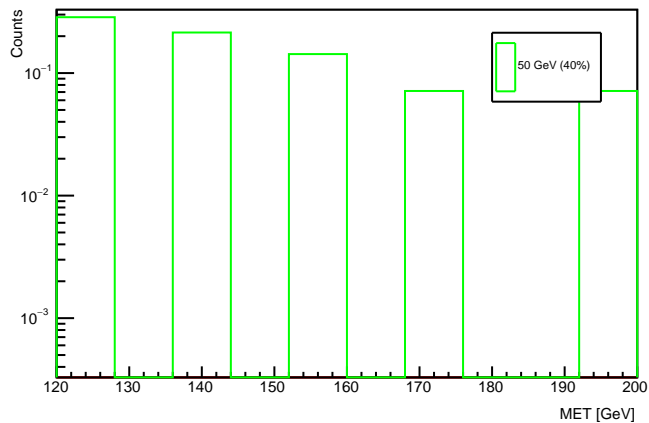
gen number of jets: no cuts

gen number of jets: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30 \text{ GeV}$ gen number of jets: $\text{MET} > 120 \text{ GeV}$ gen number of jets: $j_{1\text{pt}} > 120$, at most 2 jets w/ $\text{pt} > 30 \text{ GeV}$ gen number of jets: at least 2 mu w/ $v_{xy} < 740 \text{ cm}$, $|v_z| < 960 \text{ cm}$ & $|\eta| < 2.4$ 

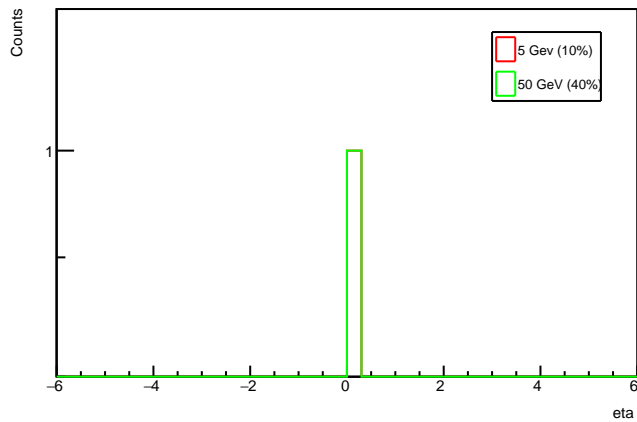
reco leading MET: no cuts

reco leading MET: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

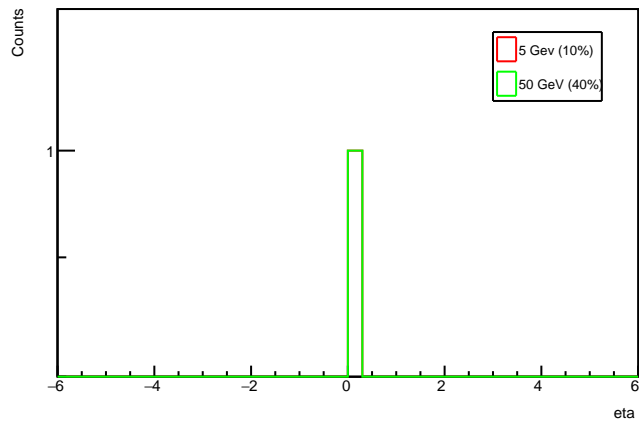
reco leading MET: MET > 120 GeV

reco leading MET: $j_{1\text{pt}} > 120$, at most 2 jets w/ $pt > 30$ GeVreco leading MET: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

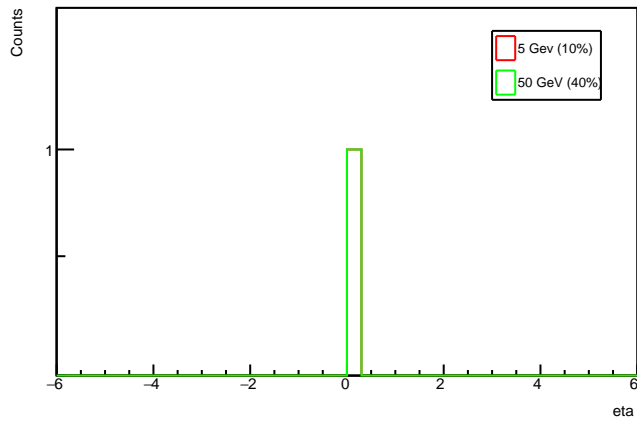
reco leading Met eta: no cuts



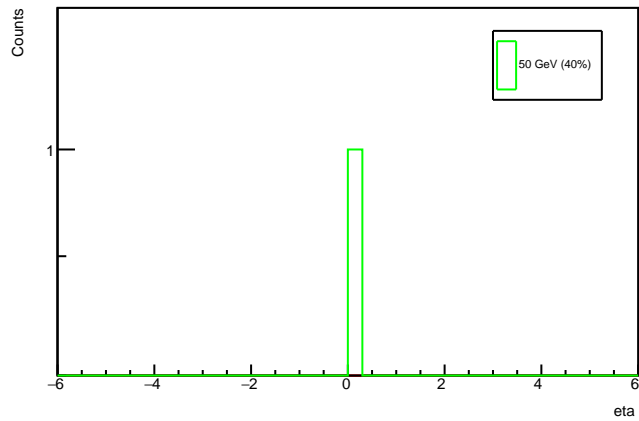
reco leading Met eta: n_jet >=1, j1pt > 30 GeV



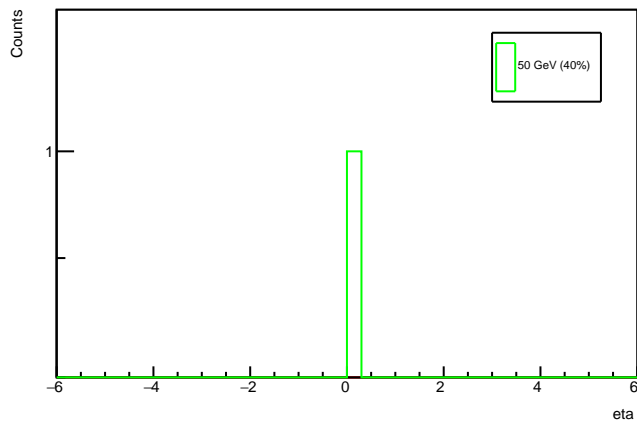
reco leading Met eta: MET > 120 GeV



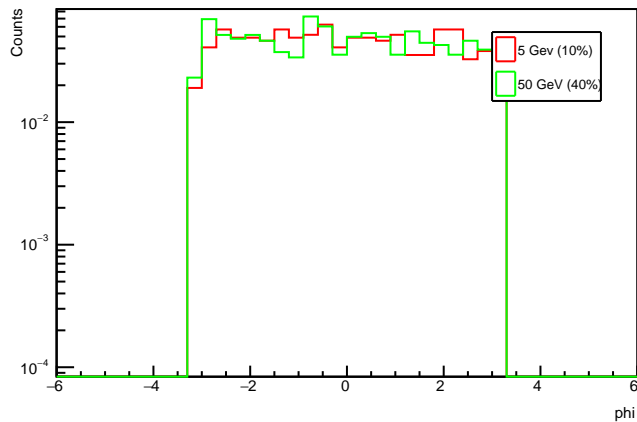
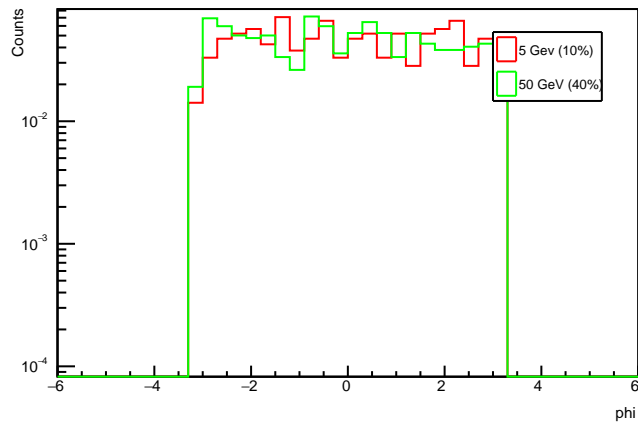
reco leading Met eta: j1pt >120, at most 2 jets w/ pt >30 GeV



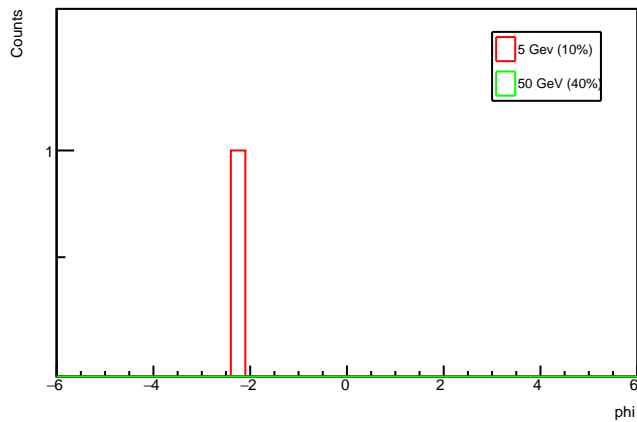
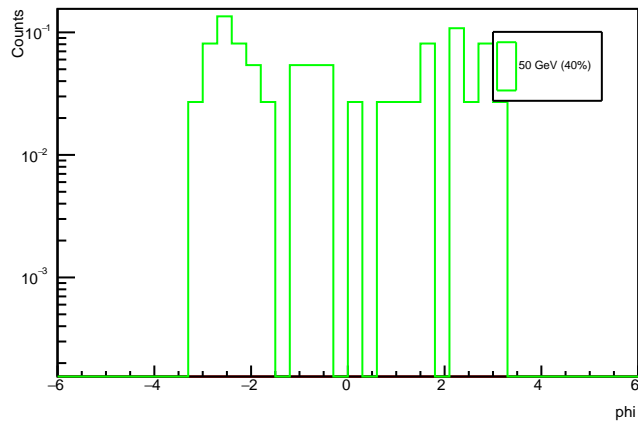
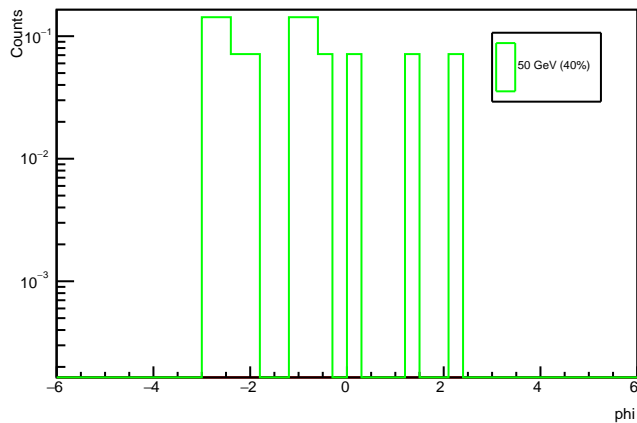
reco leading Met eta: at least 2 mu w/ vx < 740 cm, |vz| < 960 cm & |eta| < 2.4



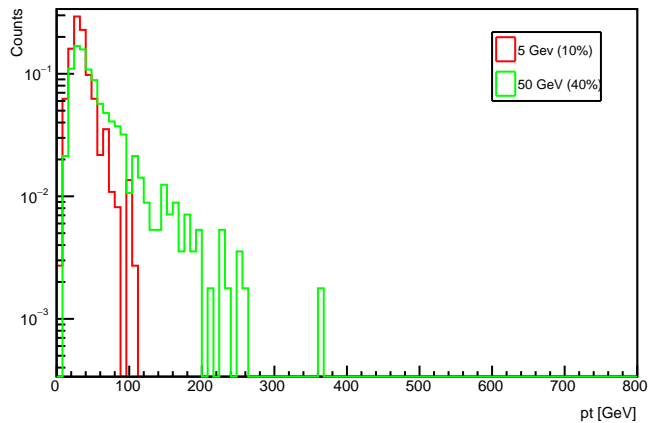
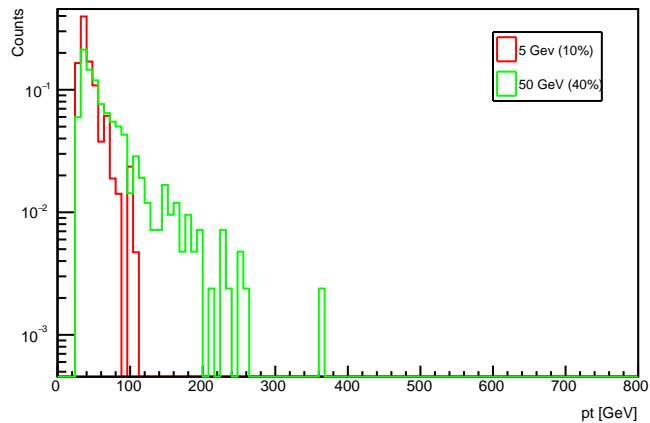
reco leading Met phi: no cuts

reco leading Met phi: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

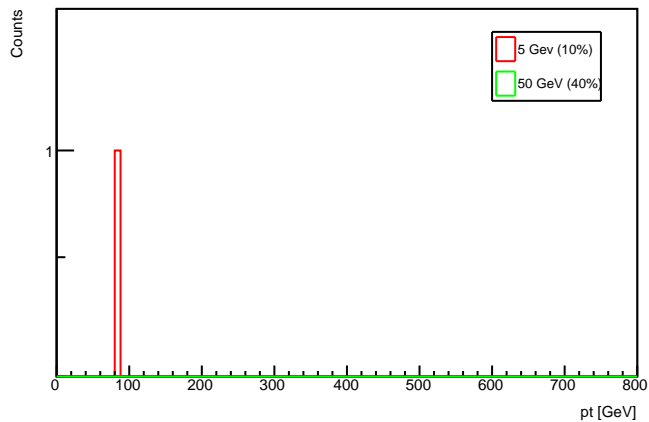
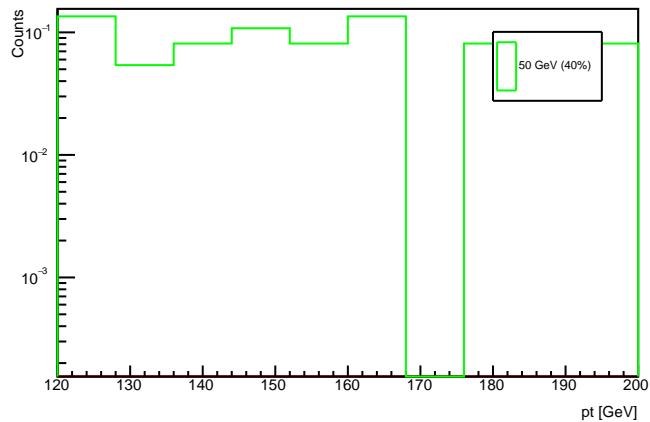
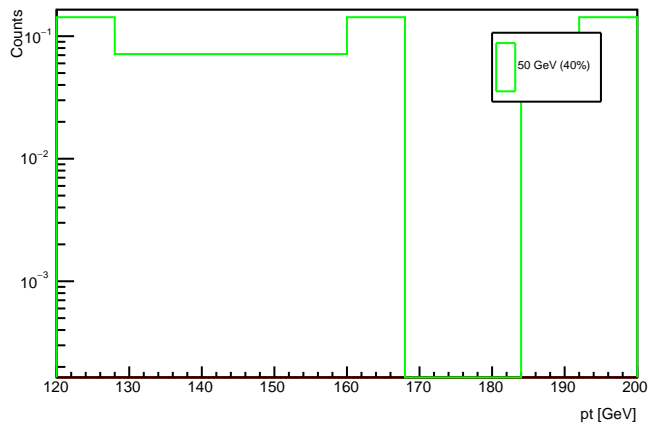
reco leading Met phi: MET > 120 GeV

reco leading Met phi: $j_{1\text{pt}} > 120$, at most 2 jets w/ pt > 30 GeVreco leading Met phi: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

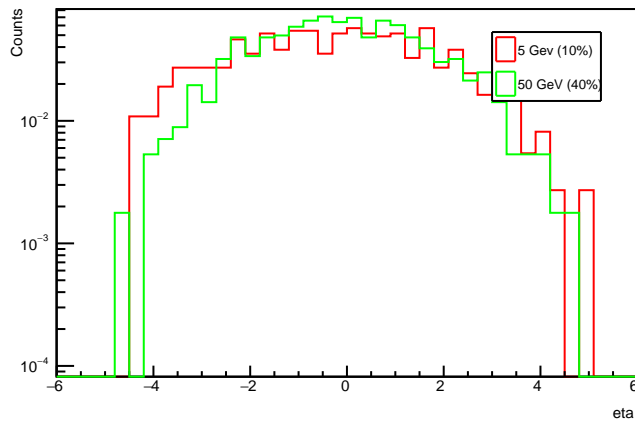
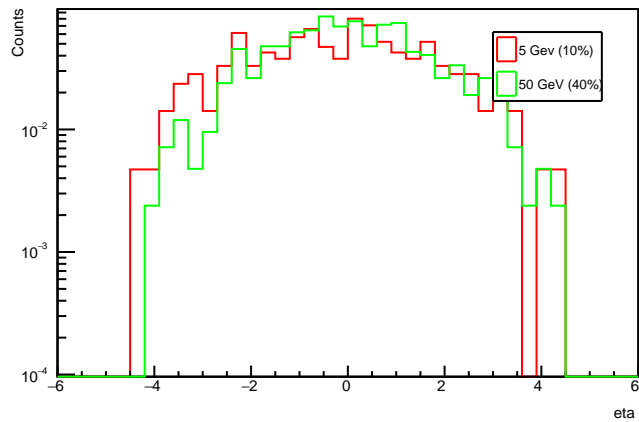
reco leading Jet pt: no cuts

reco leading Jet pt: $n_{\text{jet}} \geq 1$, $j1pt > 30$ GeV

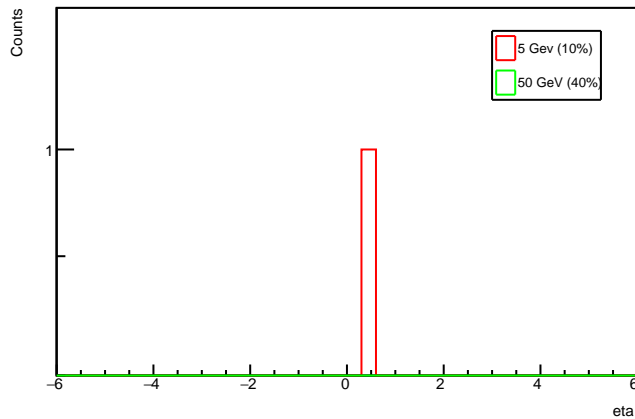
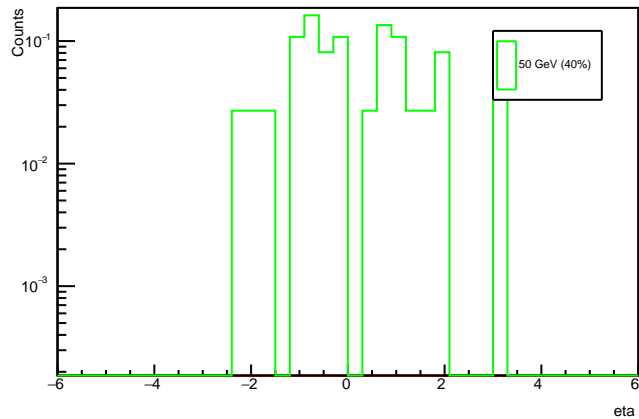
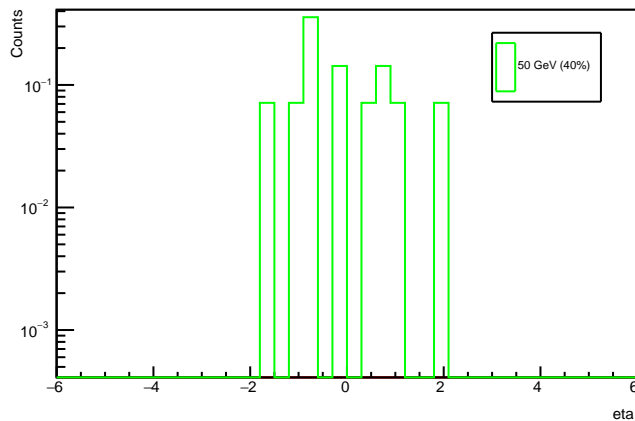
reco leading Jet pt: MET > 120 GeV

reco leading Jet pt: $j1pt > 120$, at most 2 jets w/ $pt > 30$ GeVreco leading Jet pt: at least 2 mu w/ $vxy < 740$ cm, $|vz| < 960$ cm & $|\eta| < 2.4$ 

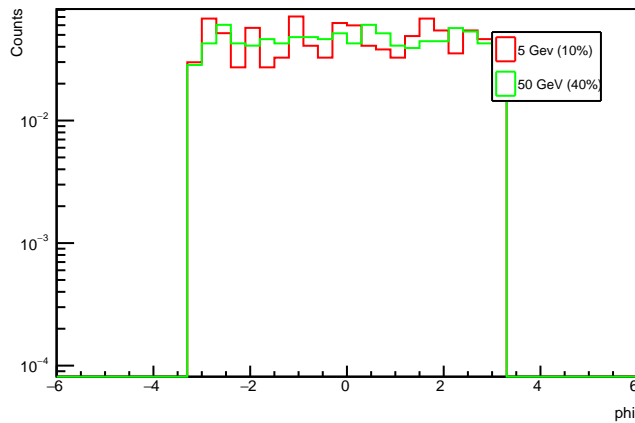
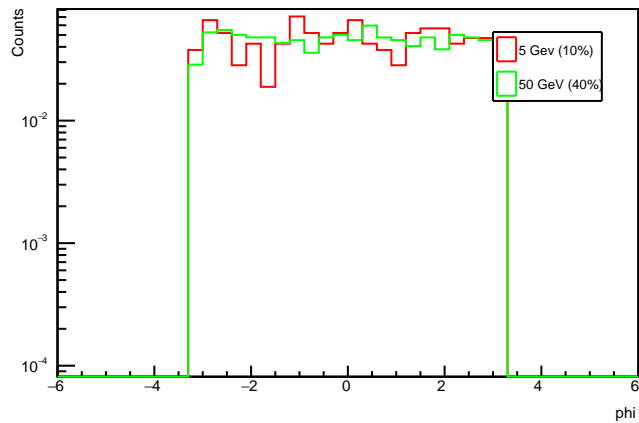
reco leading Jet eta: no cuts

reco leading Jet eta: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

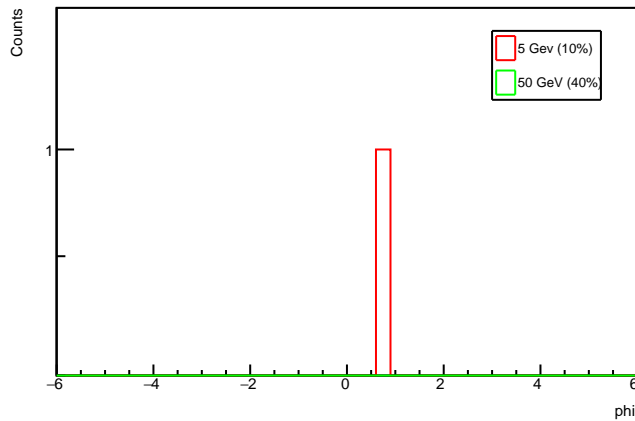
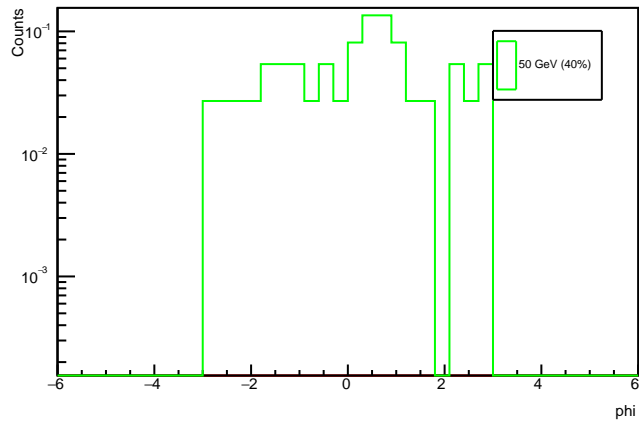
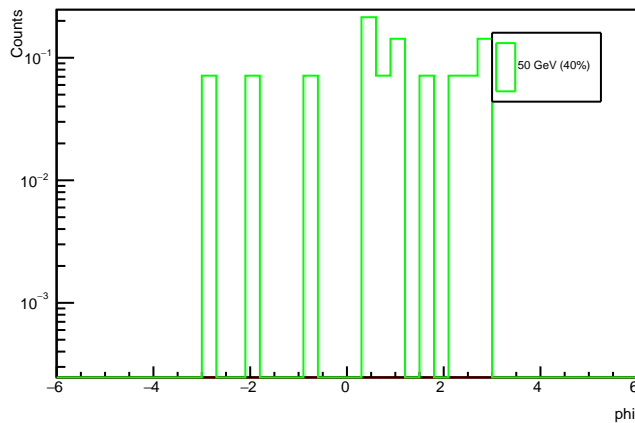
reco leading Jet eta: MET > 120 GeV

reco leading Jet eta: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_T > 30$ GeVreco leading Jet eta: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

