

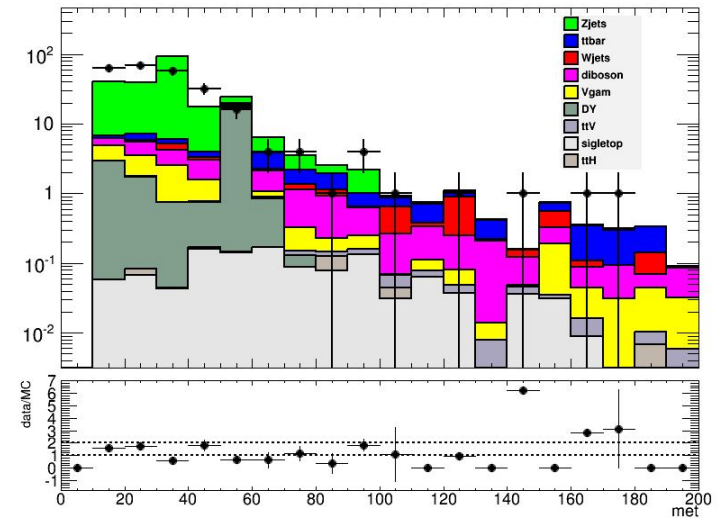
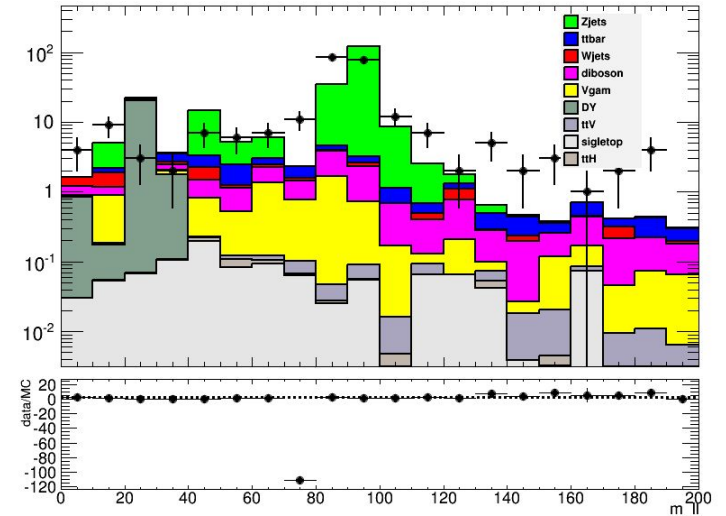
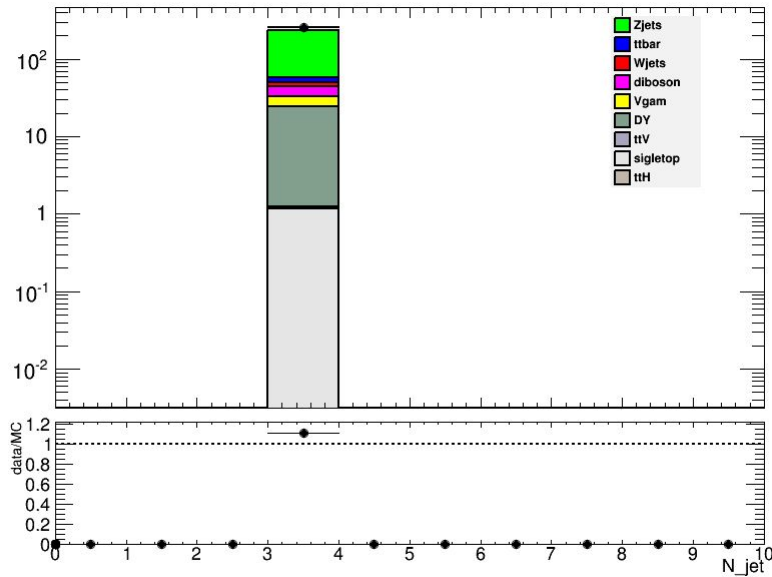
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*Weekly*

