

Semi-Leptonic-Muon- $t\bar{t}$ -decay

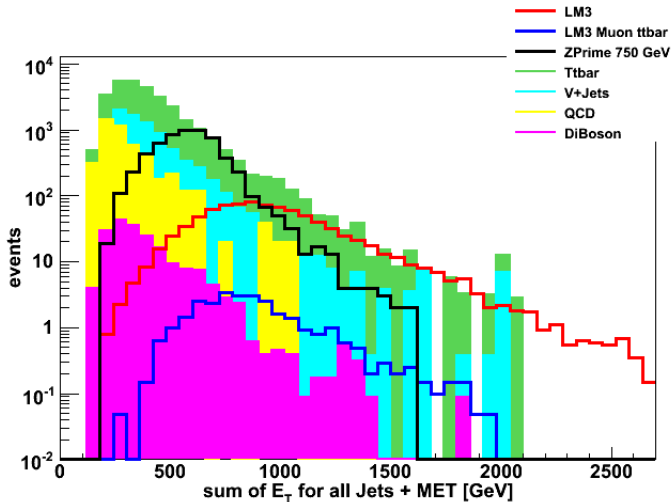
- Samples:
 - ▶ SUSY LM3
 - ▶ SUSY LM3 (with a semi-muonic $t\bar{t}$ -decay in the event)
 - ▶ Muon $t\bar{t}$ (with a semi-muonic $t\bar{t}$ -decay in the event)
 - ▶ Other $t\bar{t}$
 - ▶ ZPrime ($m = 750$ GeV)
 - ▶ QCD
 - ▶ Z+jets
 - ▶ W+Jets
 - ▶ WW
 - ▶ WZ
 - ▶ ZZ

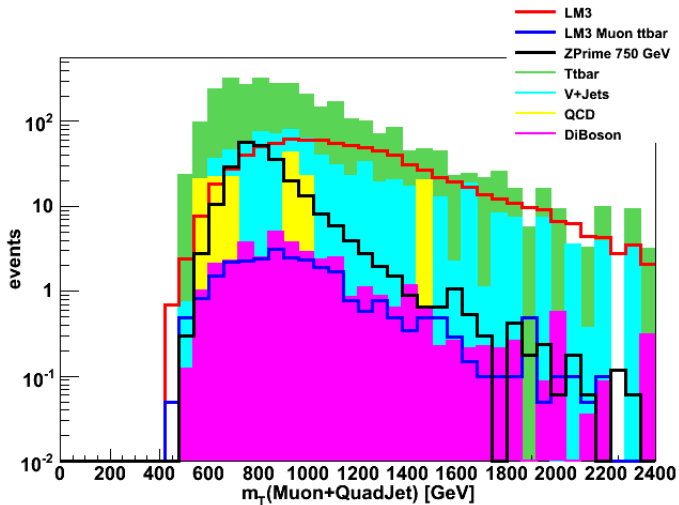
- Selection cuts:

- ▶ $|\eta(\text{muon1})| < 2.1$
- ▶ $|\eta(\text{jet})| < 2.4$ (4 leading jets)
- ▶ $\text{pt}(\text{jet1}) > 30 \text{ GeV}$
- ▶ $\text{pt}(\text{jet2}) > 30 \text{ GeV}$
- ▶ $\text{pt}(\text{jet3}) > 30 \text{ GeV}$
- ▶ $\text{pt}(\text{jet4}) > 30 \text{ GeV}$
- ▶ $(\sum_{\text{tracker}} \text{pt} + \sum_{\text{ecal.}} \text{pt} + \sum_{\text{hcal.}} \text{pt}) / \text{pt}(\text{muon1}) < 0.1$
- ▶ $dR(\text{leading Muon, leading Jet}) > 0.2$

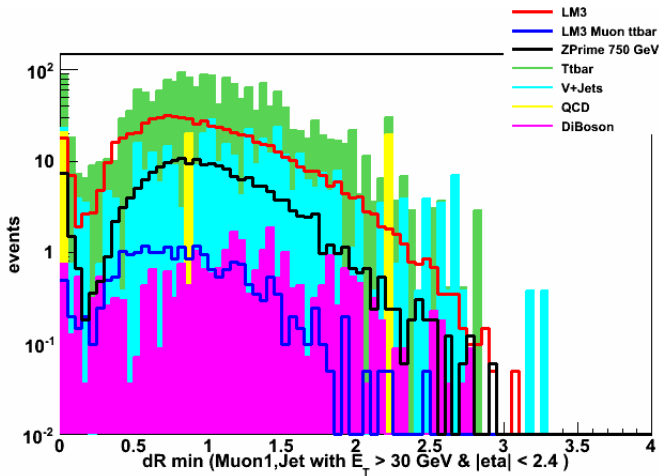
Cuts:

- $M_T > 500 \text{ GeV}$
- transverse mass (Jets1,2,3,4,Muon1) $> 680 \text{ GeV}$
- $0.2 < dR_{\min}(\text{leading Muon, Jet with } E_T > 30 \text{ GeV and } |\eta| < 2.4) < 1.8$
- Sphericity (Jets with $E_T > 30 \text{ GeV}$ and $|\eta| < 2.4$, leading Muon) > 0.15

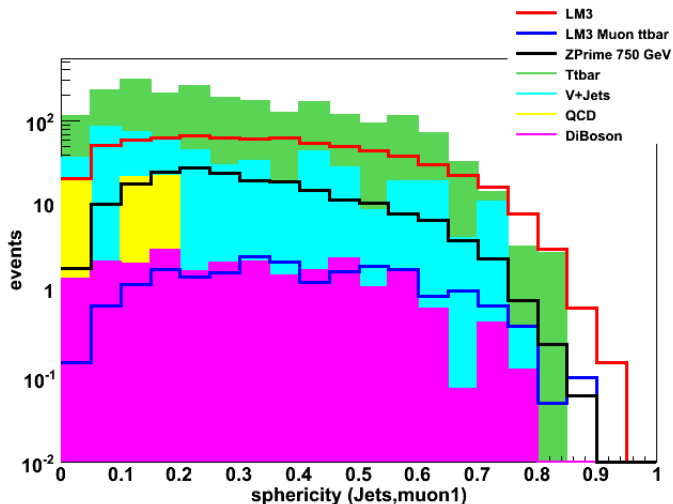




Cut: $M_T > 500$ GeV



Cuts: $MT > 500$ GeV, transverse mass > 680 GeV, Sphericity (Jets with $E_T > 30$ GeV and $|\eta| < 2.4$, leading Muon) > 0.15



Cuts: $M_T > 500$ GeV, transverse mass > 680 GeV, $0.2 < dR_{\text{min}}$ (leading Muon, Jet with $E_t > 30$ GeV and $|\eta| < 2.4$) < 1.8