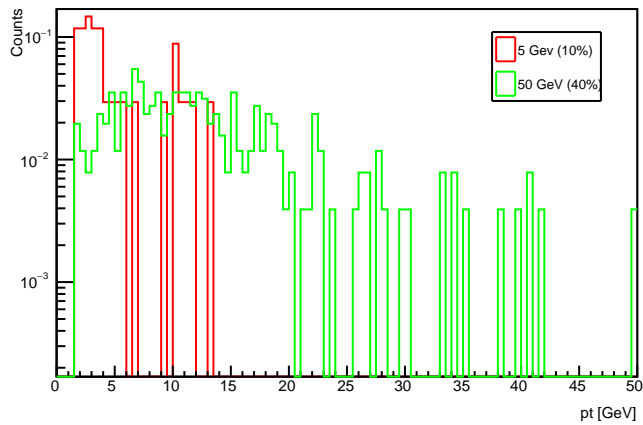
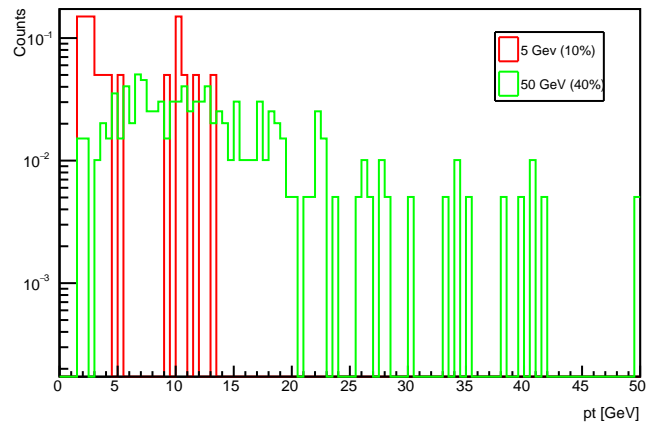
reco leading Jet phi: no cuts

reco leading Jet phi: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

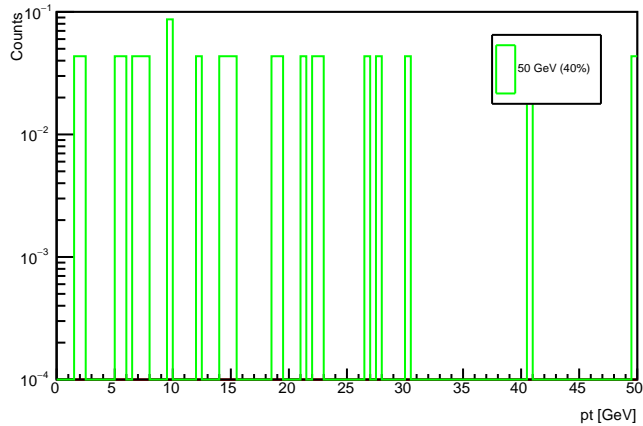
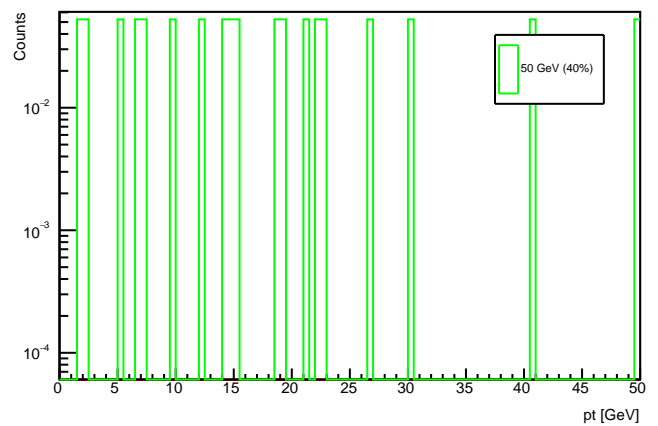
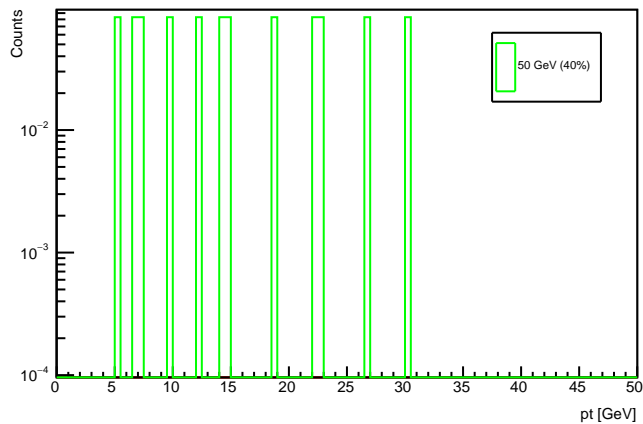
reco leading Jet phi: MET > 120 GeV

reco leading Jet phi: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco leading Jet phi: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

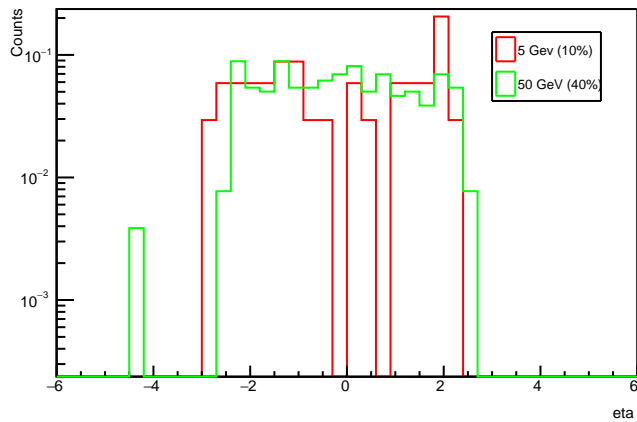
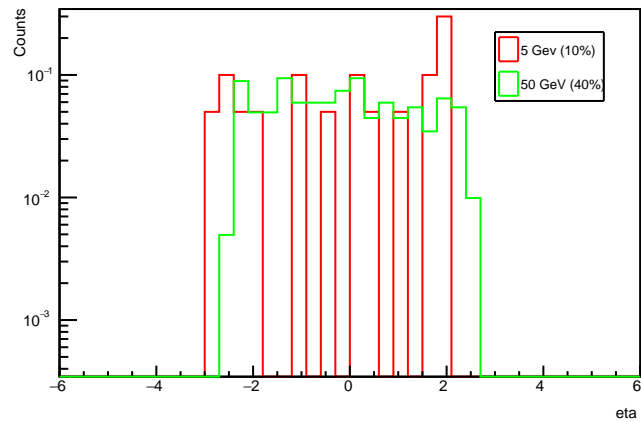
reco leading Mu pt: no cuts

reco leading Mu pt: $n_{\text{jet}} \geq 1$, $j1\text{pt} > 30$ GeV

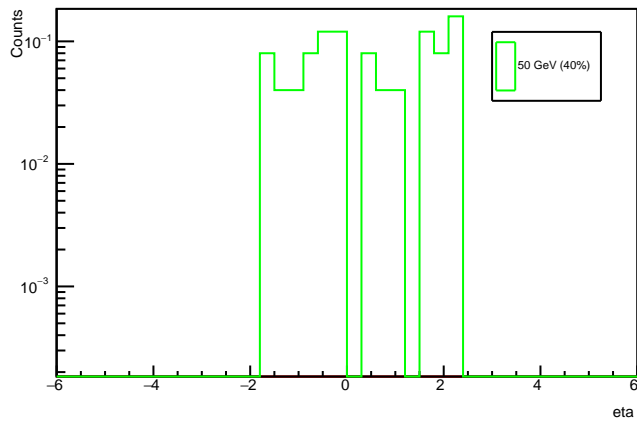
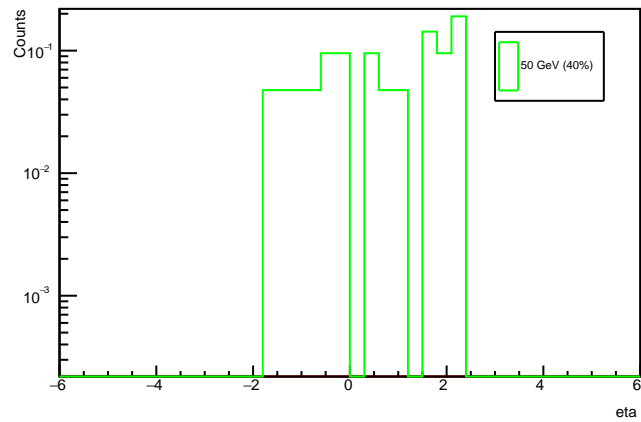
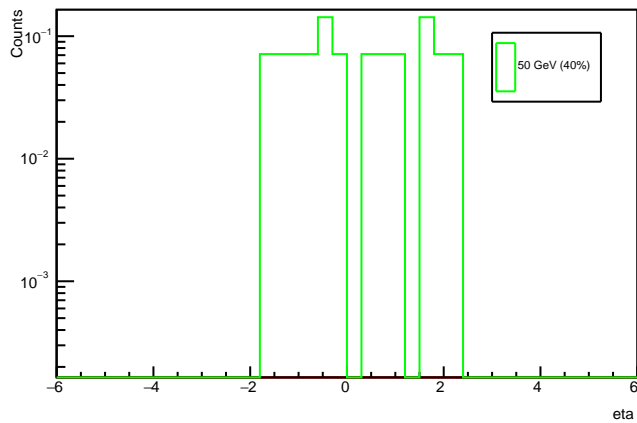
reco leading Mu pt: MET > 120 GeV

reco leading Mu pt: $j1\text{pt} > 120$, at most 2 jets w/ $\text{pt} > 30$ GeVreco leading Mu pt: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\text{eta}| < 2.4$ 

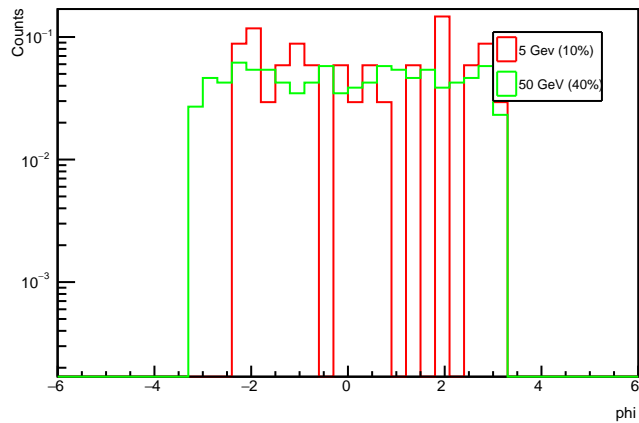
reco leading Mu eta: no cuts

reco leading Mu eta: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

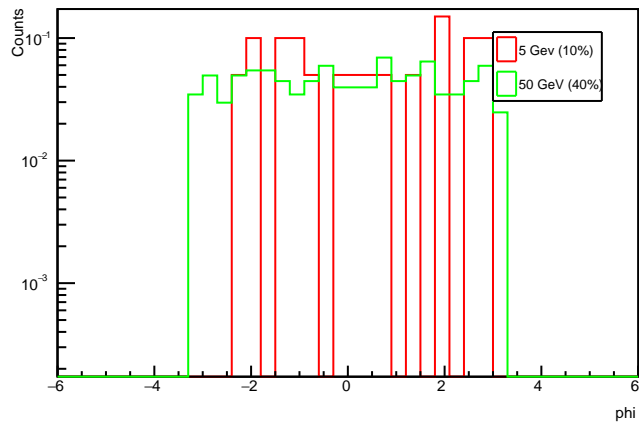
reco leading Mu eta: MET > 120 GeV

reco leading Mu eta: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco leading Mu eta: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

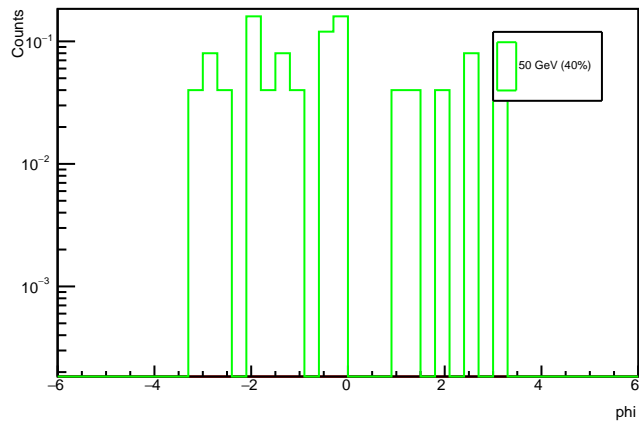
reco leading Mu phi: no cuts



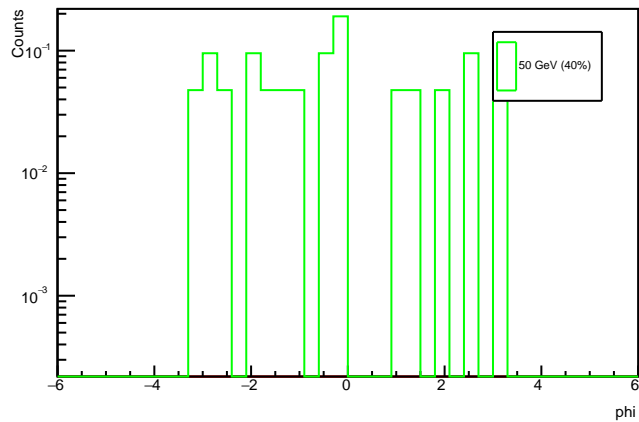
reco leading Mu phi: n_jet >=1, j1pt > 30 GeV



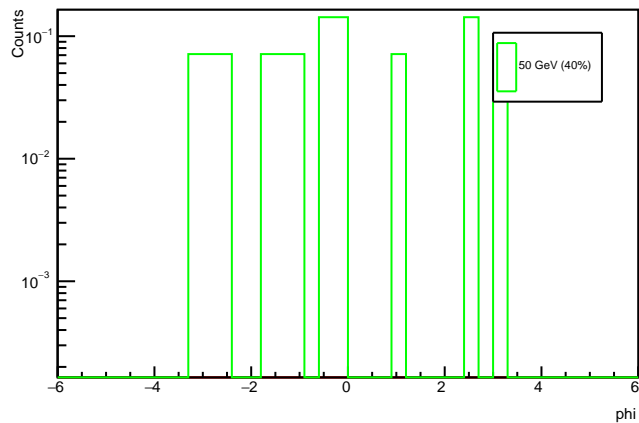
reco leading Mu phi: MET > 120 GeV



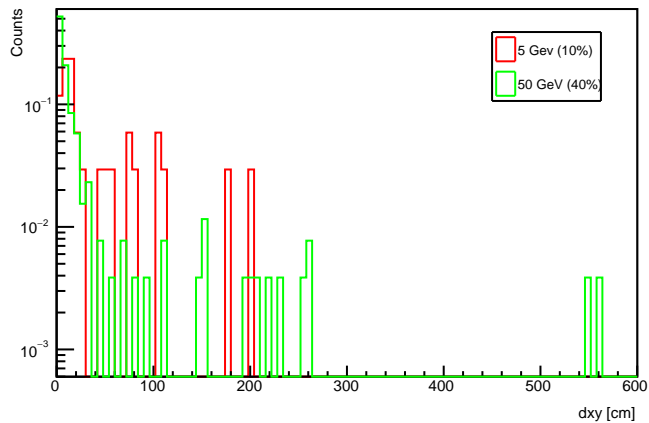
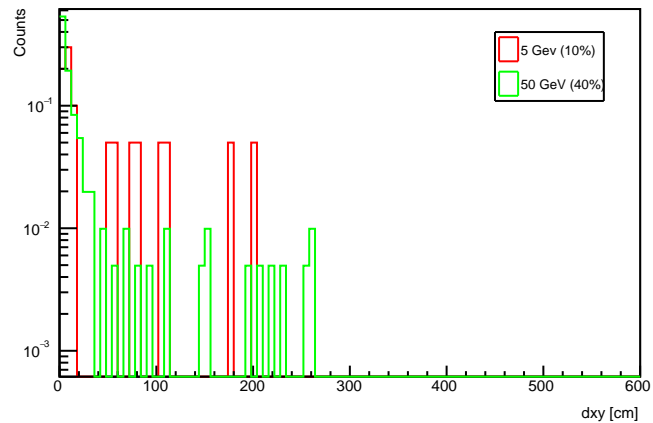
reco leading Mu phi: j1pt >120, at most 2 jets w/ pt >30 GeV



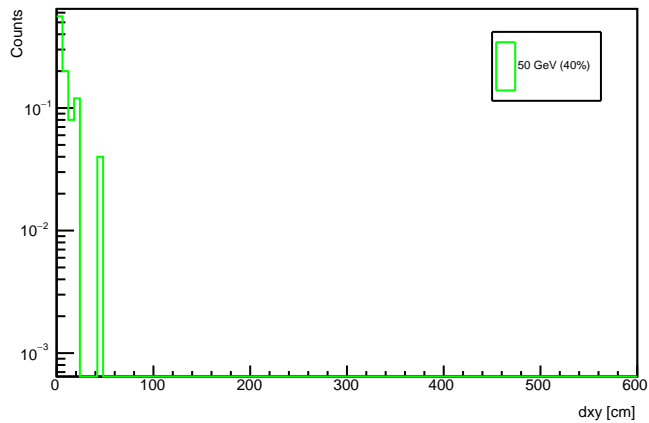
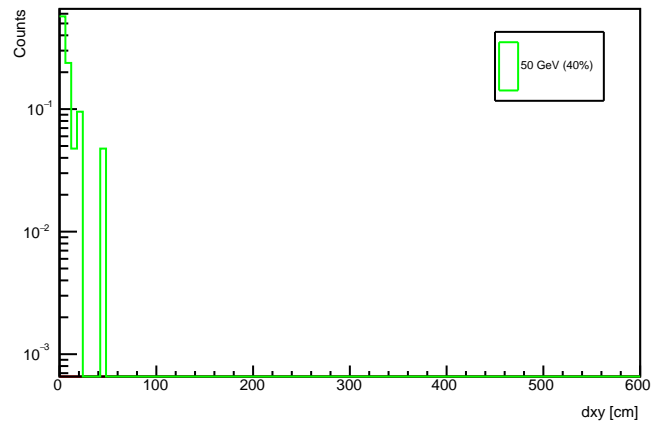
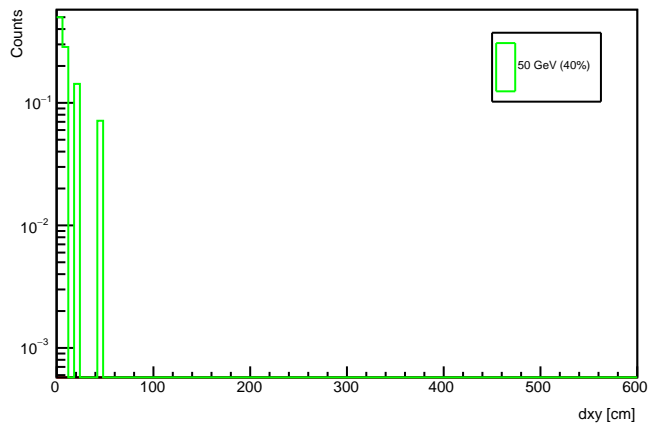
reco leading Mu phi: at least 2 mu w/ vx < 740 cm, |vz| < 960 cm & |eta| < 2.4



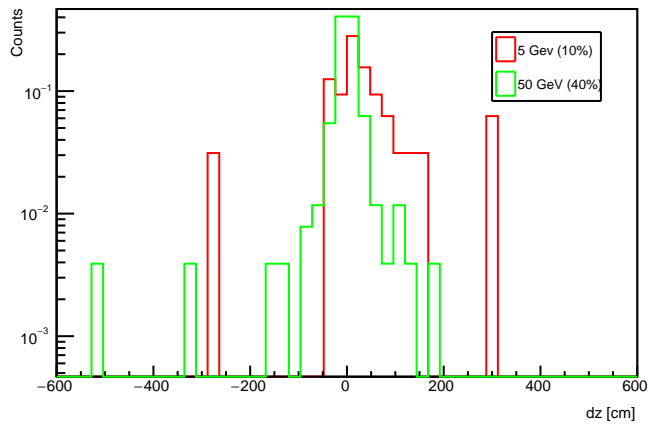
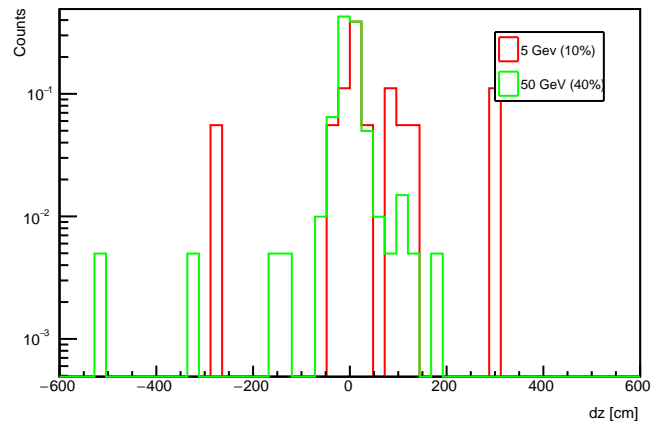
reco leading Mu vxy: no cuts

reco leading Mu vxy: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

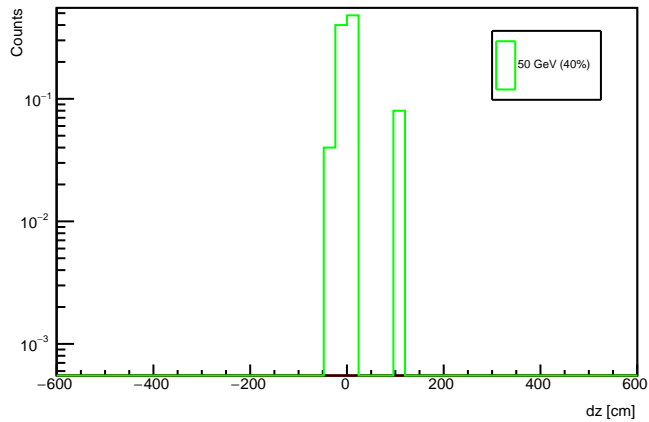
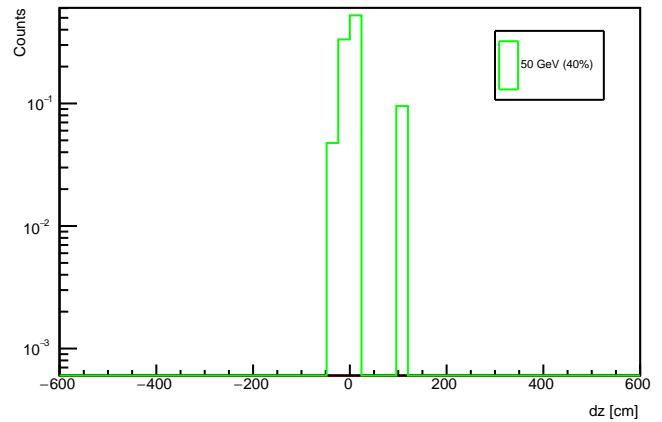
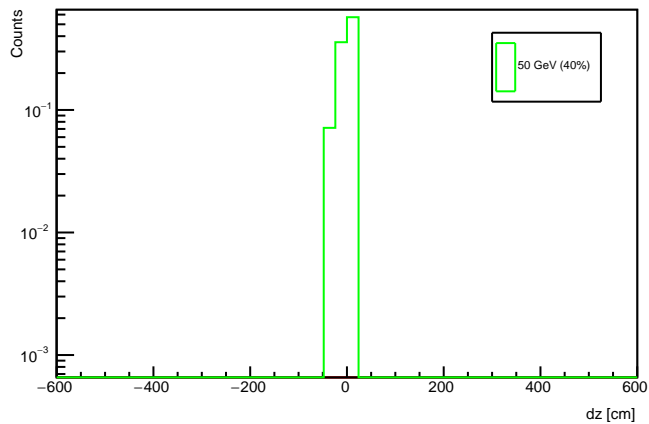
reco leading Mu vxy: MET > 120 GeV

reco leading Mu vxy: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco leading Mu vxy: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