Maosen Zhou  
18 Apr, 2016

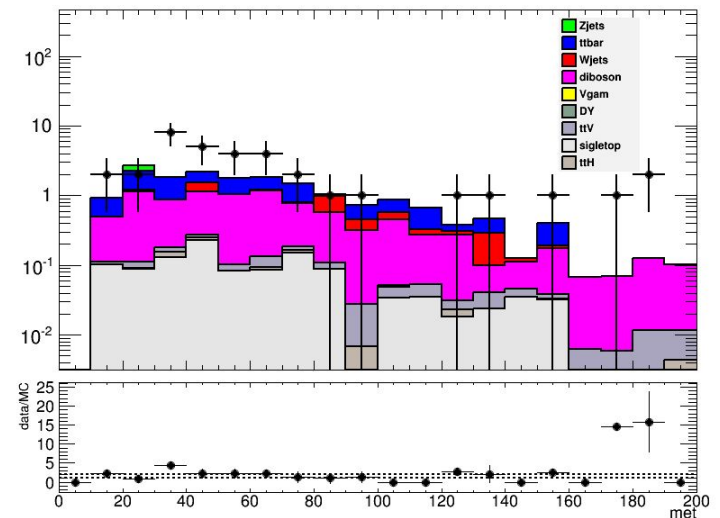
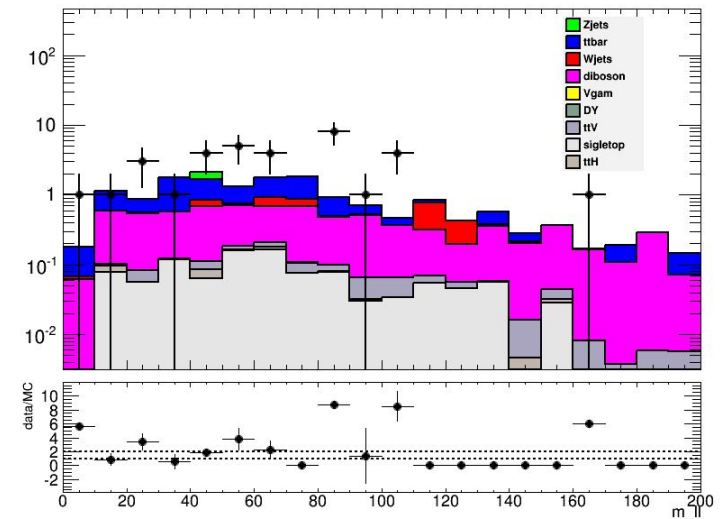
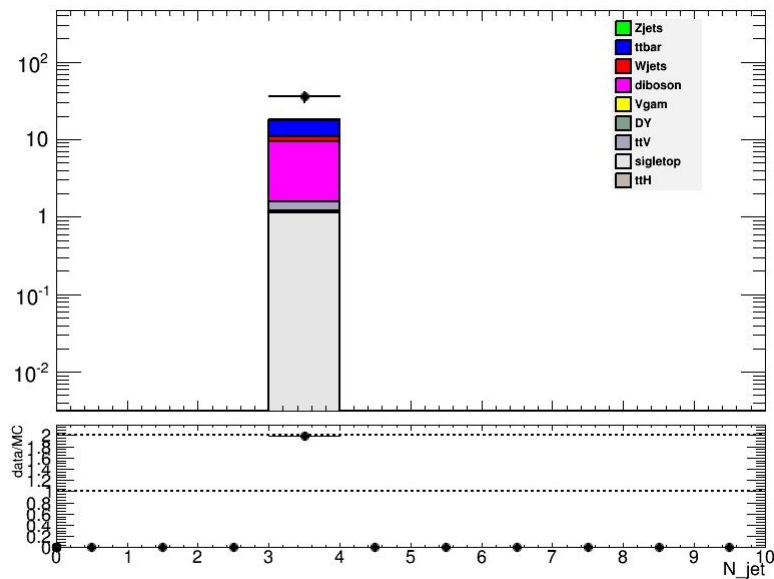
# data/MC

- ✓ 2 SS tight leptons, ==3 jets
- ✓ ee channel
- ✓  $N_{\text{data}}=258, N_{\text{MC}}=233.8 \pm 15.3$