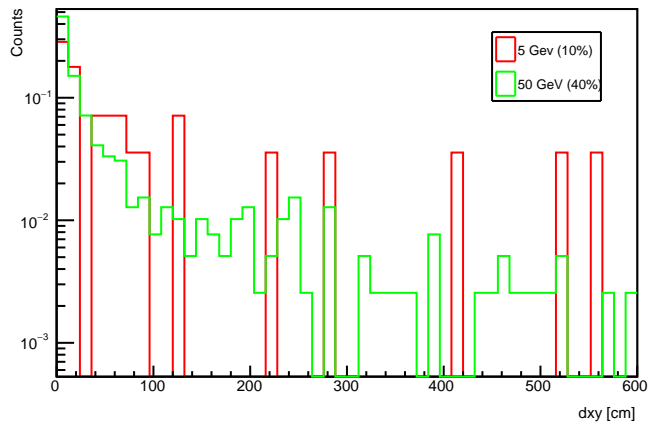
reco leading Mu vz: no cuts

reco leading Mu vz: $n_{\text{jet}} \geq 1$, $j1_{\text{pt}} > 30$ GeV

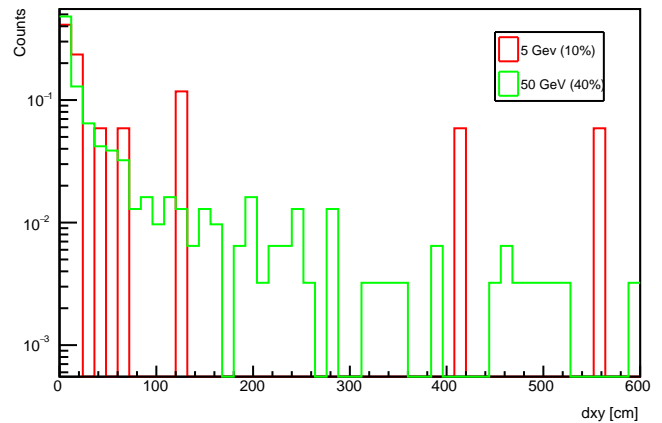
reco leading Mu vz: MET > 120 GeV

reco leading Mu vz: $j1_{\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeVreco leading Mu vz: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

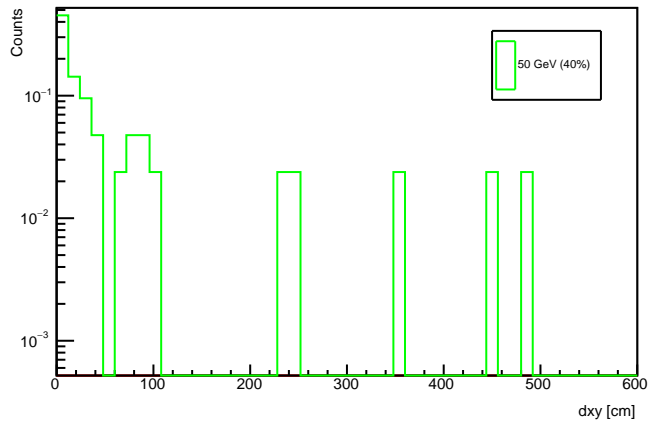
reco all Mu vxy: no cuts



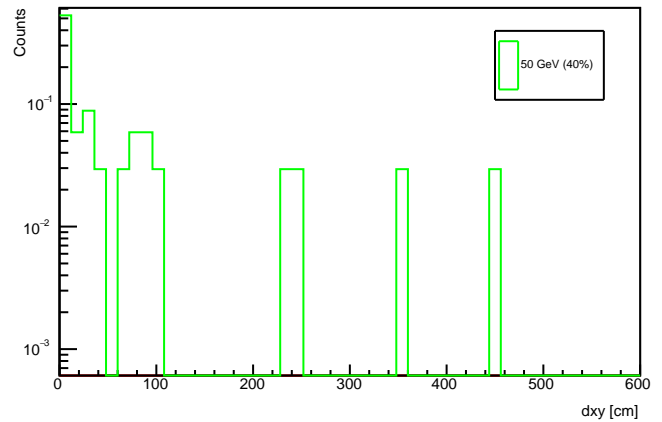
reco all Mu vxy: n_jet >=1, j1pt > 30 GeV



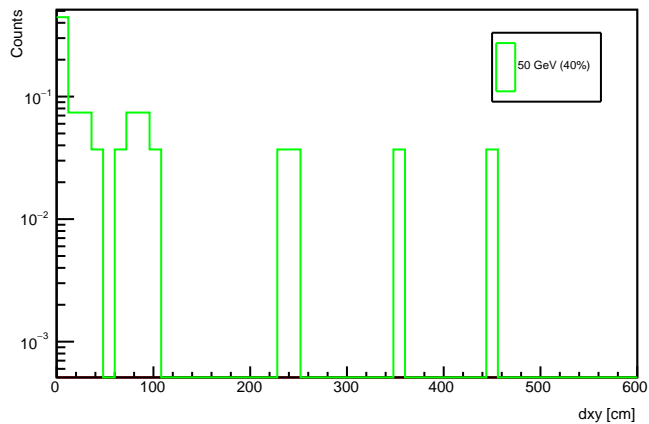
reco all Mu vxy: MET > 120 GeV



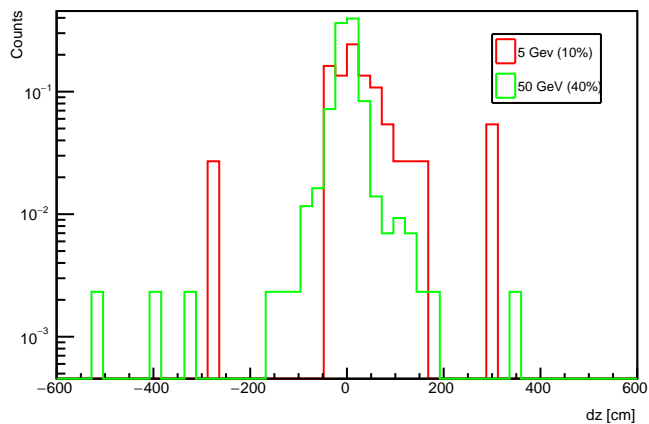
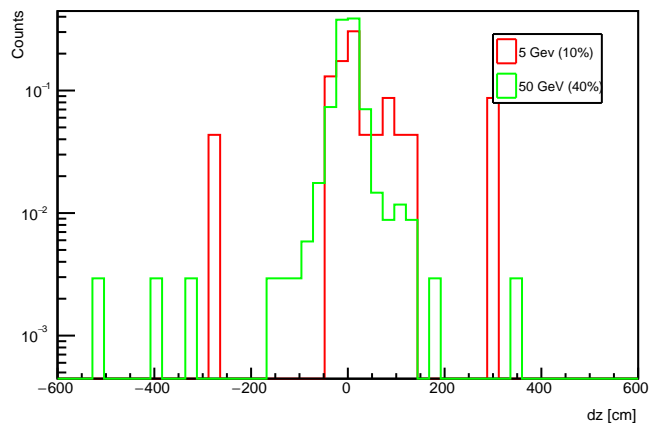
reco all Mu vxy: j1pt >120, at most 2 jets w/ pt >30 GeV



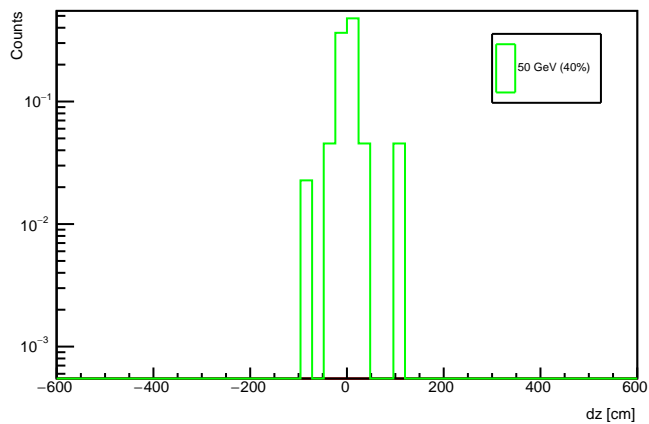
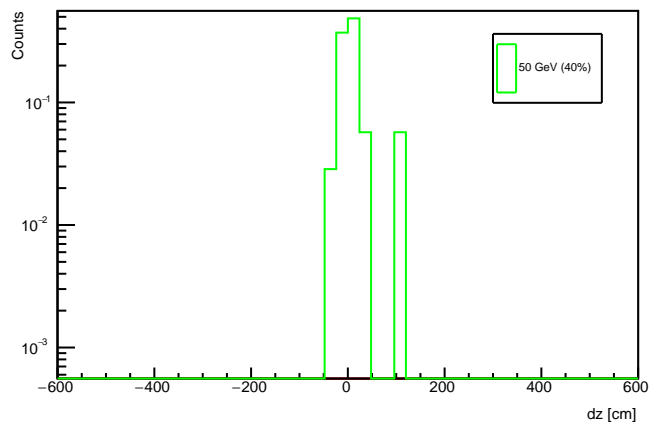
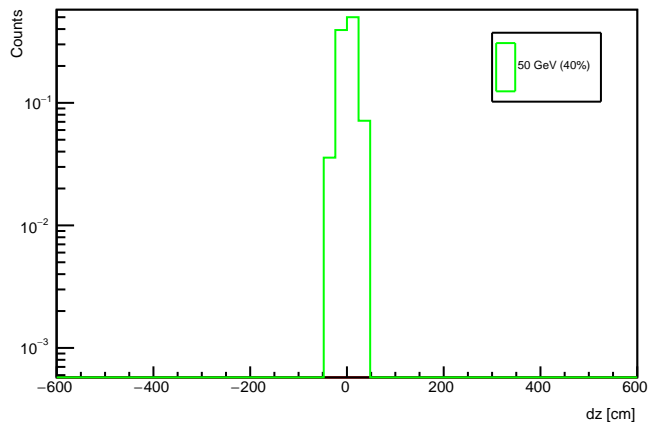
reco all Mu vxy: at least 2 mu w/ vxy < 740 cm, |vz| < 960 cm & |eta| < 2.4



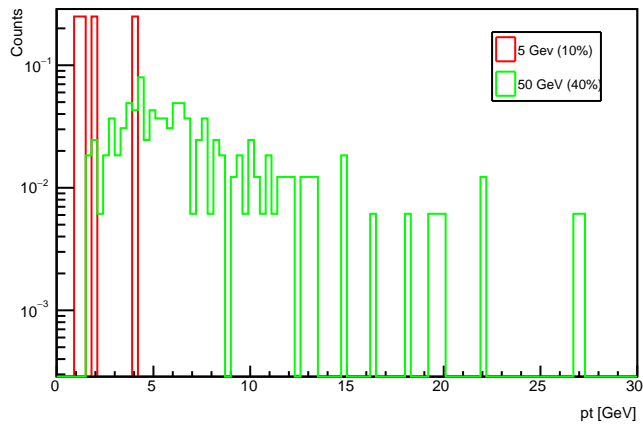
reco all Mu vz: no cuts

reco all Mu vz: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

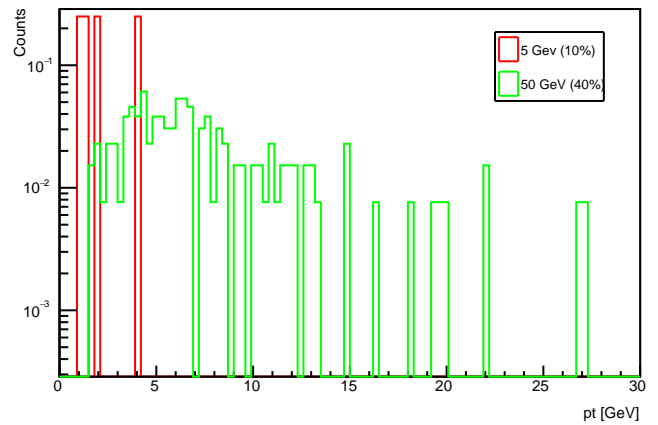
reco all Mu vz: MET > 120 GeV

reco all Mu vz: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco all Mu vz: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$ 

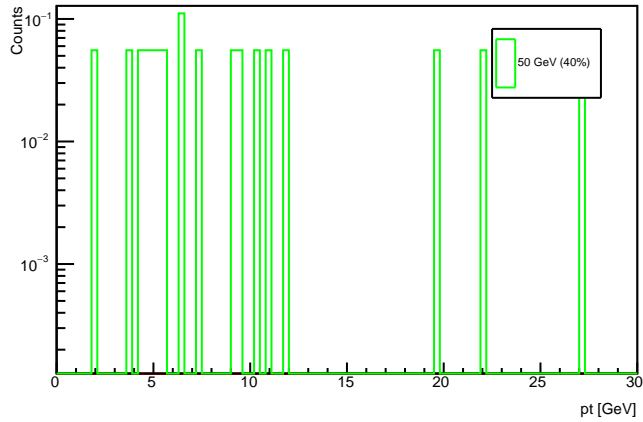
ctau 10mm leading vs subleading Mu pt: no cuts



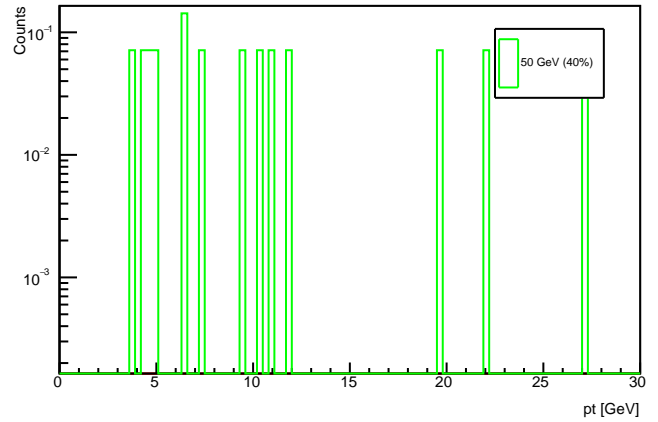
ctau 10mm leading vs subleading Mu pt: $n_{\text{jet}} \geq 1$, $j1\text{pt} > 30 \text{ GeV}$



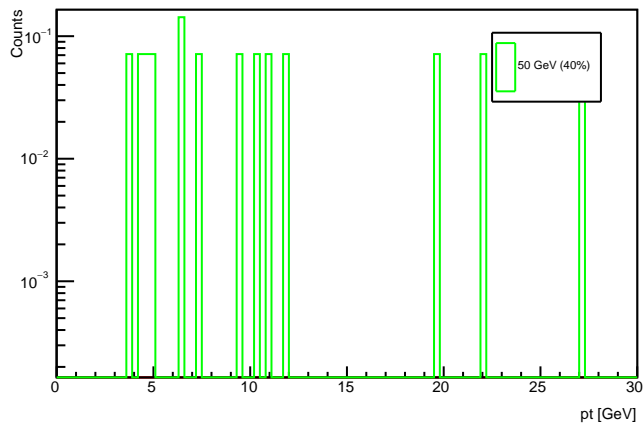
ctau 10mm leading vs subleading Mu pt: MET > 120 GeV



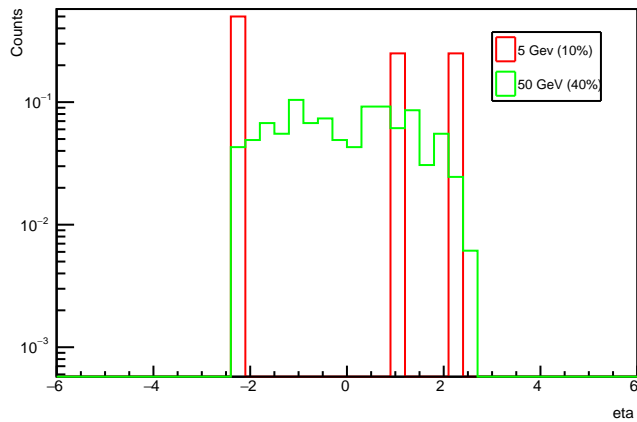
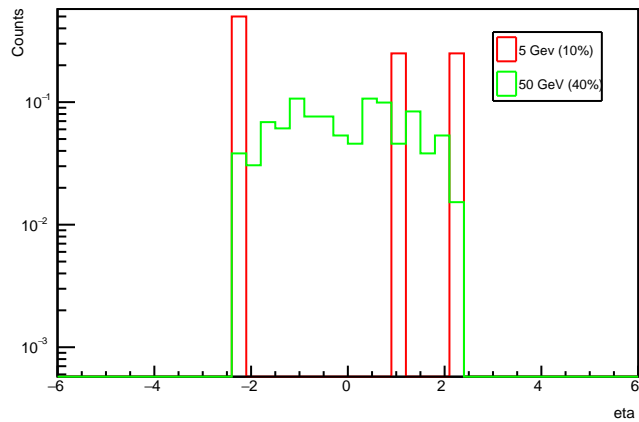
ctau 10mm leading vs subleading Mu pt: $j1\text{pt} > 120$, at most 2 jets w/ $\text{pt} > 30 \text{ GeV}$



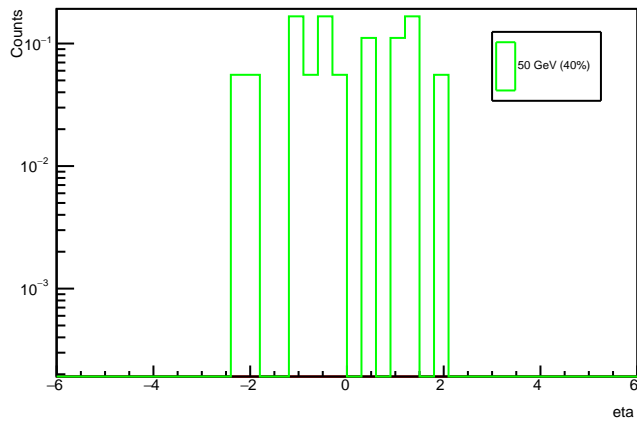
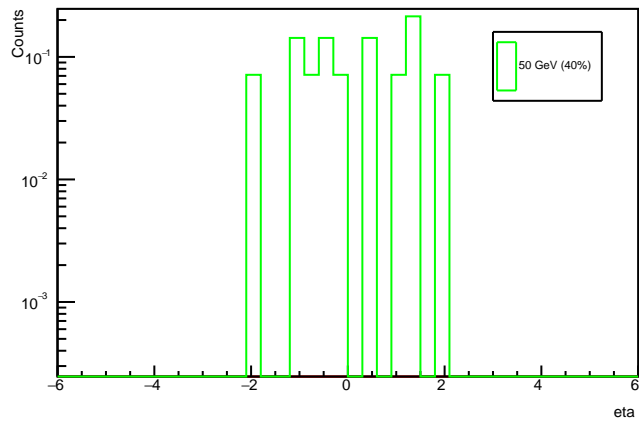
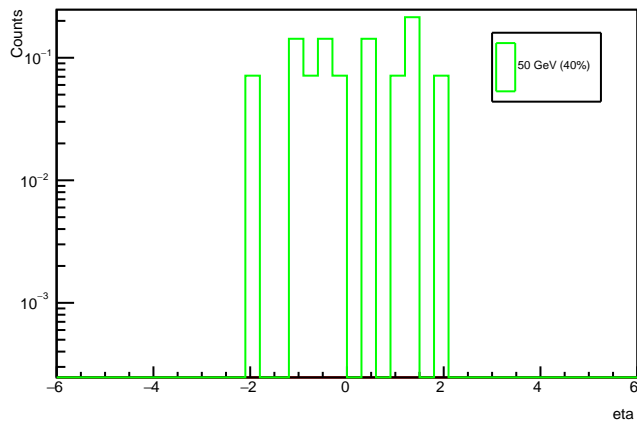
ctau 10mm leading vs subleading Mu pt: at least 2 mu w/ $v_{xy} < 740 \text{ cm}$, $|v_z| < 960 \text{ cm}$ & $|\text{eta}| < 2.4$



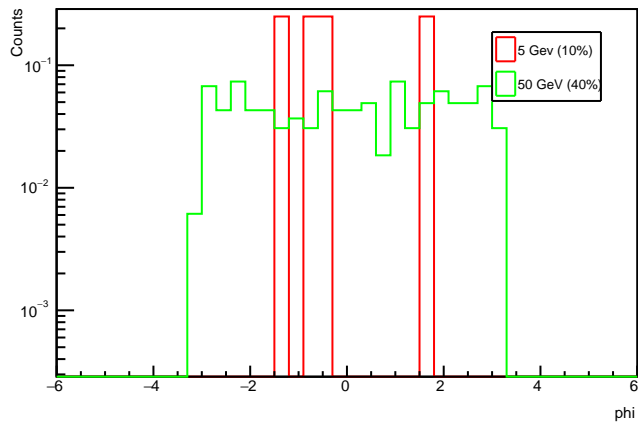
reco subleading Mu eta: no cuts

reco subleading Mu eta: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

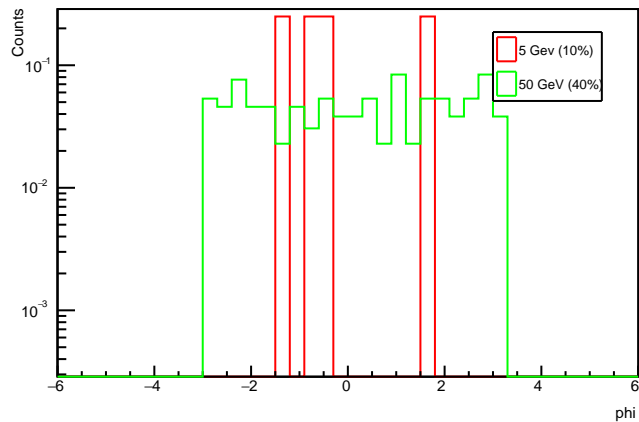
reco subleading Mu eta: MET > 120 GeV

reco subleading Mu eta: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco subleading Mu eta: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

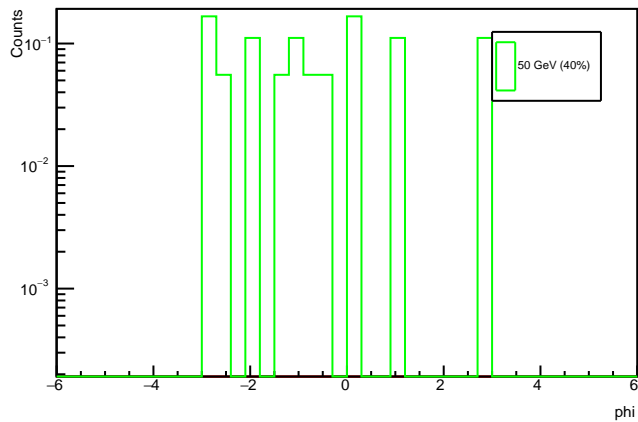
reco subleading Mu phi: no cuts



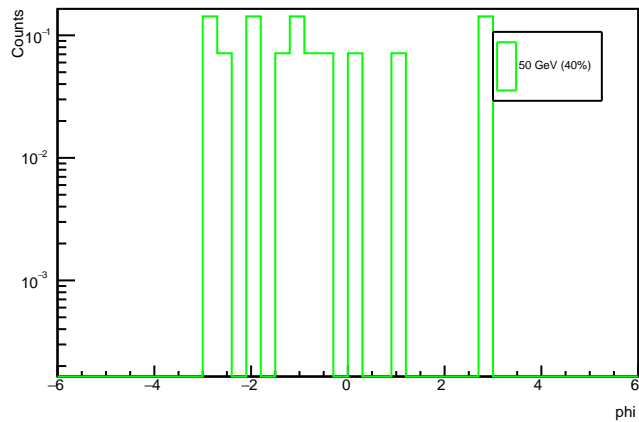
reco subleading Mu phi: n_jet >=1, j1pt > 30 GeV