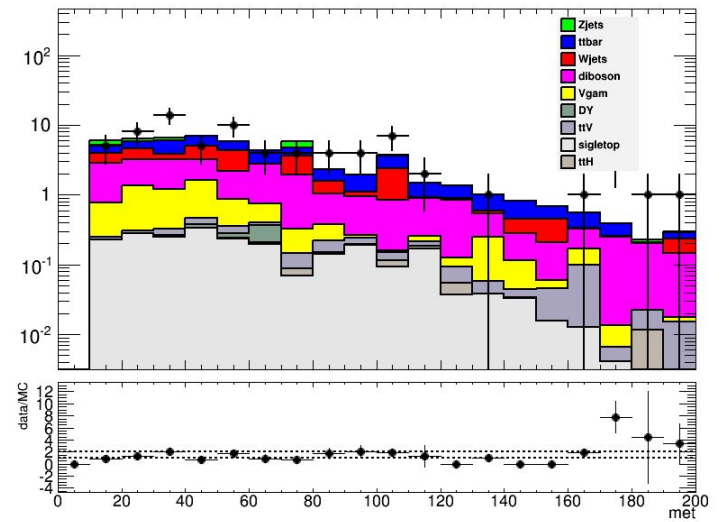
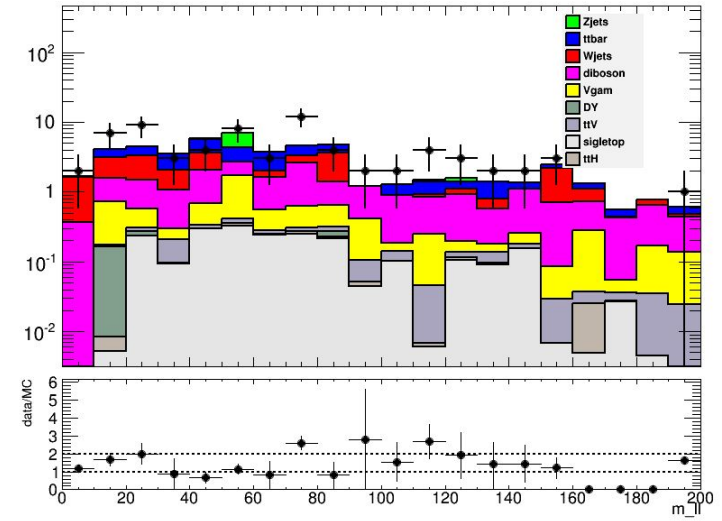
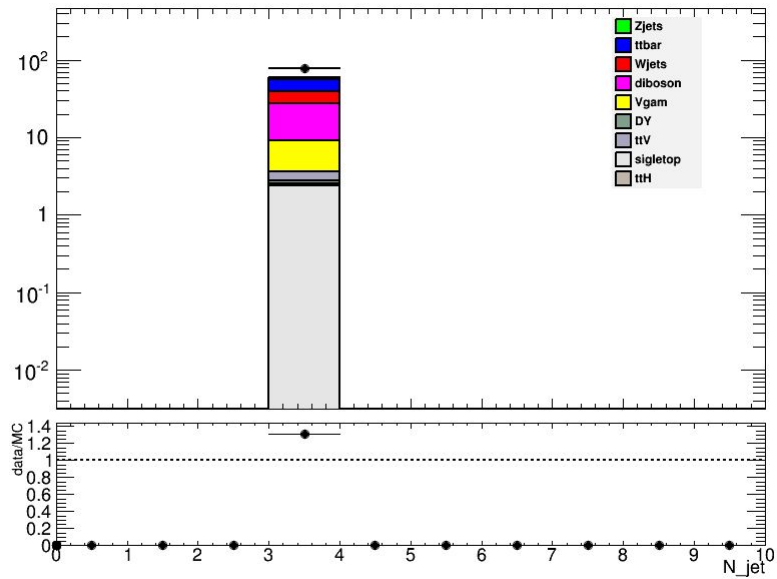
# mumu channel

- ✓ stat is very low;
- ✓  $N_{\text{data}}=36$ ,  $N_{\text{MC}}=18.1 \pm 4.2$



# emu channel

- ✓ stat is low;
- ✓  $N_{\text{data}}=77$ ,  $N_{\text{MC}}=58.9 \pm 7.7$



# fake factor for mumu channel

➤ two regions:

➤ id + id,  $1 \leq N_{\text{jet}} < 3$ ;

➤ id + antiid,  $1 < N_{\text{jet}} < 3$ ;