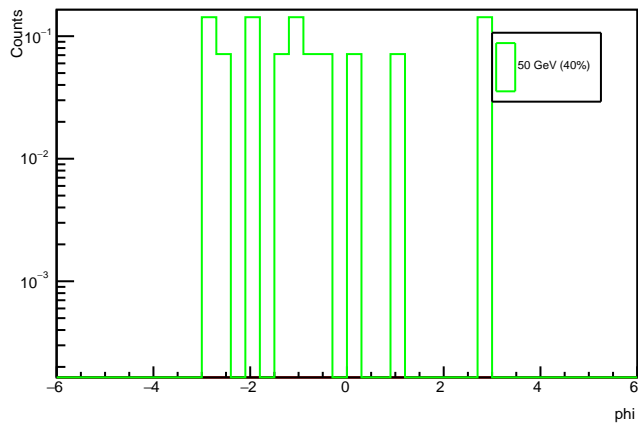
reco subleading Mu phi: MET > 120 GeV



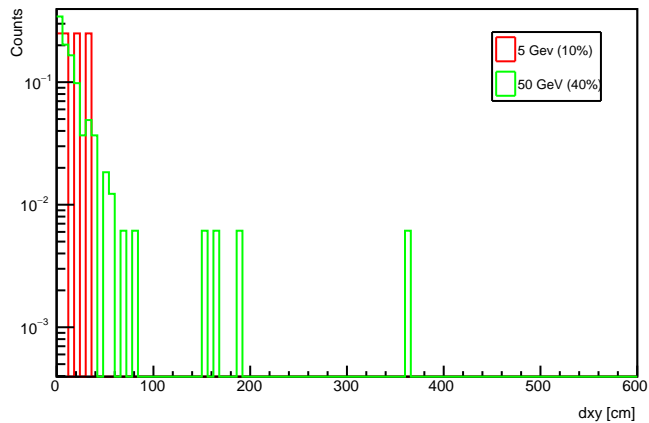
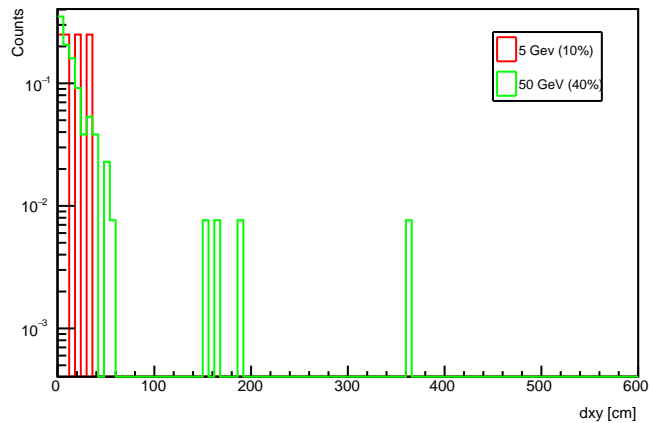
reco subleading Mu phi: j1pt >120, at most 2 jets w/ pt >30 GeV



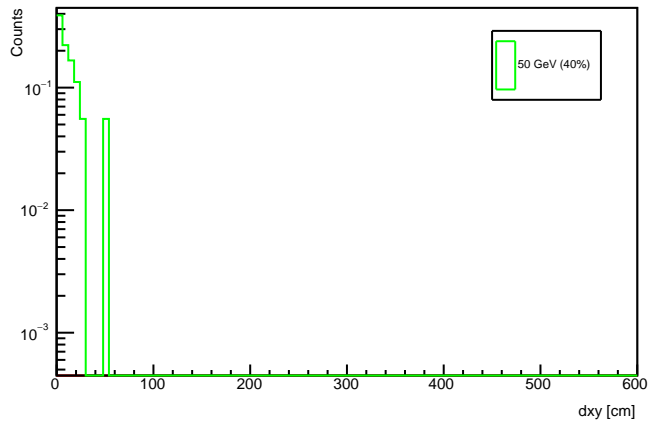
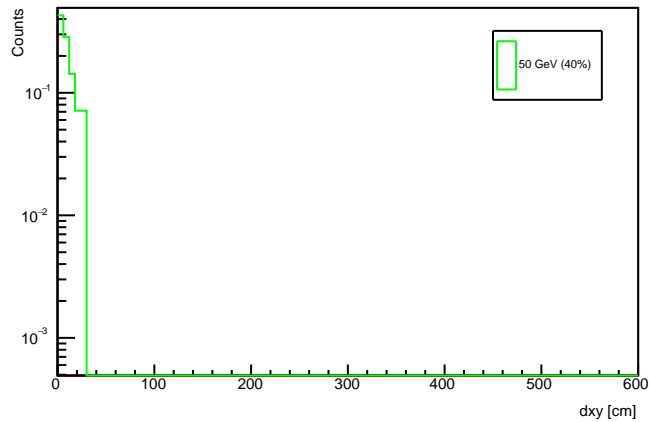
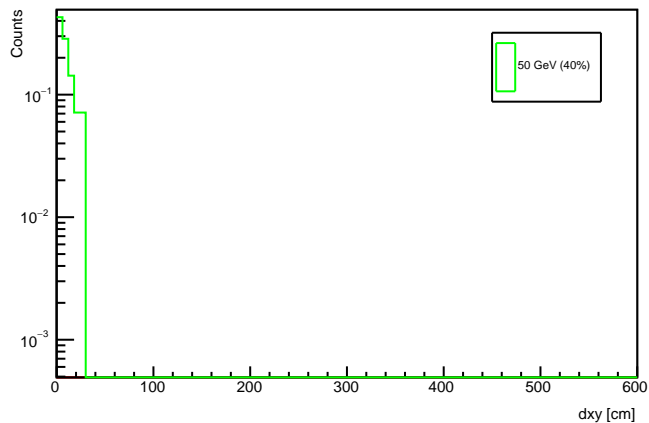
reco subleading Mu phi: at least 2 mu w/ vxy < 740 cm, |vz| < 960 cm & |eta| < 2.4



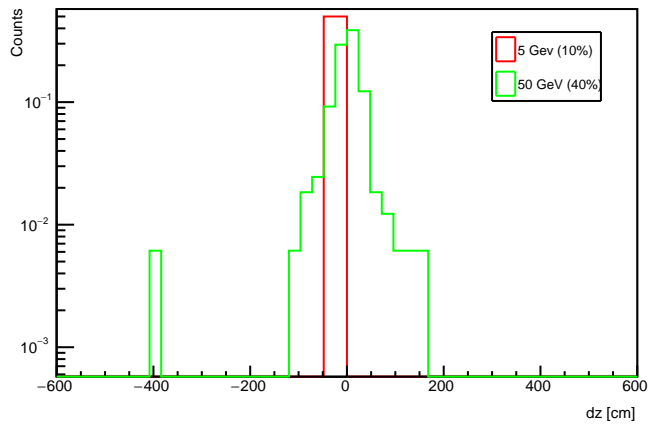
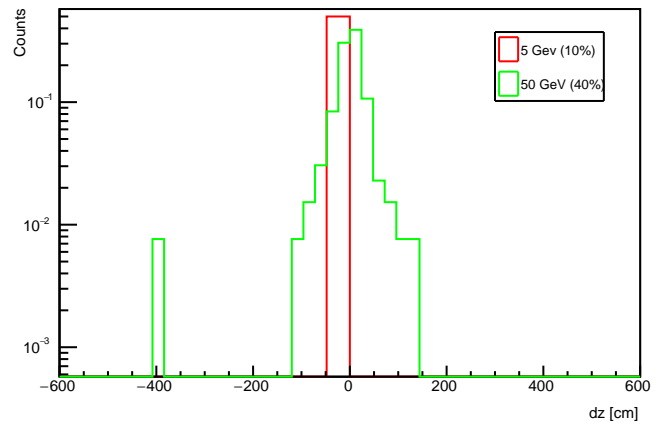
reco subleading Mu vxy: no cuts

reco subleading Mu vxy: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

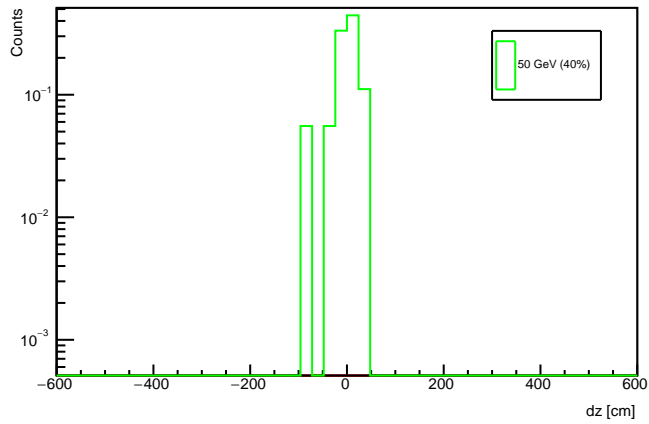
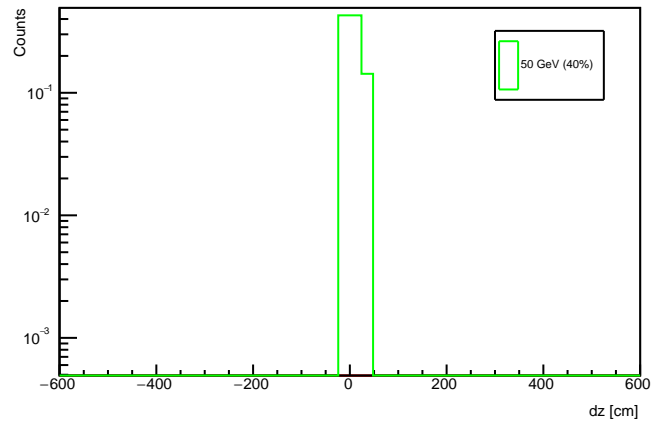
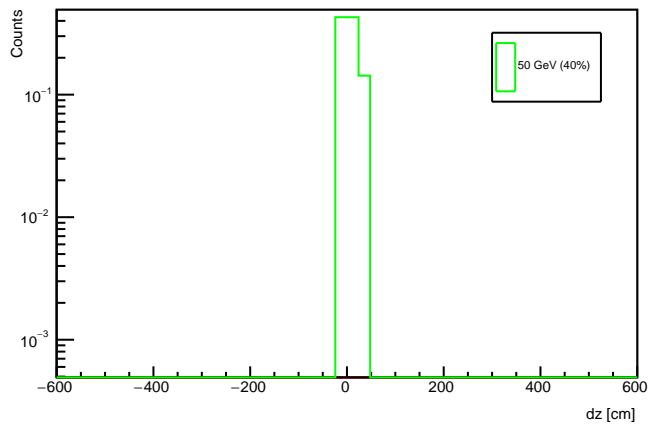
reco subleading Mu vxy: MET > 120 GeV

reco subleading Mu vxy: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco subleading Mu vxy: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

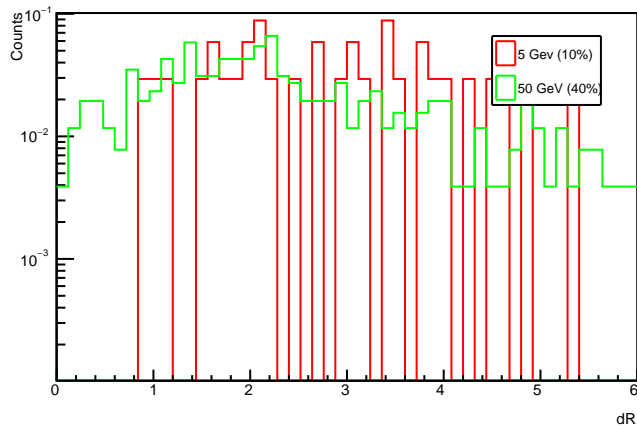
reco subleading Mu vz: no cuts

reco subleading Mu vz: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

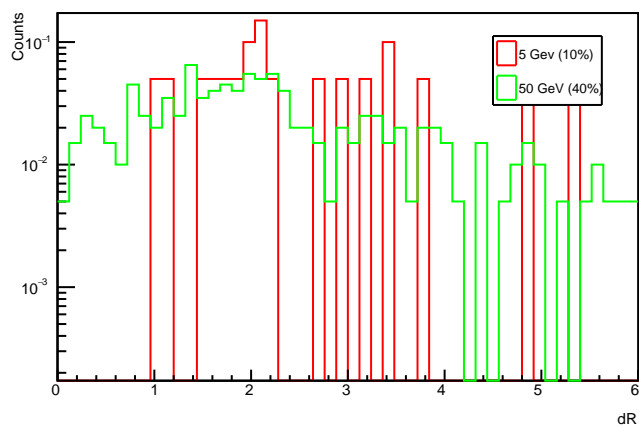
reco subleading Mu vz: MET > 120 GeV

reco subleading Mu vz: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco subleading Mu vz: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

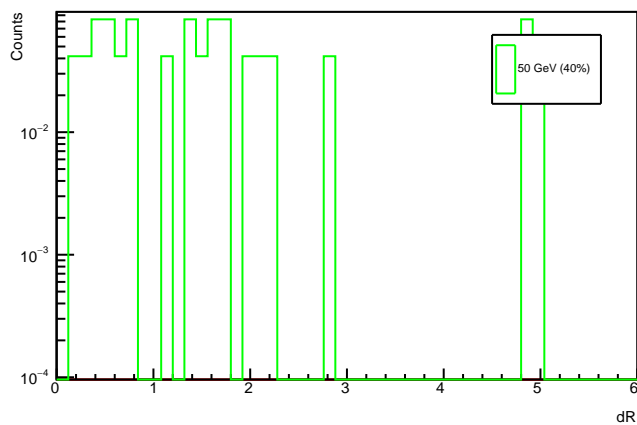
dR: reco leading mu and subleading mu: no cuts



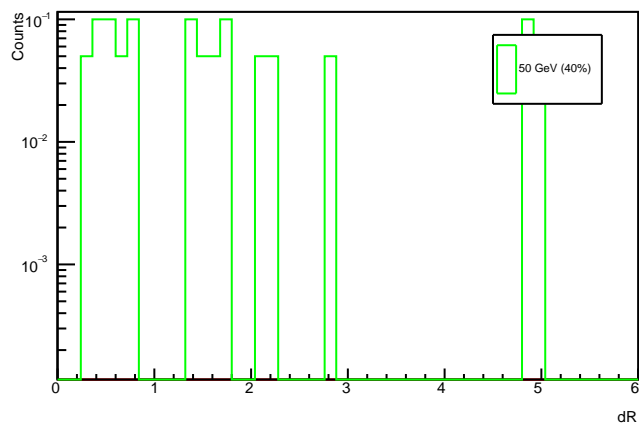
dR: reco leading mu and subleading mu: n_{jet} ≥ 1, j_{1pt} > 30 GeV



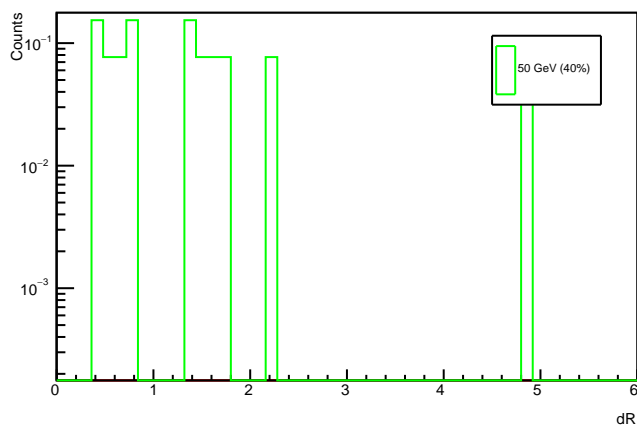
dR: reco leading mu and subleading mu: MET > 120 GeV



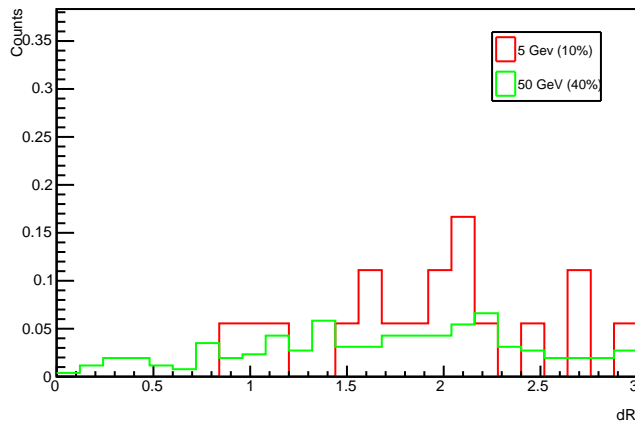
dR: reco leading mu and subleading mu: j_{1pt} > 120, at most 2 jets w/ pt > 30 GeV



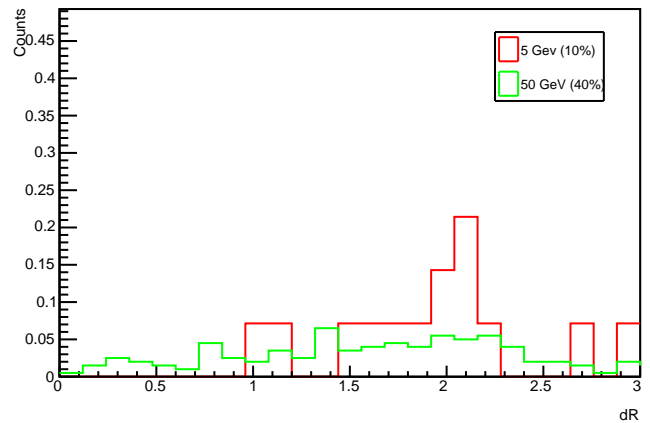
dR: reco leading mu and subleading mu: at least 2 mu w/ vx < 740 cm, |vz| < 960 cm & |eta| < 2.4



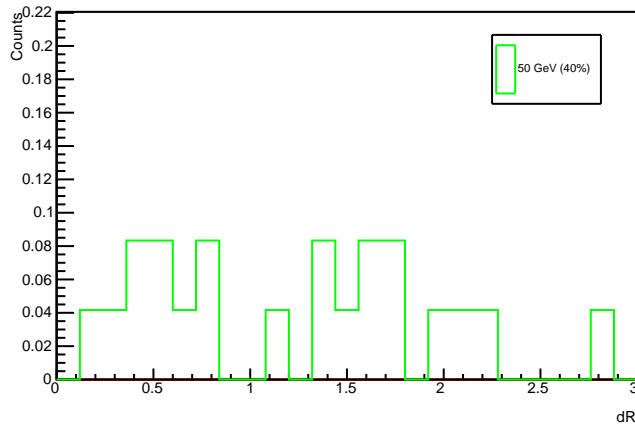
dR: reco leading mu and subleading mu: no cuts



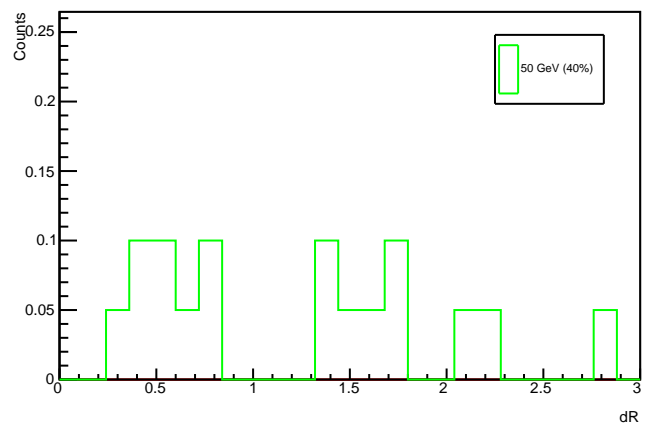
dR: reco leading mu and subleading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV



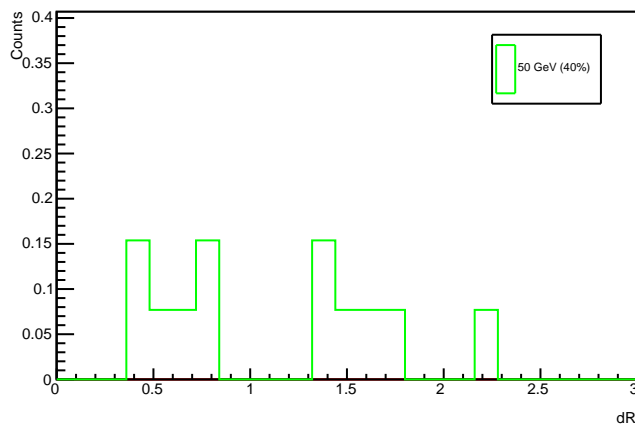
dR: reco leading mu and subleading mu: MET > 120 GeV



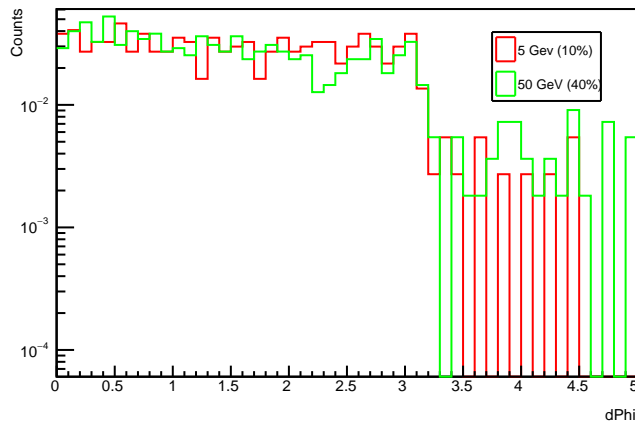
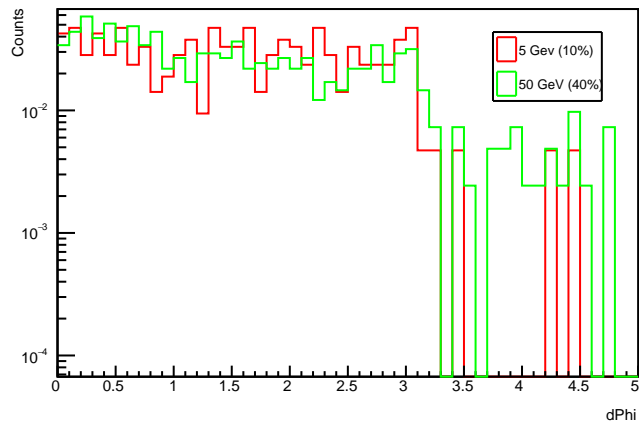
dR: reco leading mu and subleading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeV



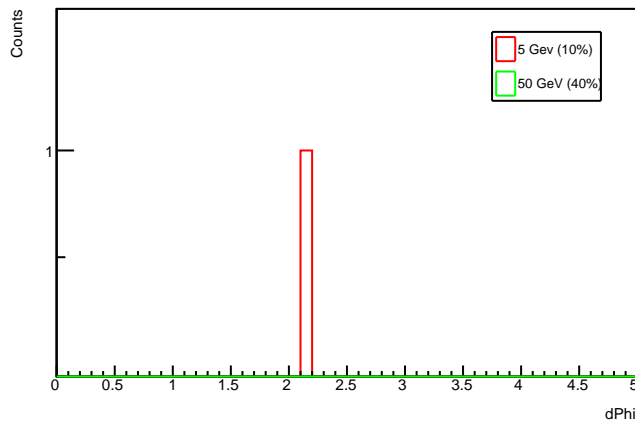
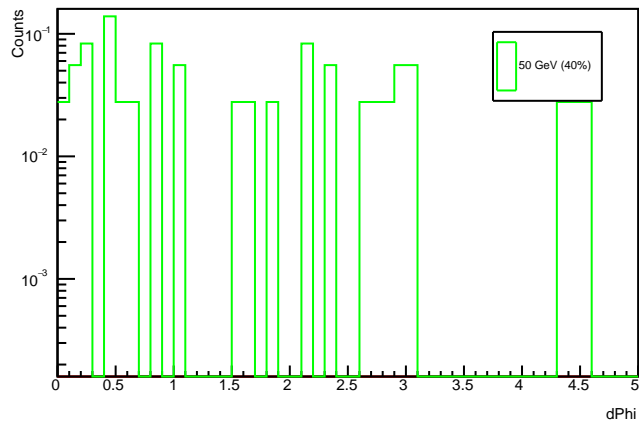
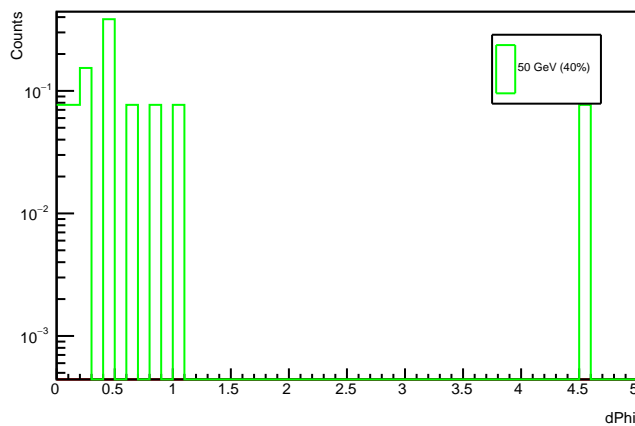
dR: reco leading mu and subleading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$