➤ eta bins consistent with

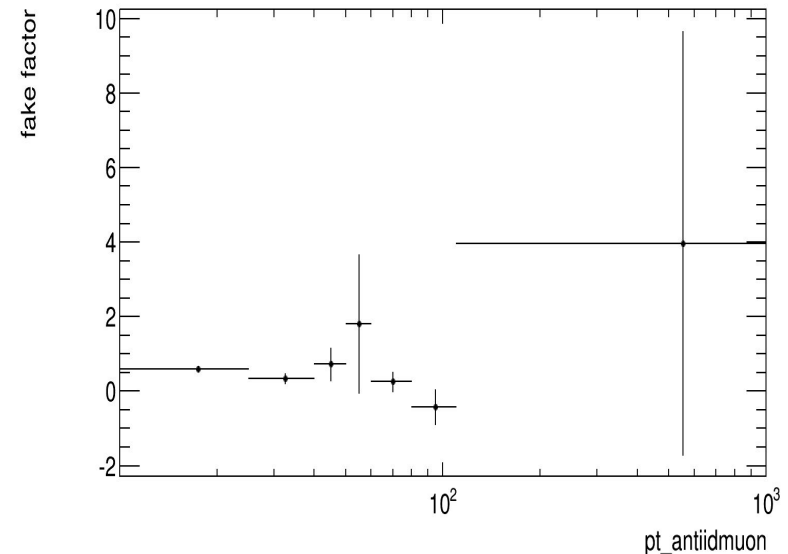
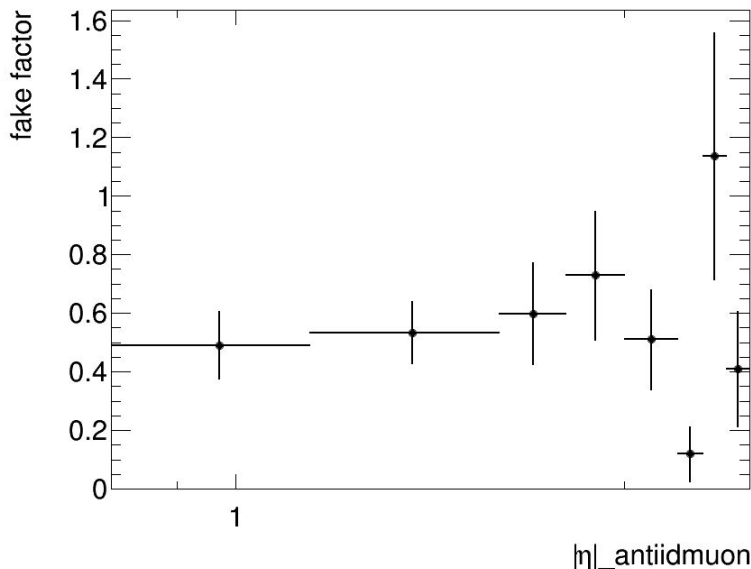
Shuyang to implement QmisID rate later

➤ mostly around 0.6;

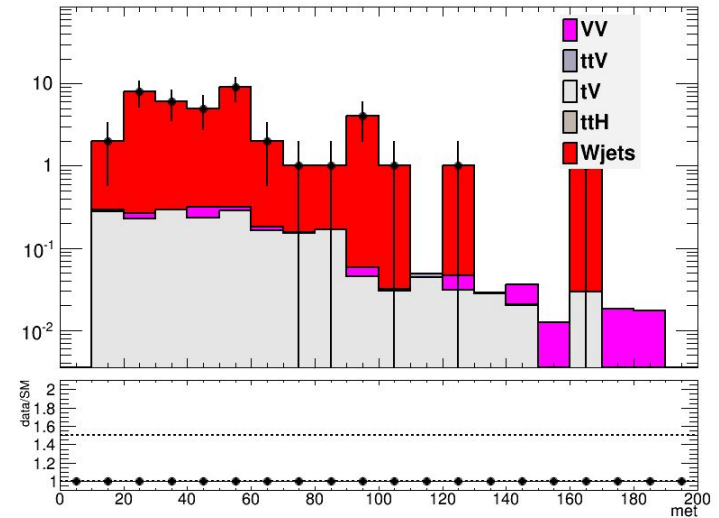
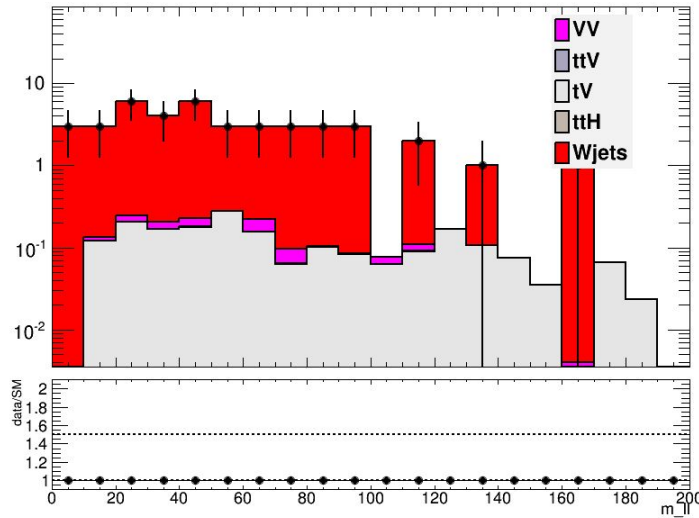
$$\theta_{\mu} = \frac{N_{\mu\mu}}{N_{\mu\mu'}}(\leq 4\text{jets}) = \frac{N_{\mu\mu}^{\text{Data}} - N_{\mu\mu}^{\text{Prompt SS}}}{N_{\mu\mu'}^{\text{Data}} - N_{\mu\mu'}^{\text{Prompt SS}}}$$

$$N_{\mu\mu}^{\text{fakes}}(\geq 5\text{jets}) = (N_{\mu\mu'}^{\text{Data}} - N_{\mu\mu'}^{\text{Prompt SS}})(\geq 5\text{jets}) \times \theta_{\mu}$$

$$\theta_{\text{data}}^{\mu}(234) = 0.298 \pm 0.118(\text{stat.})$$



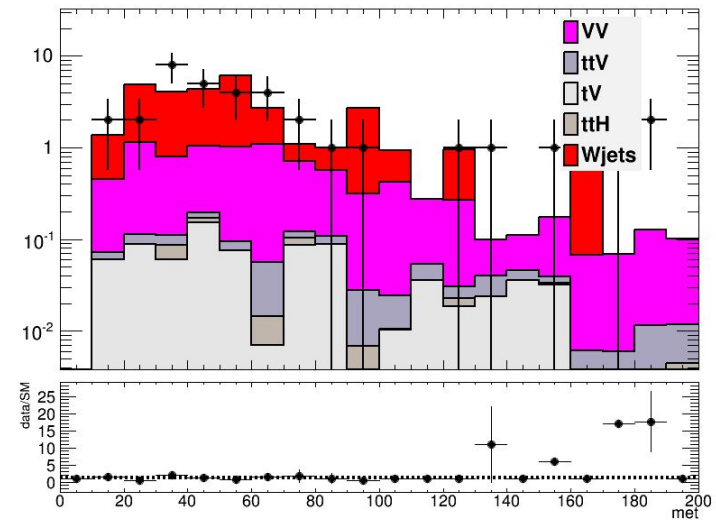
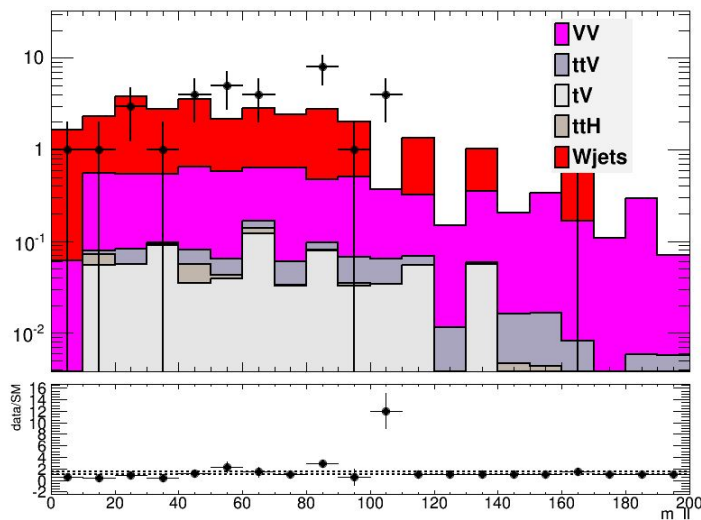
# Control region of W+jets for mumu channel



- ✓ 2 SS muons, id + antiid;
- ✓ == 3 jets;
- ✓ 'data - ttV - tV - ttH - VV' considered as W+jets

# implement fake factor

- ✓ before:  $N_{\text{data}}=36$ ,  $N_{\text{MC}}=18.1\pm 4.2$
- ✓ after :  $N_{\text{data}}=36$ ,  $N_{\text{MC}}=32.2\pm 5.7$
- ✓ Note: error cal may not correct!



## summary & to do list

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- ✓ Better agreement after fake factor implementations for mumu channel;
- ✓ just got QmisID rates from Shuyang, but some technical issues, will show results for ee/emu this week;
- ✓ just one concern, for Vgam:
  - ✓ Wgam, mostly jet fakes, so included to W+jets estimations?
  - ✓ Zgam, mostly QmisID bkg, included to Z+jets estimations?
  - ✓ but if because of photon conversions, will have to be subtracted?
- ✓ validation with emu channel
- ✓ Sys Uncertainties



# Backup