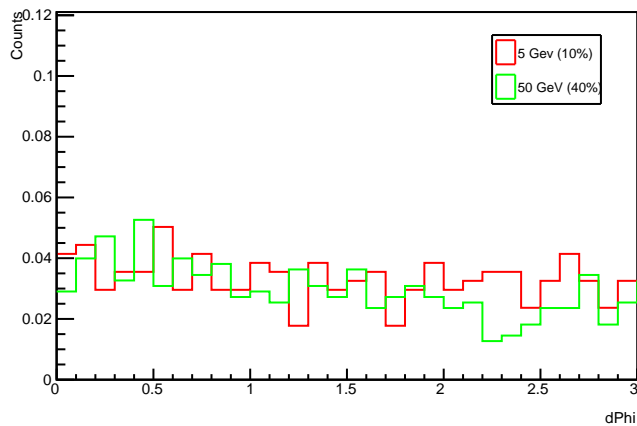
dPhi: reco MET and leading mu: no cuts

dPhi: reco MET and leading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

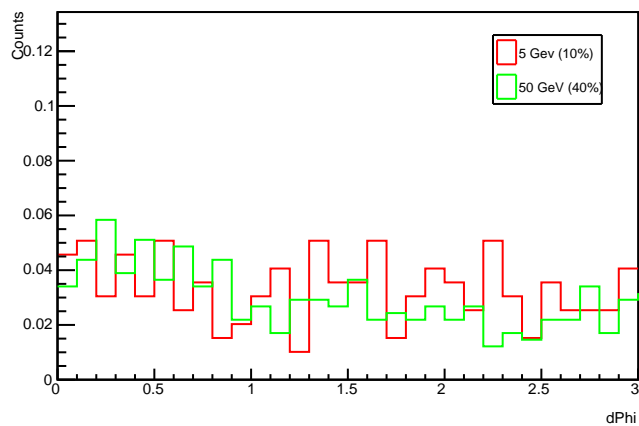
dPhi: reco MET and leading mu: MET > 120 GeV

dPhi: reco MET and leading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVdPhi: reco MET and leading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$ 

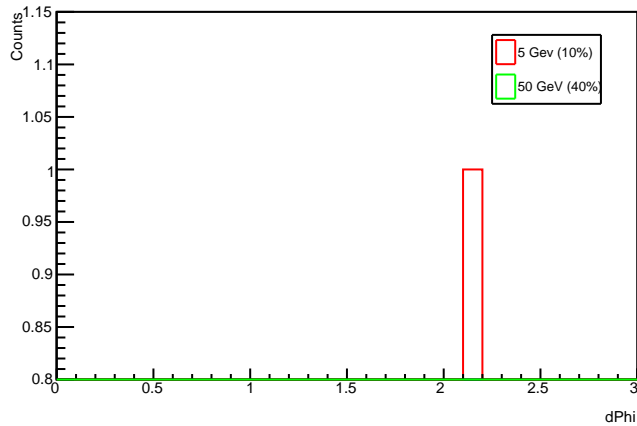
dPhi: reco MET and leading mu: no cuts



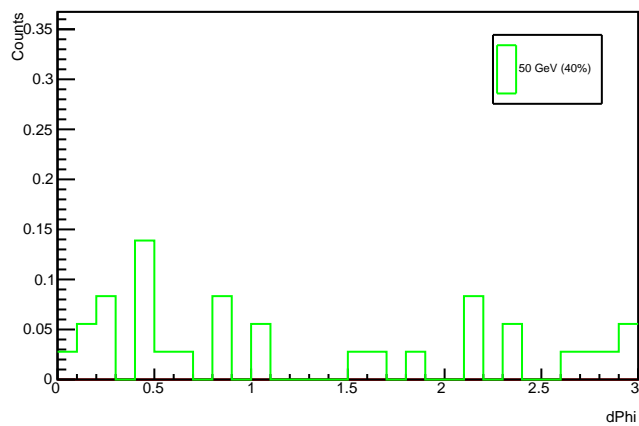
dPhi: reco MET and leading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV



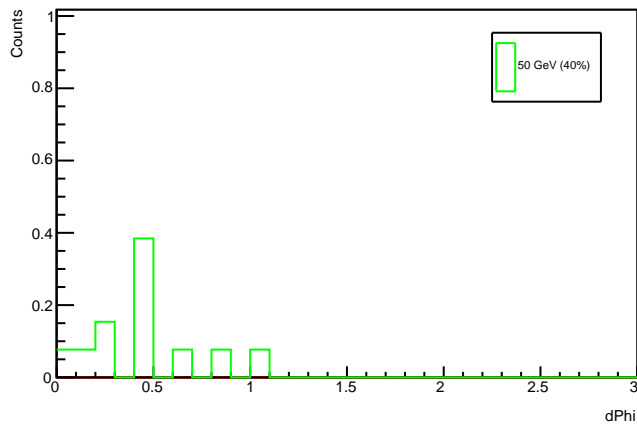
dPhi: reco MET and leading mu: MET > 120 GeV



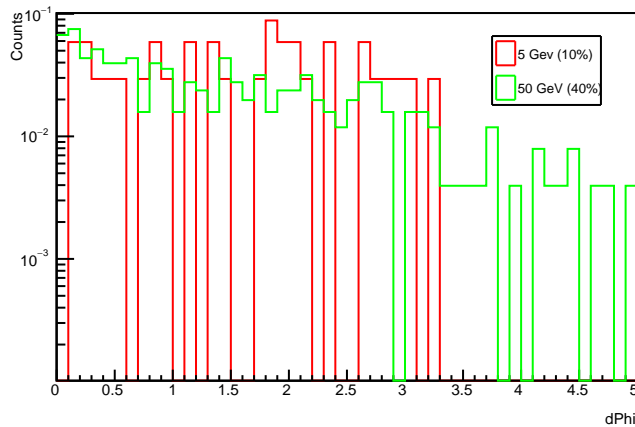
dPhi: reco MET and leading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeV



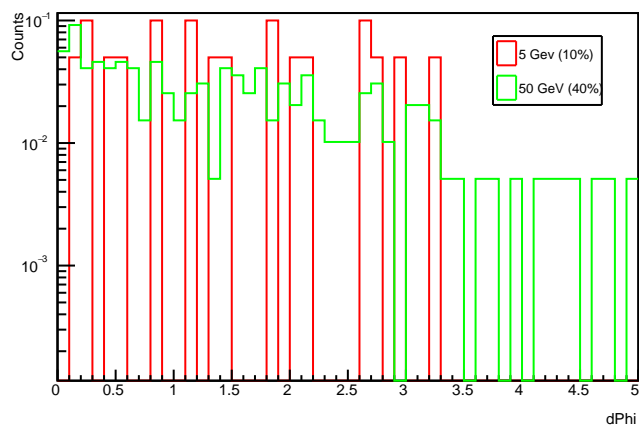
dPhi: reco MET and leading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta_{\text{jet}}| < 2.4$



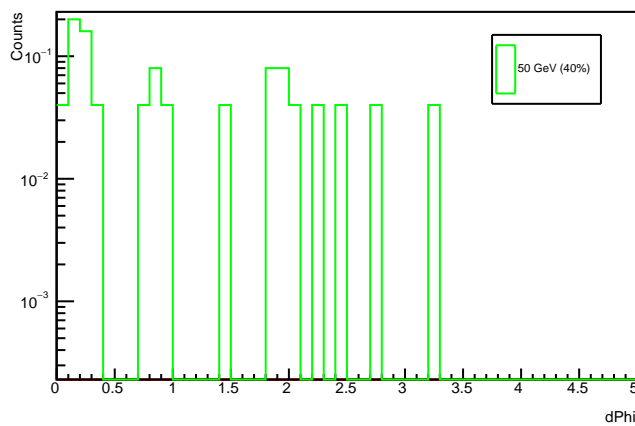
dPhi: reco leading mu and subleading mu: no cuts



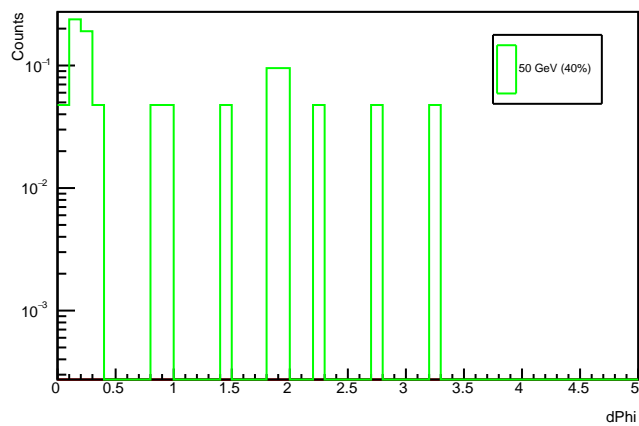
dPhi: reco leading mu and subleading mu: n_jet >=1, j1pt > 30 GeV



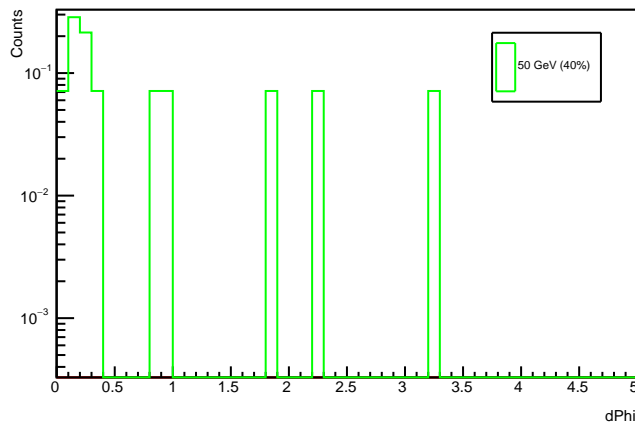
dPhi: reco leading mu and subleading mu: MET > 120 GeV



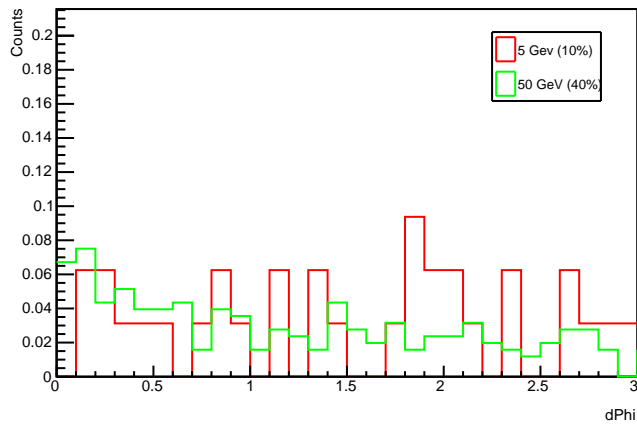
dPhi: reco leading mu and subleading mu: j1pt >120, at most 2 jets w/ pt >30 GeV



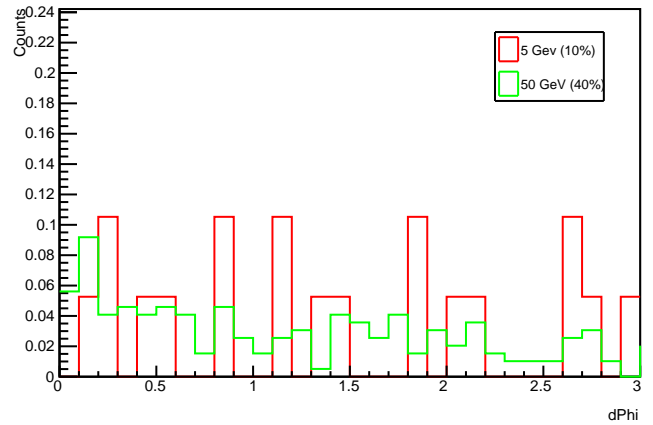
dPhi: reco leading mu and subleading mu: at least 2 mu w/ vx < 740 cm, |vz| < 960 cm & |eta| < 2.4



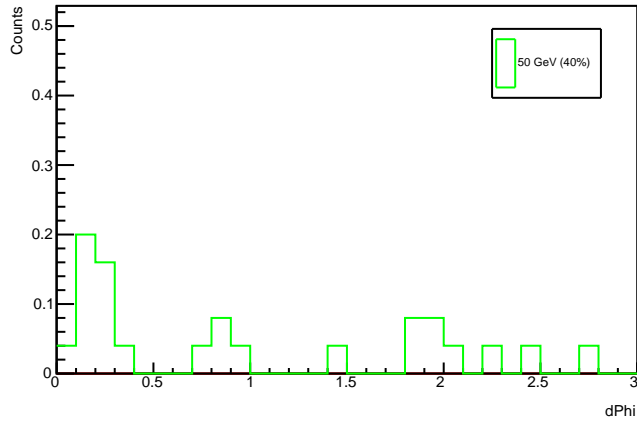
dPhi: reco leading mu and subleading mu: no cuts



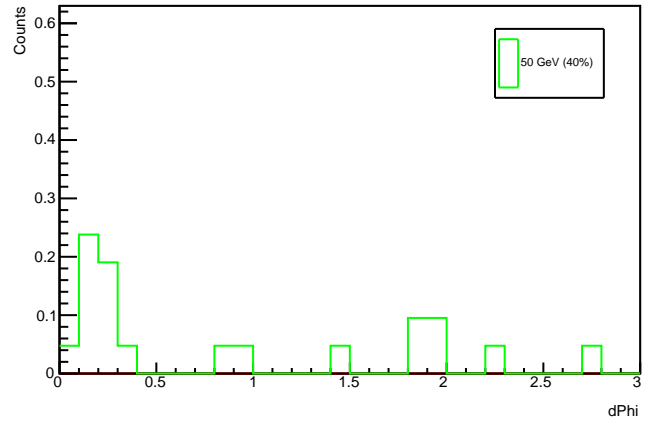
dPhi: reco leading mu and subleading mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV



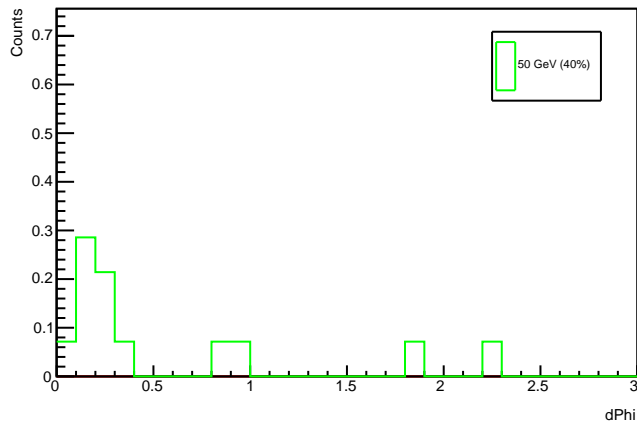
dPhi: reco leading mu and subleading mu: MET > 120 GeV



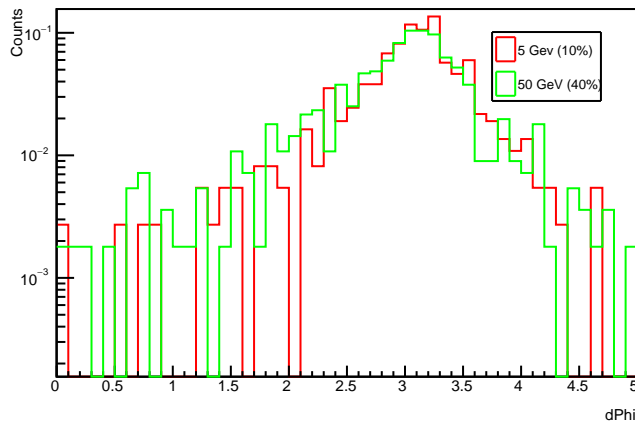
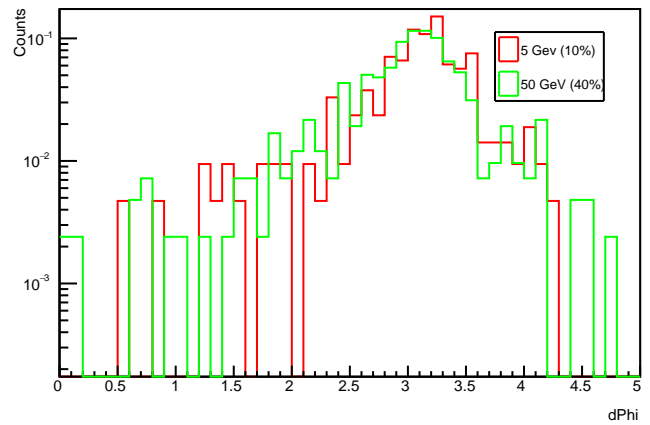
dPhi: reco leading mu and subleading mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeV



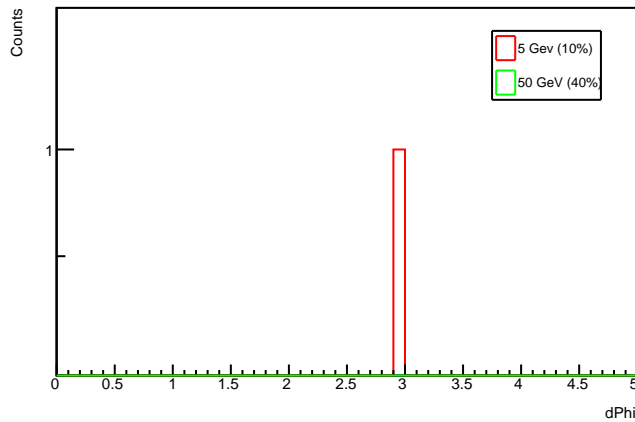
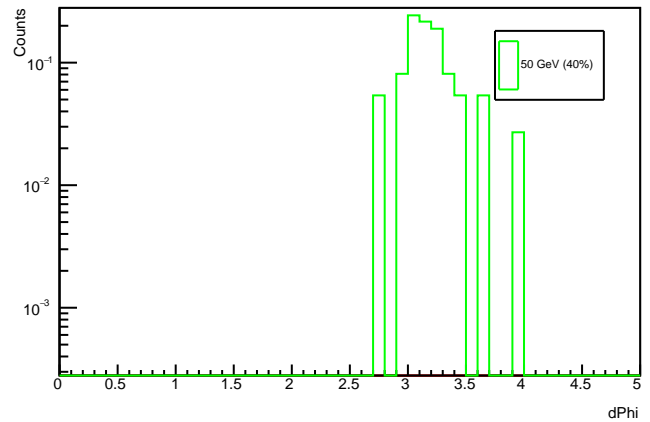
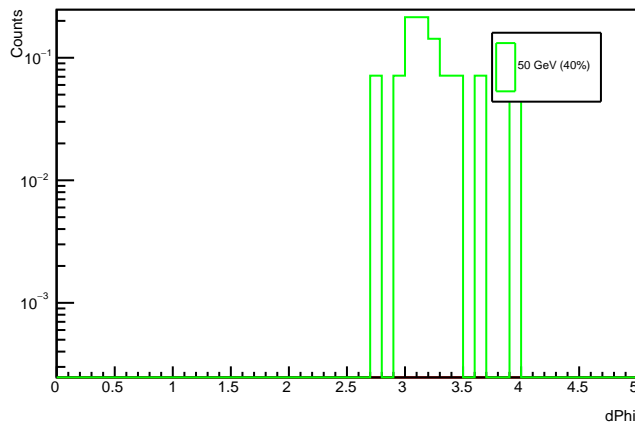
dPhi: reco leading mu and subleading mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$



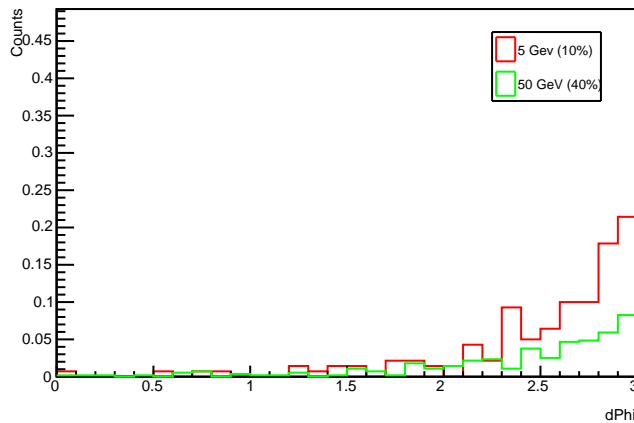
dPhi: reco MET and leading jet: no cuts

dPhi: reco MET and leading jet: $n_{\text{jet}} \geq 1$, $j1pt > 30$ GeV

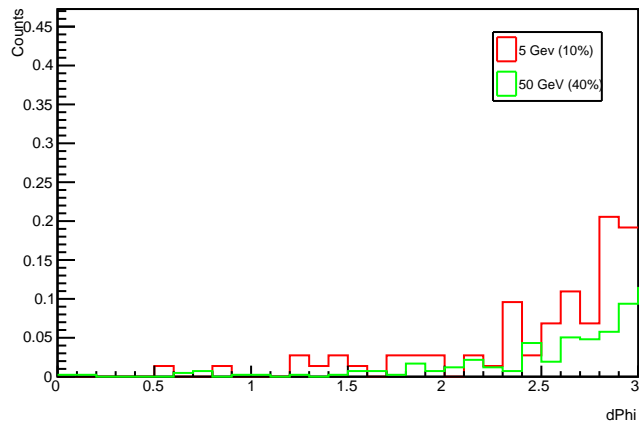
dPhi: reco MET and leading jet: MET > 120 GeV

dPhi: reco MET and leading jet: $j1pt > 120$, at most 2 jets w/ $pt > 30$ GeVdPhi: reco MET and leading jet: at least 2 mu w/ $vxy < 740$ cm, $|vz| < 960$ cm & $|\eta| < 2.4$ 

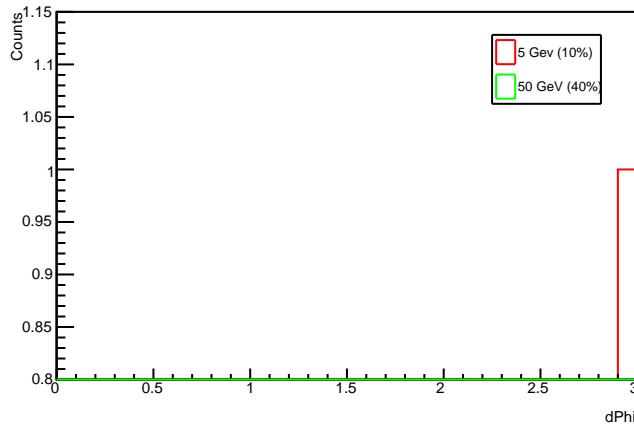
dPhi: reco MET and leading jet: no cuts



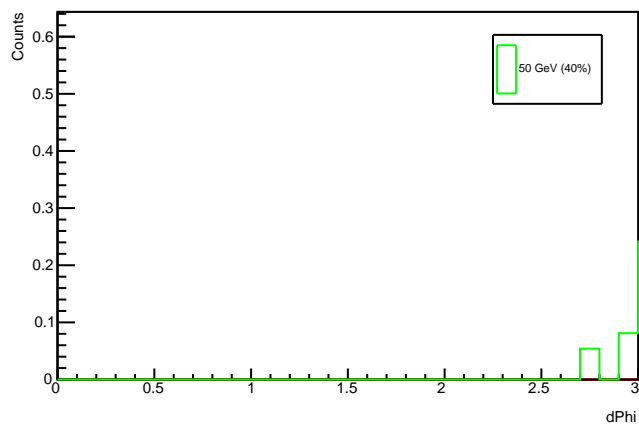
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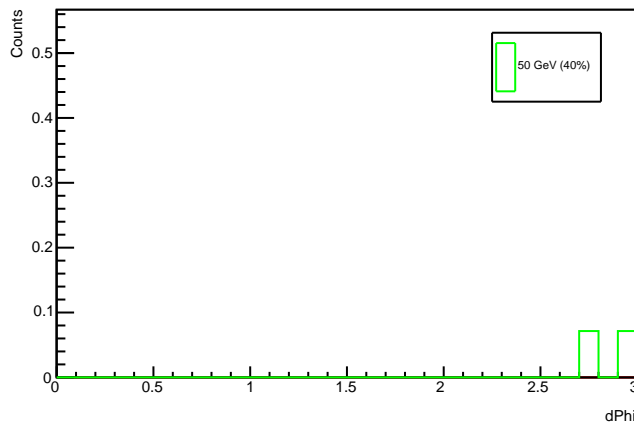
dPhi: reco MET and leading jet: MET > 120 GeV



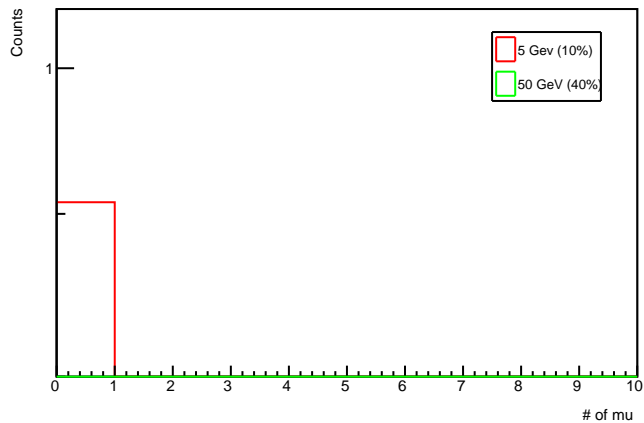
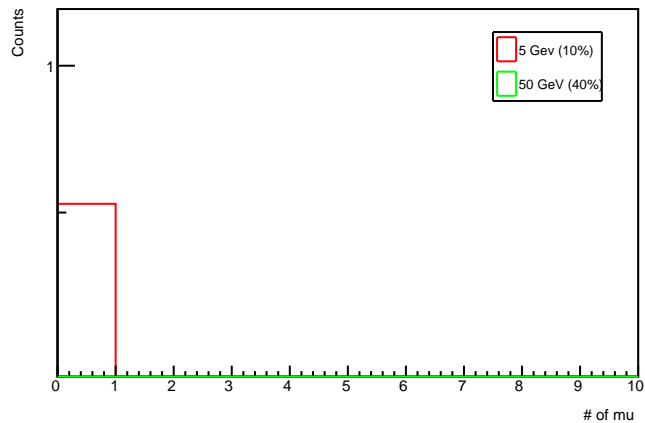
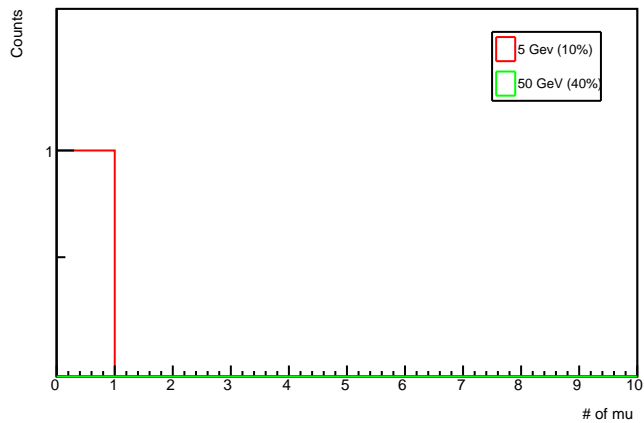
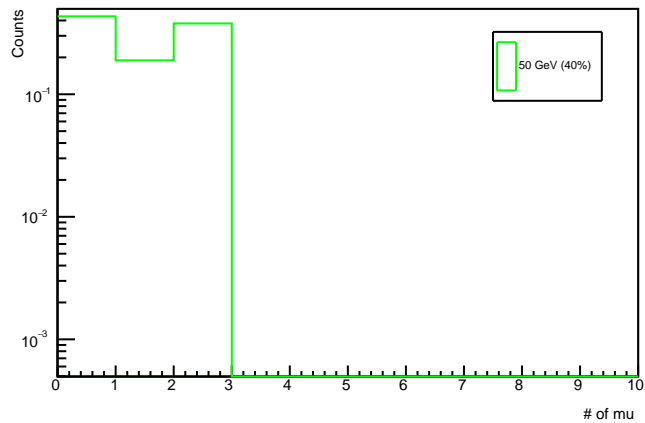
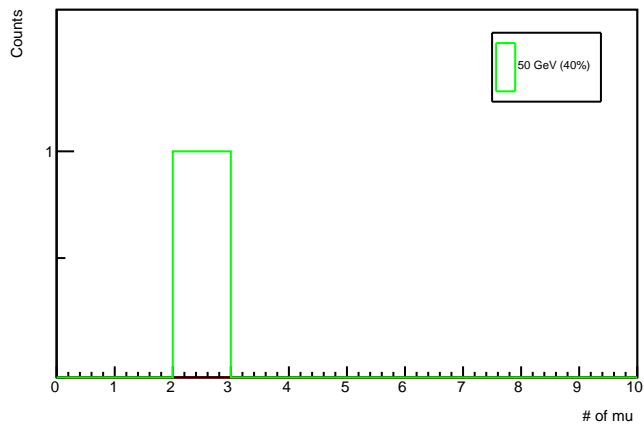
dPhi: reco MET and leading jet: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeV



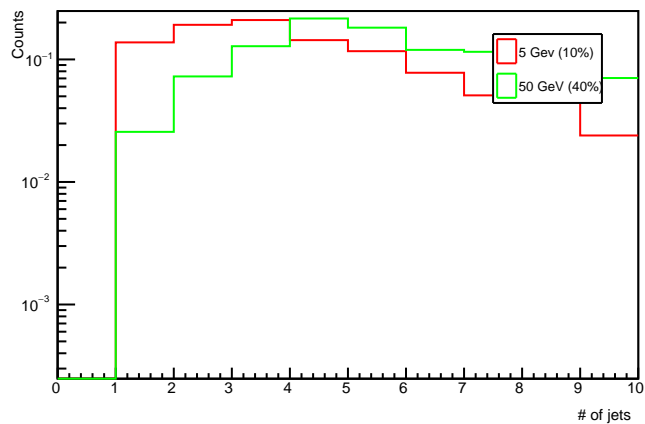
dPhi: reco MET and leading jet: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$



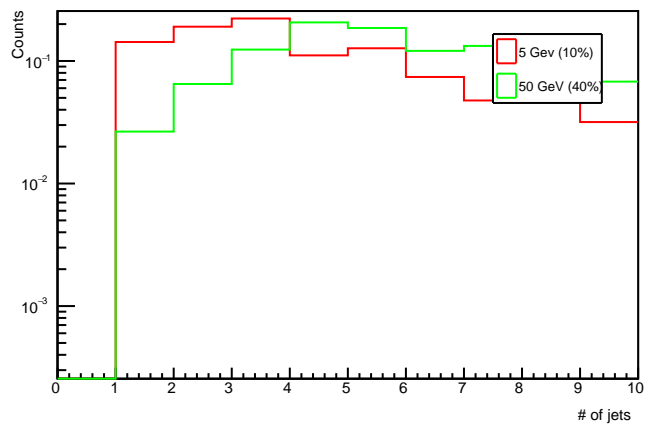
reco number of mu: no cuts

reco number of mu: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeVreco number of mu: $\text{MET} > 120$ GeVreco number of mu: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30$ GeVreco number of mu: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

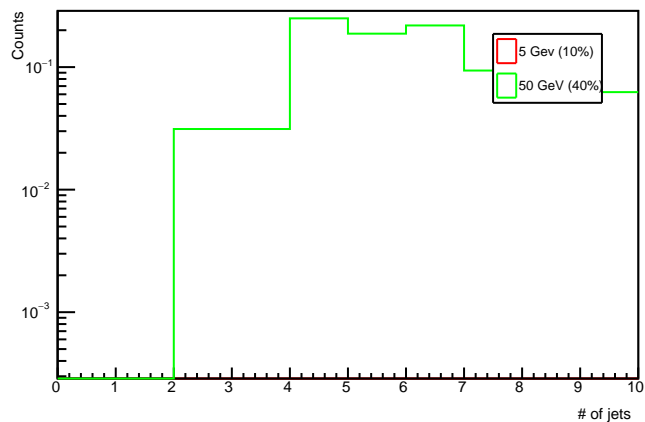
reco number of jets: no cuts



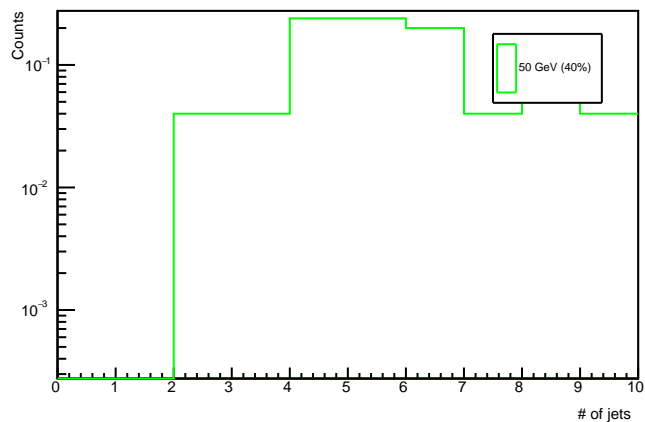
reco number of jets: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30 \text{ GeV}$



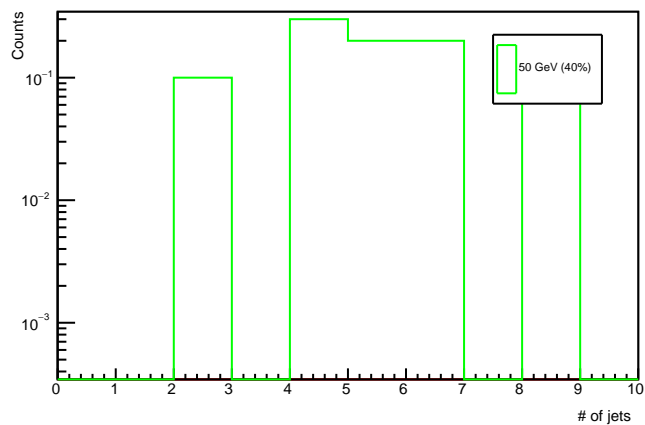
reco number of jets: $\text{MET} > 120 \text{ GeV}$



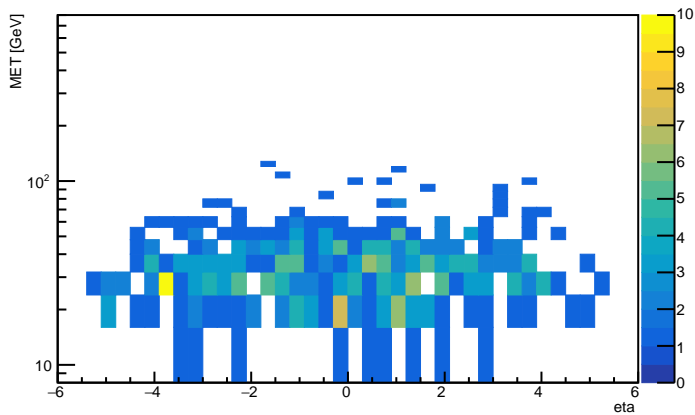
reco number of jets: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_t > 30 \text{ GeV}$



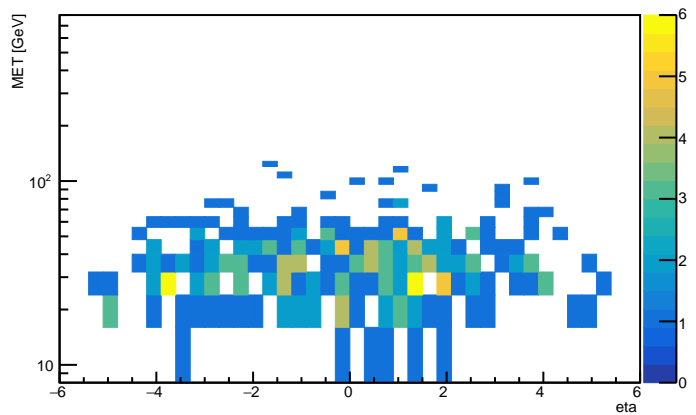
reco number of jets: at least 2 mu w/ $v_{xy} < 740 \text{ cm}$, $|v_z| < 960 \text{ cm}$ & $|\eta_{\text{jet}}| < 2.4$



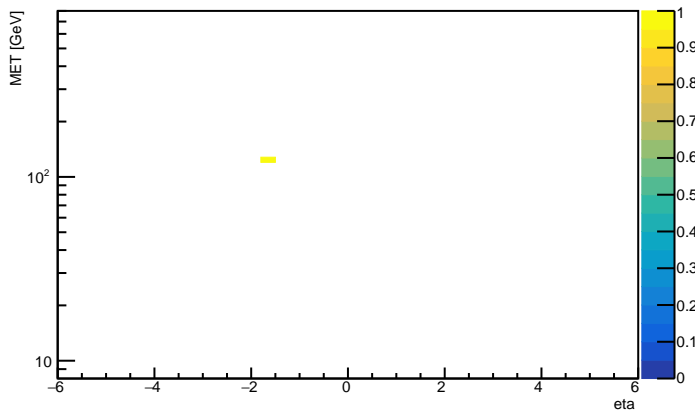
5 Gev (10%) ctau 10mm gen leading Met eta vs pt: no cuts



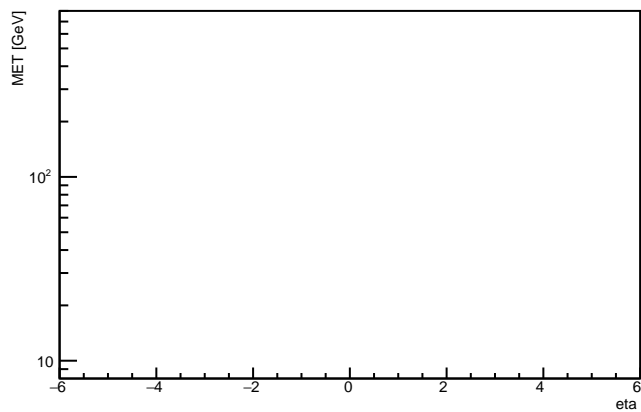
5 Gev (10%) ctau 10mm gen leading Met eta vs pt: $n_{\text{jet}} \geq 1, j_1 \text{pt} > 30 \text{ GeV}$



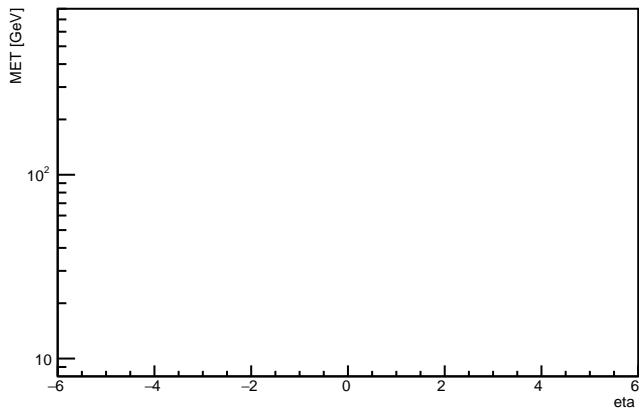
5 Gev (10%) ctau 10mm gen leading Met eta vs pt: MET > 120 GeV



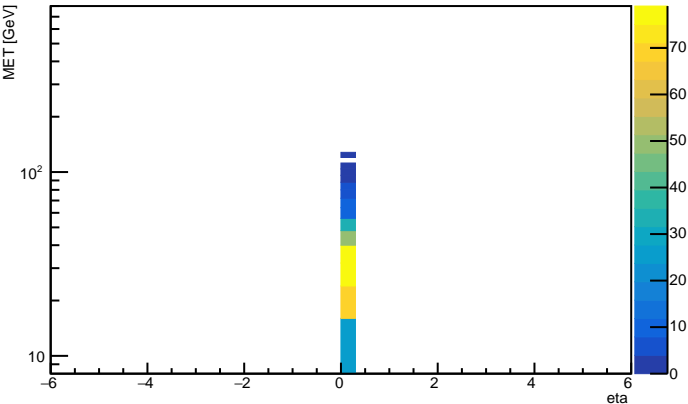
5 Gev (10%) ctau 10mm gen leading Met eta vs pt: $j_1 \text{pt} > 120, \text{at most 2 jets w/ pt} > 30 \text{ GeV}$



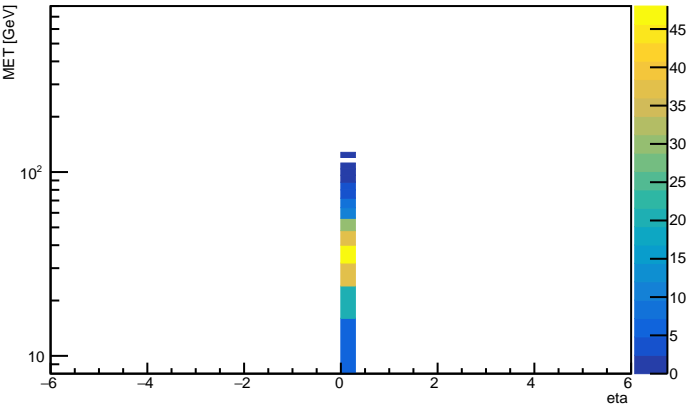
5 Gev (10%) ctau 10mm gen leading Met eta vs pt: at least 2 mu w/ $v_{xy} < 740 \text{ cm}, |v_z| < 960 \text{ cm} \ \& \ |\eta_{\text{jet}}| < 2.4$



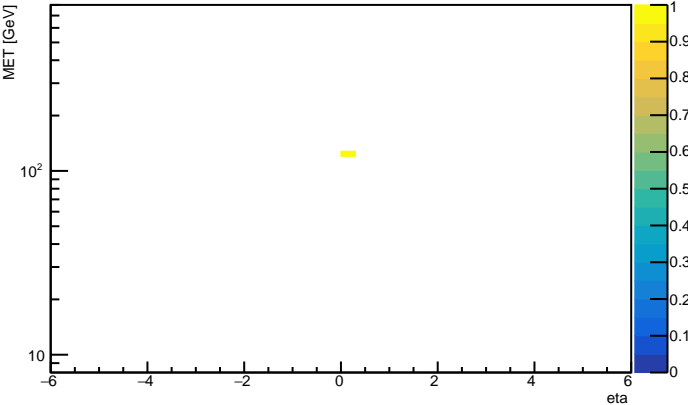
5 Gev (10%) ctau 10mm reco leading Met eta vs pt: no cuts



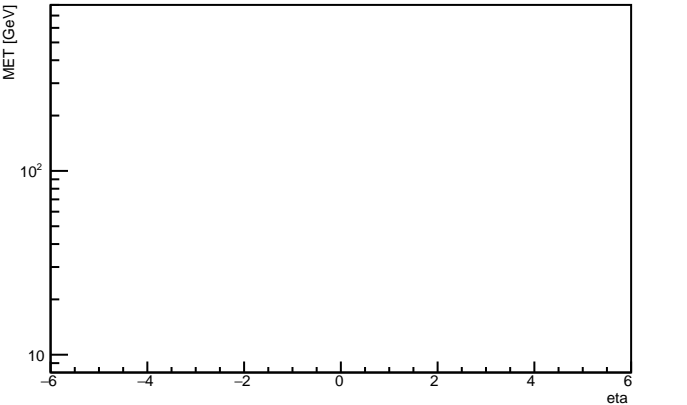
5 Gev (10%) ctau 10mm reco leading Met eta vs pt: n_jet >=1, j1pt > 30 GeV



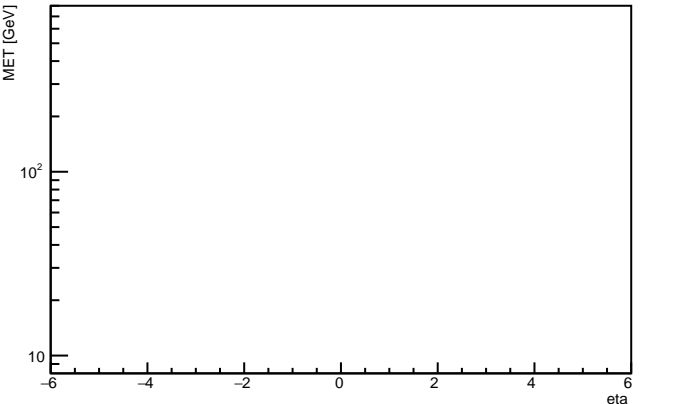
5 Gev (10%) ctau 10mm reco leading Met eta vs pt: MET > 120 GeV



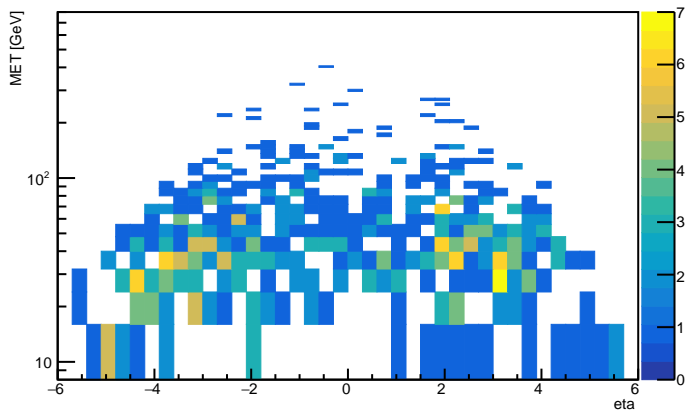
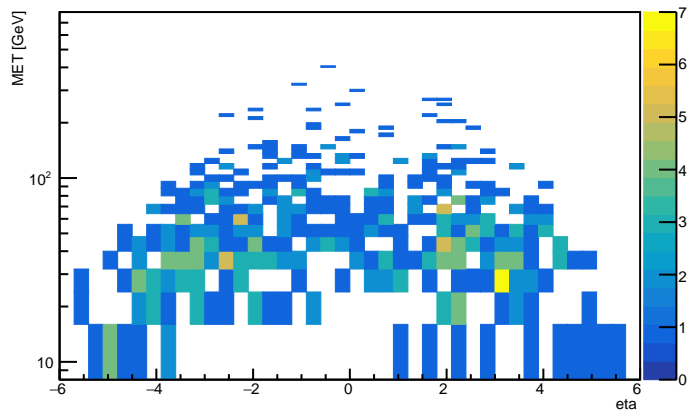
5 Gev (10%) ctau 10mm reco leading Met eta vs pt: j1pt >120, at most 2 jets w/ pt >30 GeV



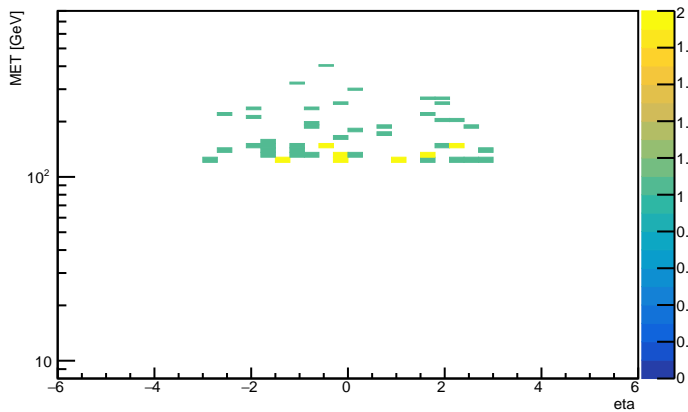
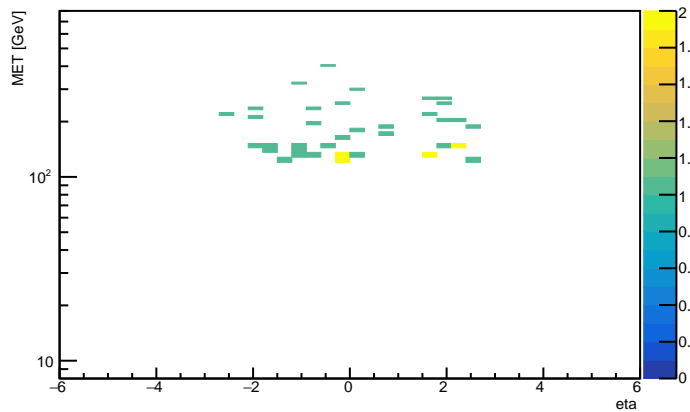
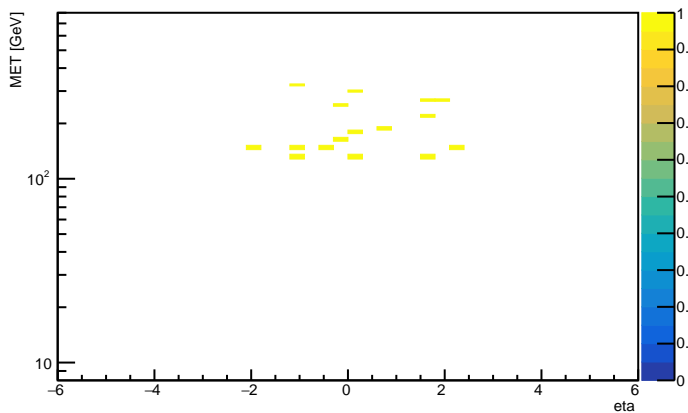
5 Gev (10%) ctau 10mm reco leading Met eta vs pt: at least 2 mu w/ vxy< 740 cm, |vz|<960cm & |eta|<2.4



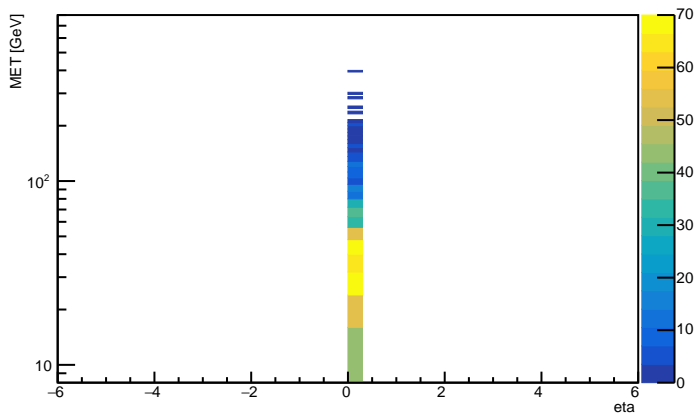
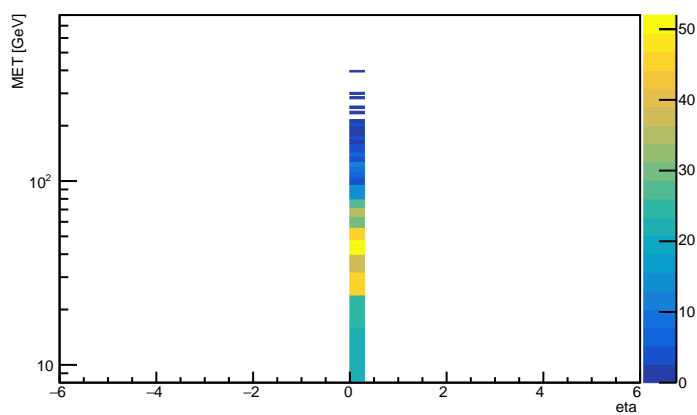
50 GeV (40%) ctau 10mm gen leading Met eta vs pt: no cuts

50 GeV (40%) ctau 10mm gen leading Met eta vs pt: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

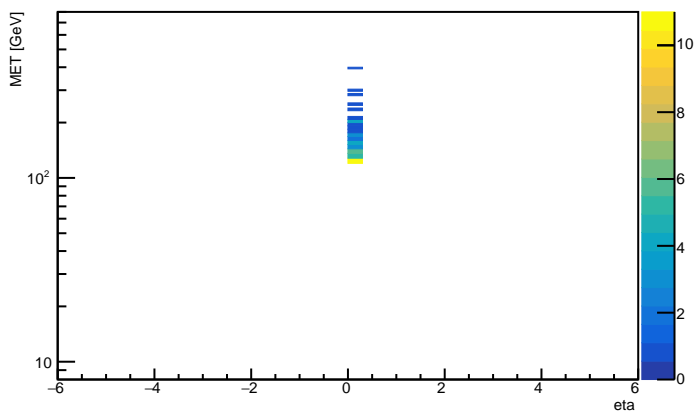
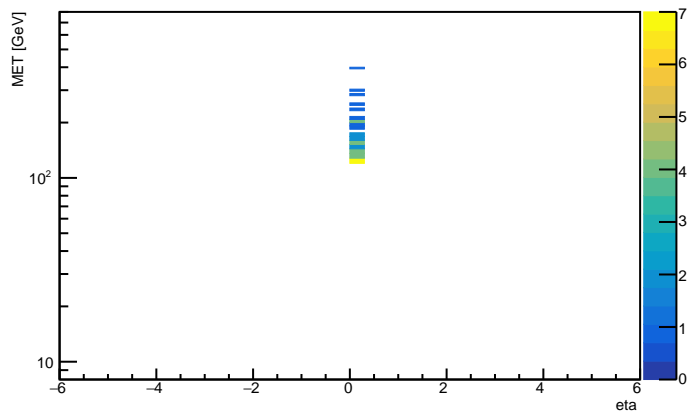
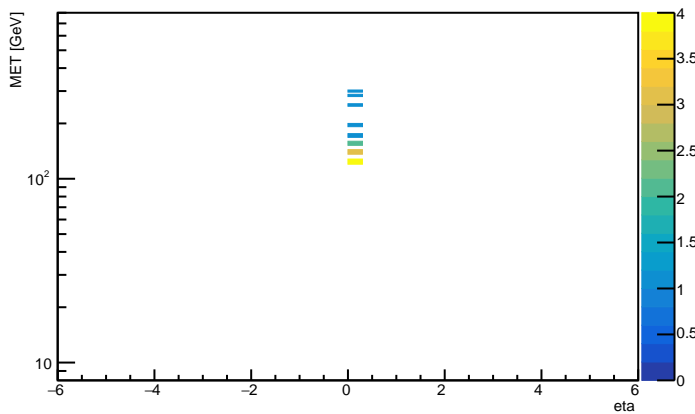
50 GeV (40%) ctau 10mm gen leading Met eta vs pt: MET > 120 GeV

50 GeV (40%) ctau 10mm gen leading Met eta vs pt: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeV50 GeV (40%) ctau 10mm gen leading Met eta vs pt: at least 2 mu w/ $p_{\text{T}} < 740$ cm, $|\nu_z| < 960$ cm & $|\text{eta}| < 2.4$ 

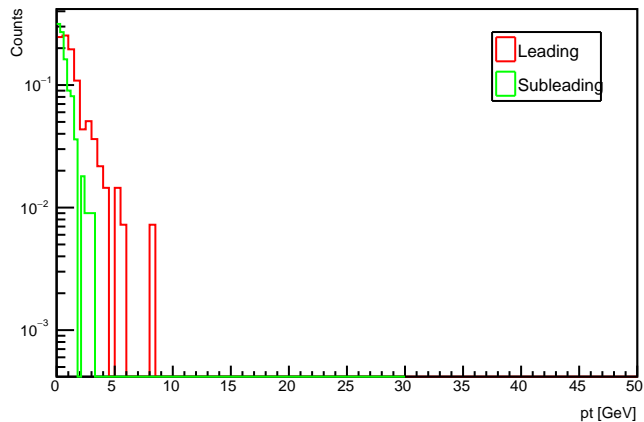
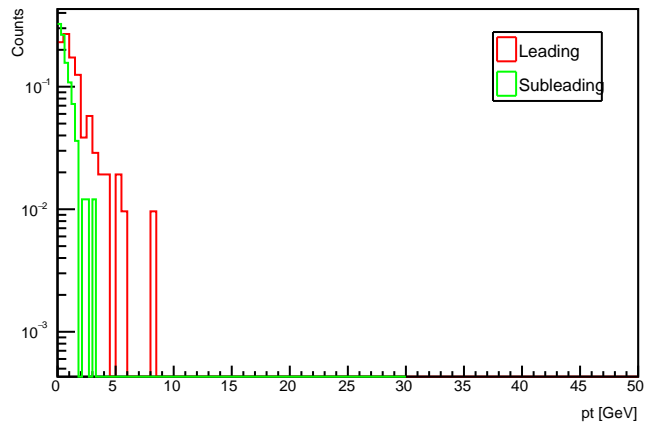
50 GeV (40%) ctau 10mm reco leading Met eta vs pt: no cuts

50 GeV (40%) ctau 10mm reco leading Met eta vs pt: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

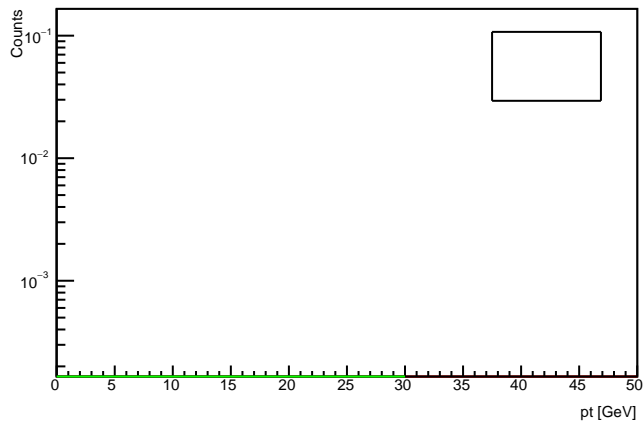
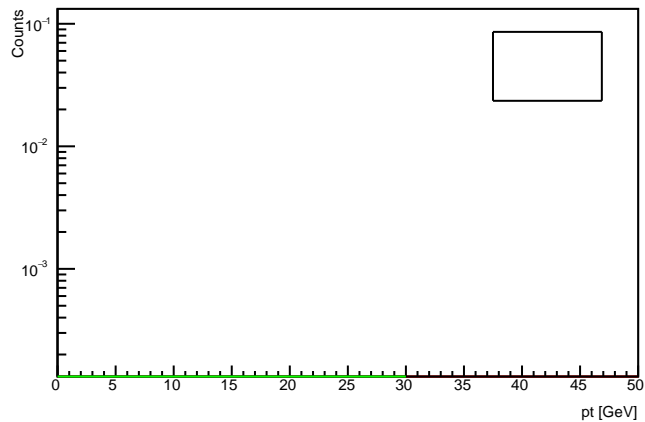
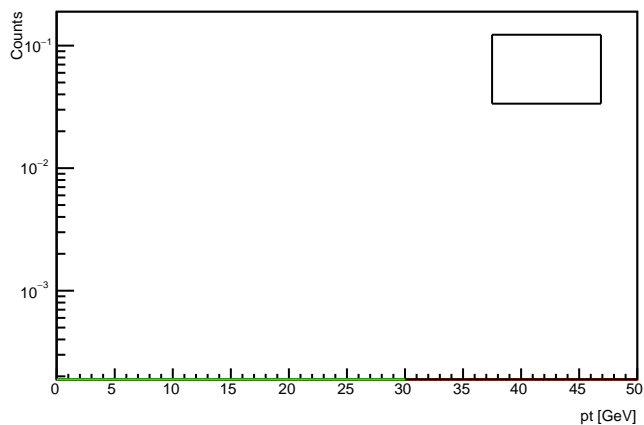
50 GeV (40%) ctau 10mm reco leading Met eta vs pt: MET > 120 GeV

50 GeV (40%) ctau 10mm reco leading Met eta vs pt: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeV50 GeV (40%) ctau 10mm reco leading Met eta vs pt: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\text{eta}| < 2.4$ 

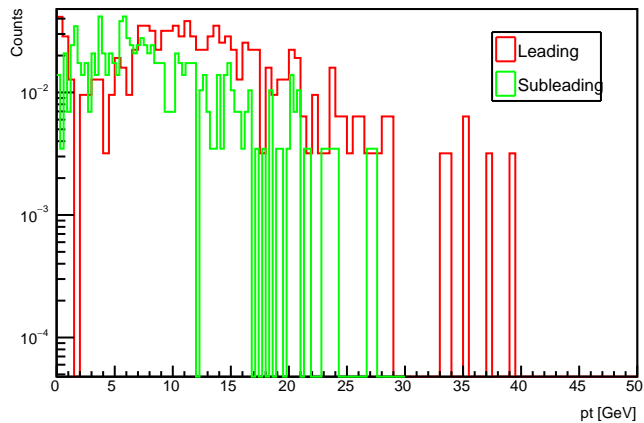
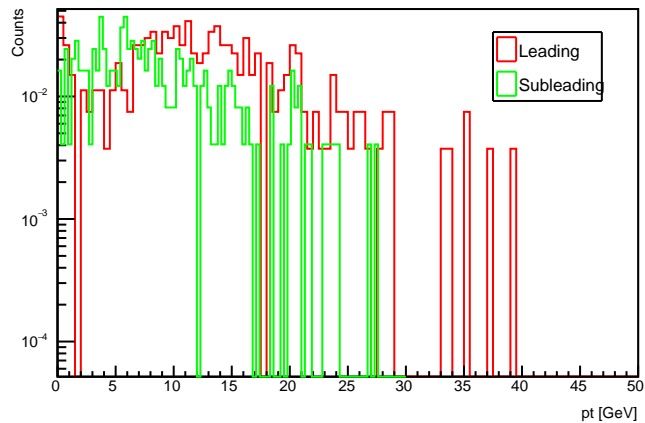
5 Gev (10%) leading vs subleading Mu pt: no cuts

5 Gev (10%) leading vs subleading Mu pt: $n_{\text{jet}} \geq 1$, $j_{1\text{pt}} > 30$ GeV

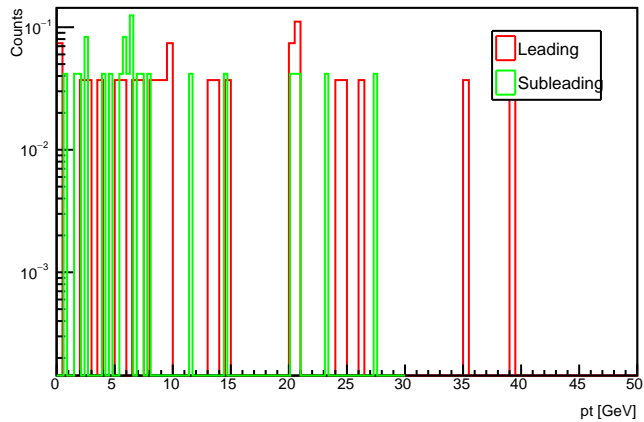
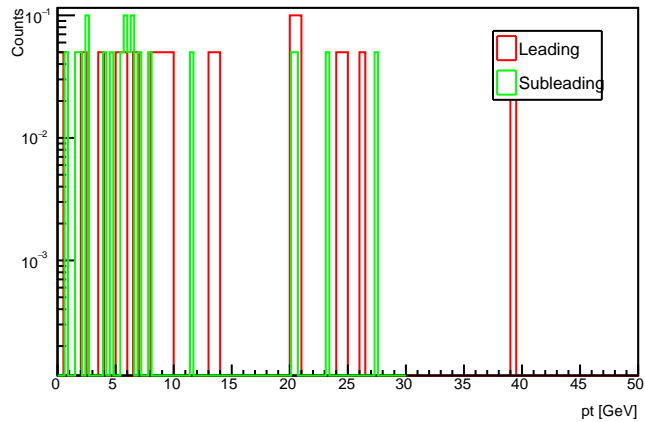
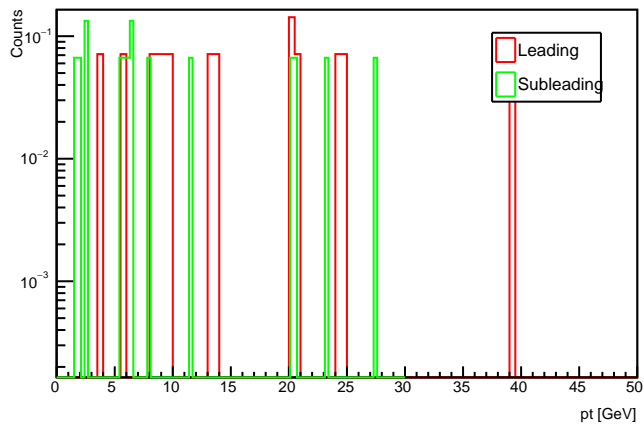
5 Gev (10%) leading vs subleading Mu pt: MET > 120 GeV

5 Gev (10%) leading vs subleading Mu pt: $j_{1\text{pt}} > 120$, at most 2 jets w/ $p_{\text{T}} > 30$ GeV5 Gev (10%) leading vs subleading Mu pt: at least 2 mu w/ $v_{xy} < 740$ cm, $|v_z| < 960$ cm & $|\eta| < 2.4$ 

50 GeV (40%) leading vs subleading Mu pt: no cuts

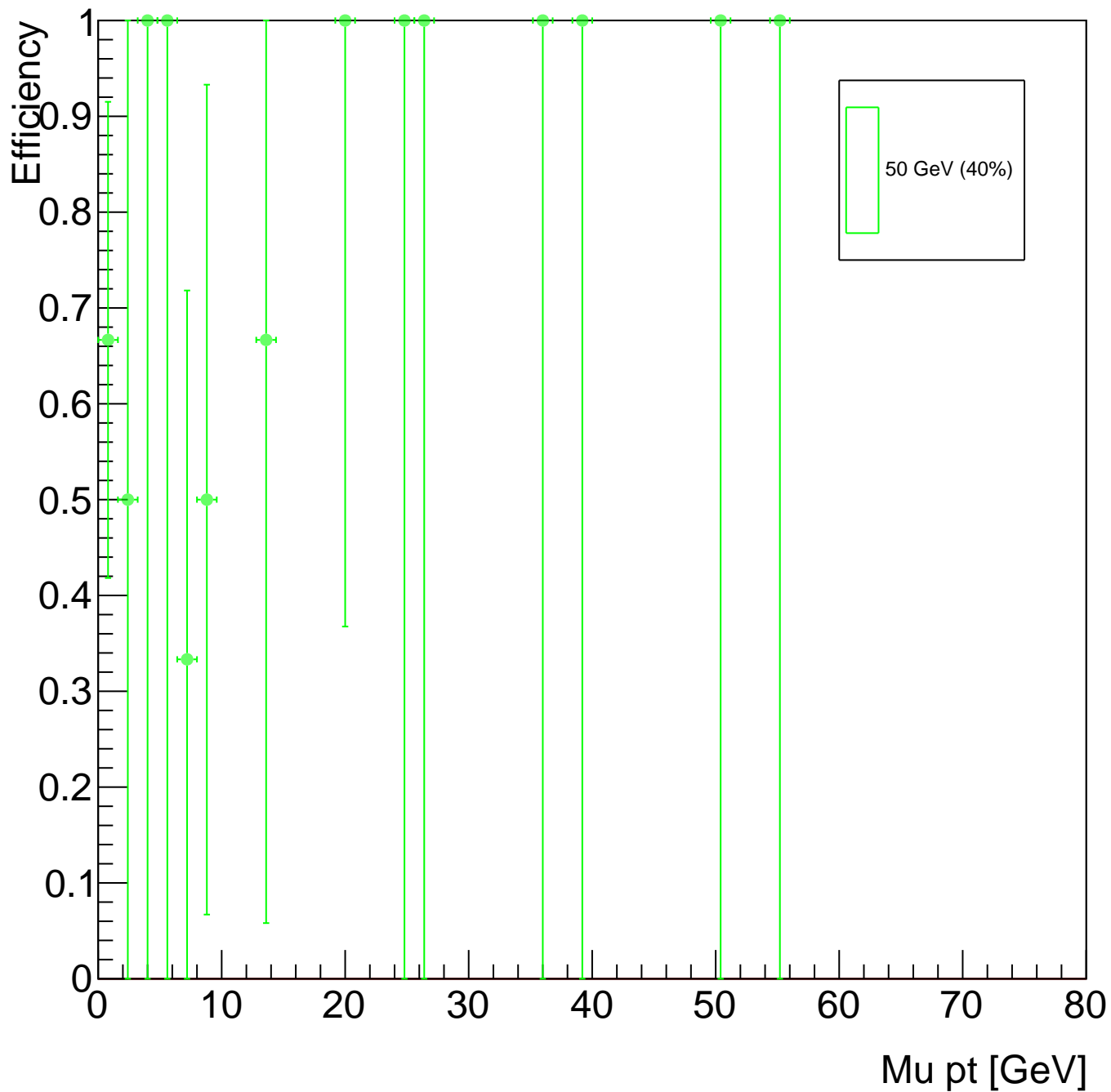
50 GeV (40%) leading vs subleading Mu pt: $n_{\text{jet}} \geq 1$, $j_1 \text{pt} > 30 \text{ GeV}$ 

50 GeV (40%) leading vs subleading Mu pt: MET > 120 GeV

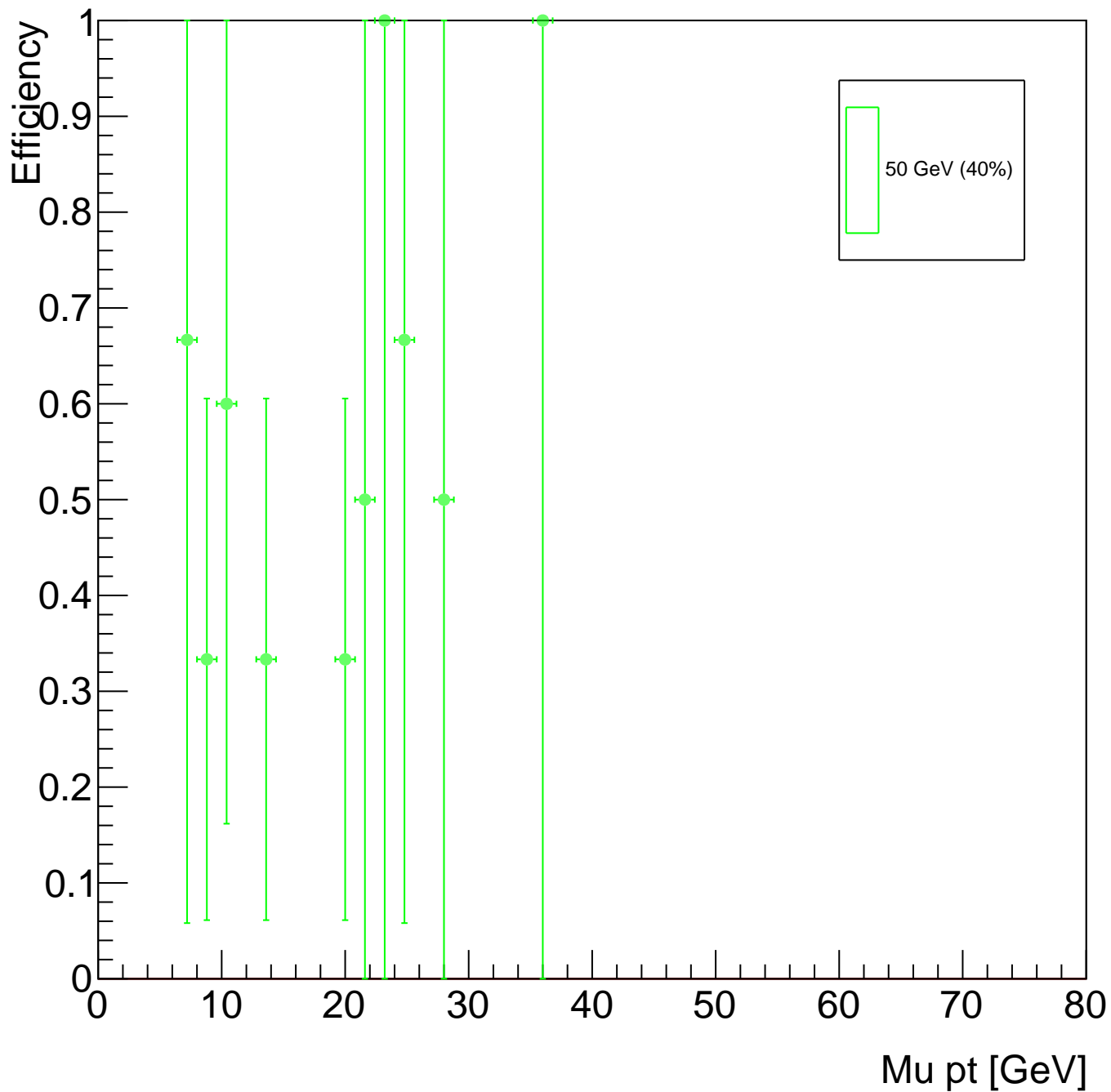
50 GeV (40%) leading vs subleading Mu pt: $j_1 \text{pt} > 120$, at most 2 jets w/ $\text{pt} > 30 \text{ GeV}$ 50 GeV (40%) leading vs subleading Mu pt: at least 2 mu w/ $v_{xy} < 740 \text{ cm}$, $|v_z| < 960 \text{ cm}$ & $|\eta_{\text{jet}}| < 2.4$ 

efficiencies

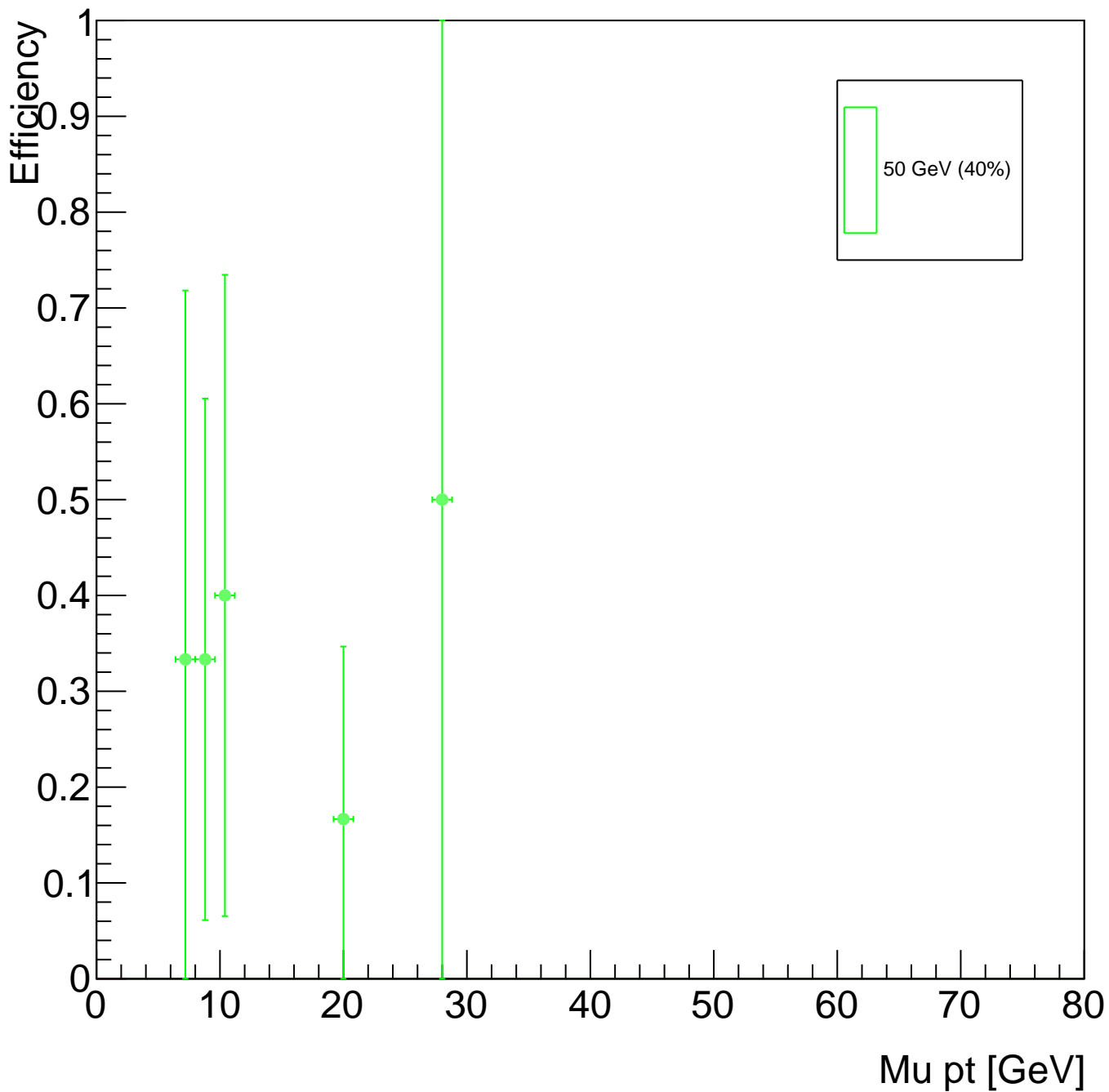
trigefficiency HLT_PFMET120_PFMHT120



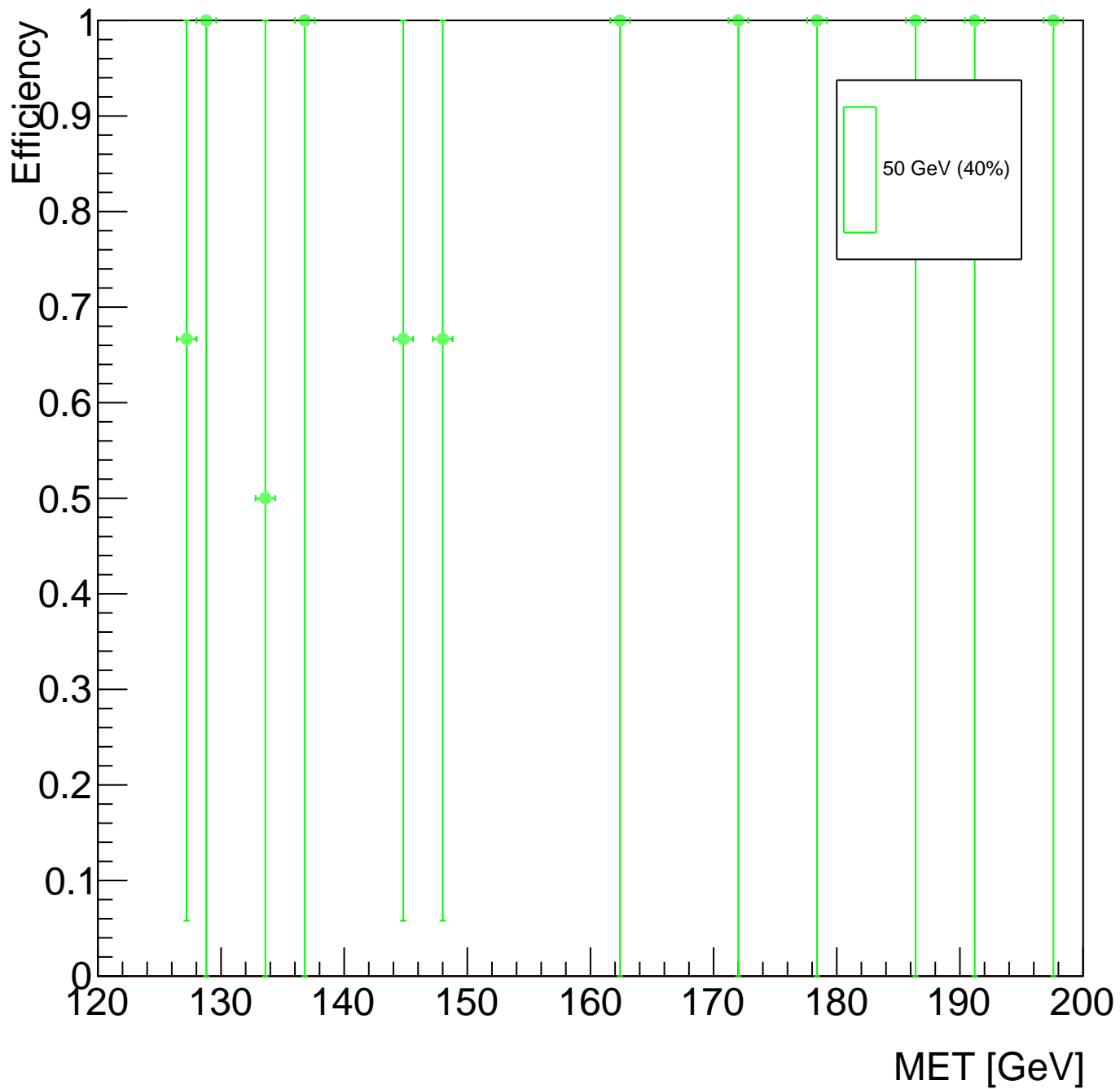
trigefficiency HLT_DoubleMu3_DCA_PFMET50_PFMHT60



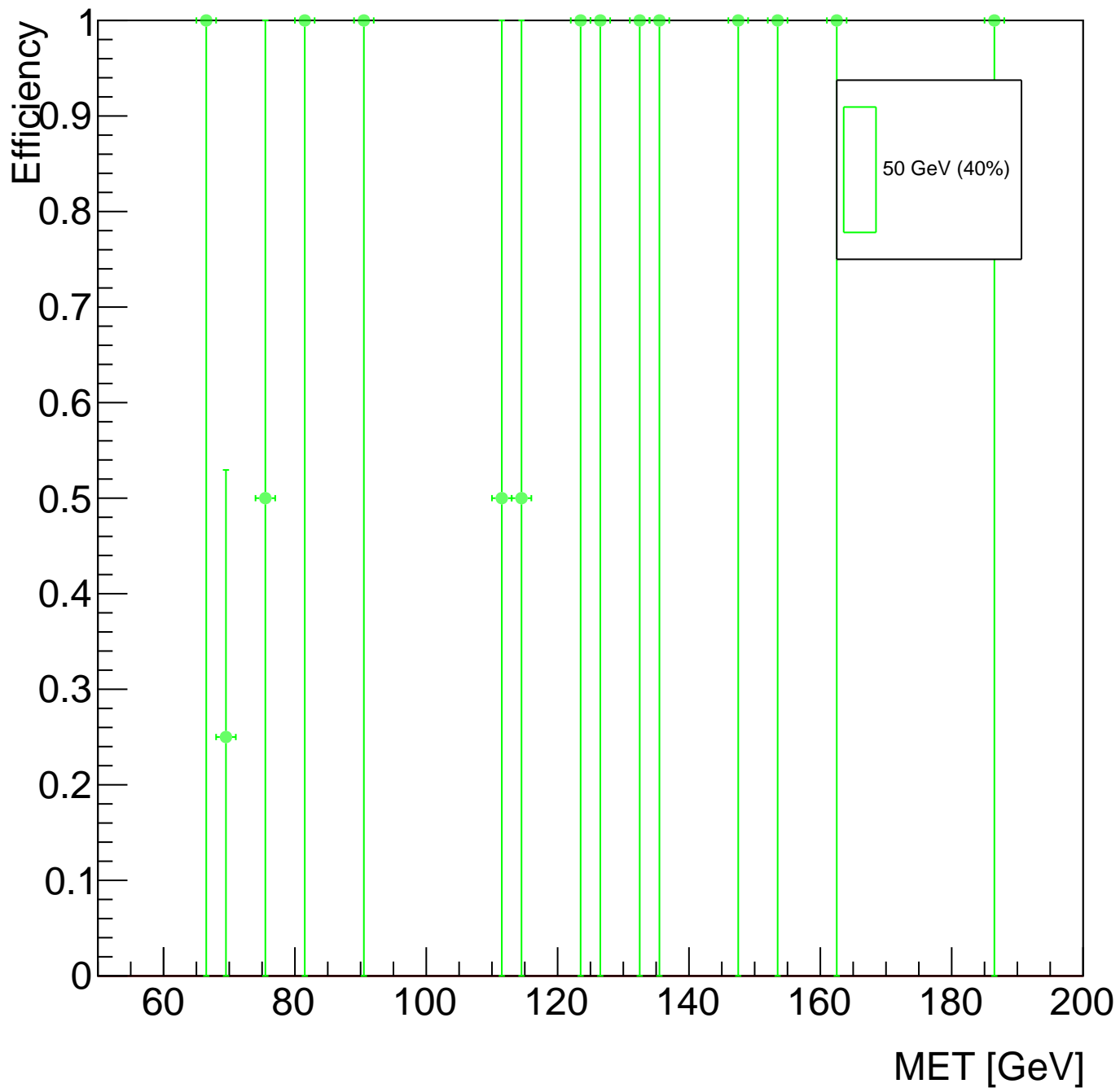
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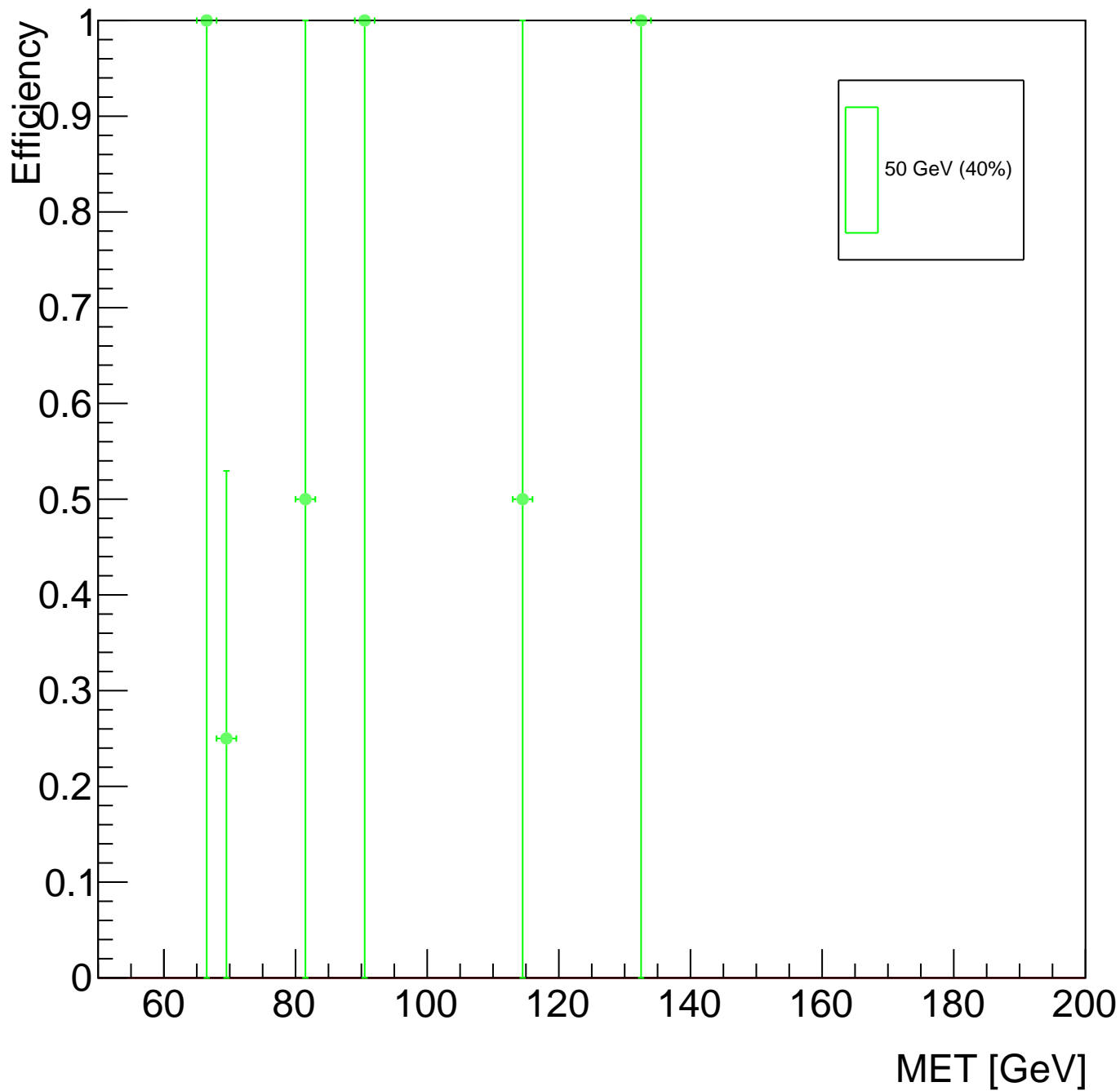
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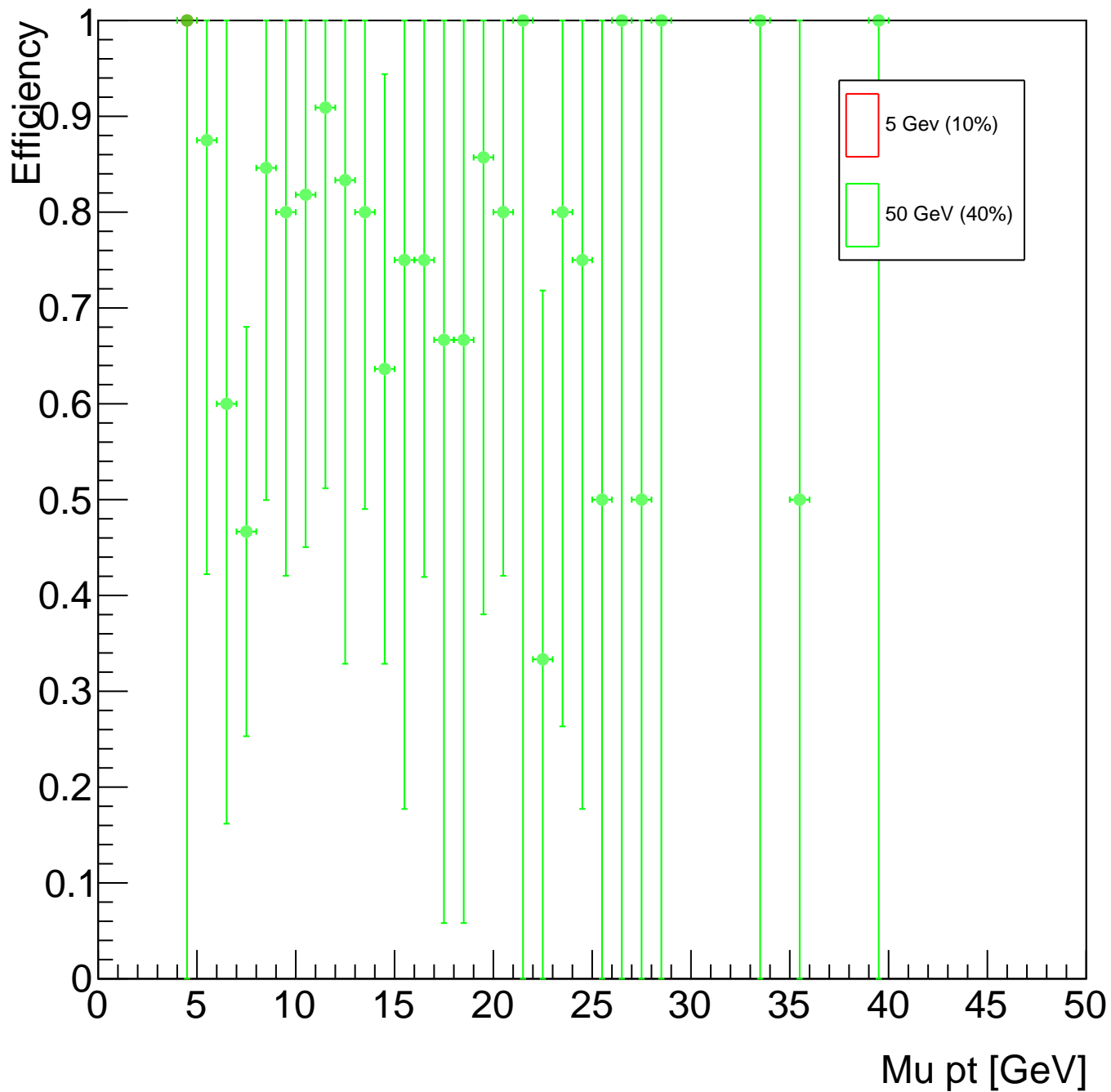
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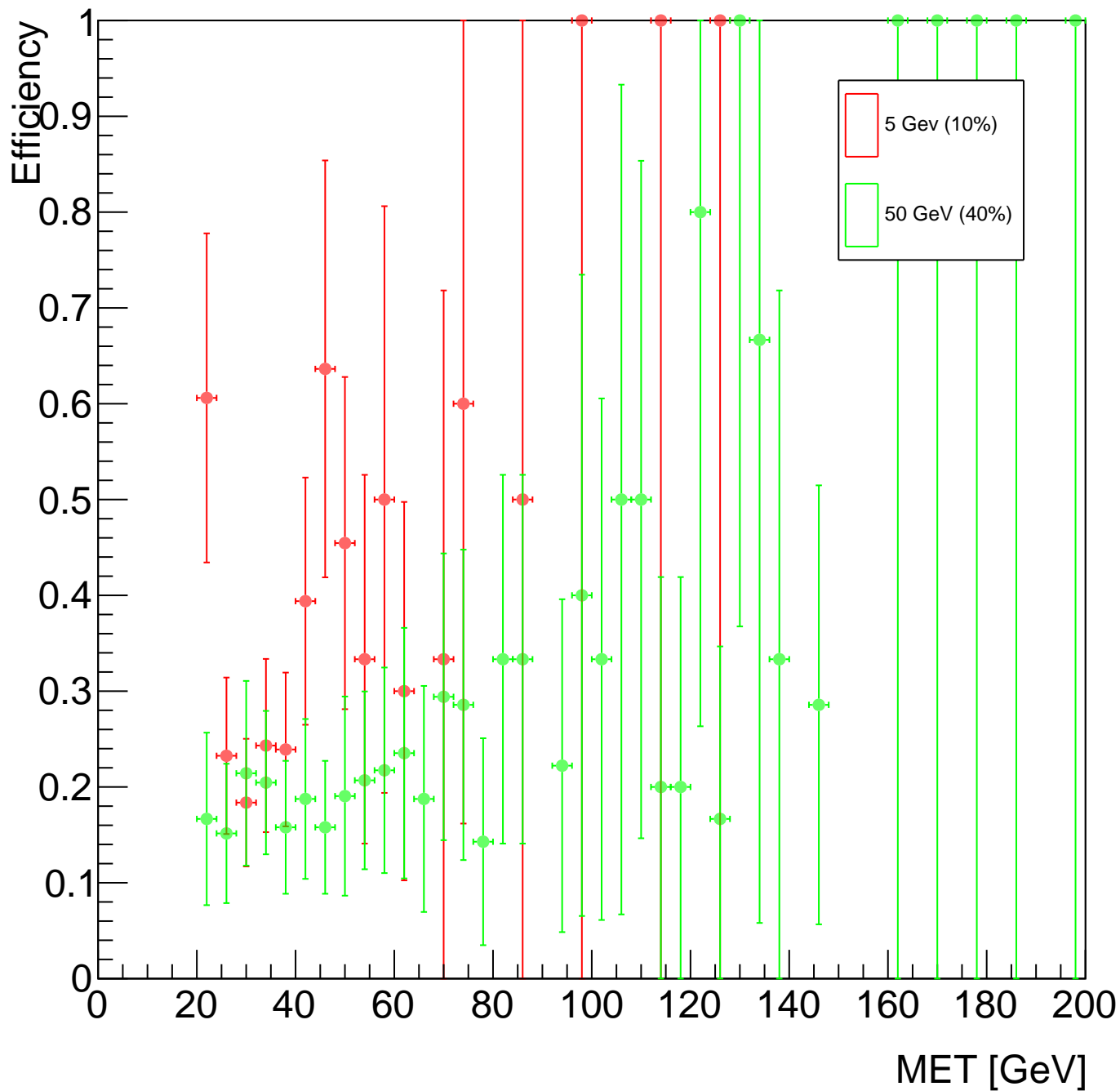
trigefficiency HLT_DoubleMu3_DZ_PFMET50_PFMHT60



recoefficiency mu



recoefficiency met



recoefficiency met

