

RHNM status report

LAPP - Physics meeting

outline

- Simulation smearing
- Multivariate analysis output
- Fitting output spectrum

Simulation Smearing

- Events constrained into 2 jets
- Jets smeared using Mark Thomson formula

$$\frac{\sigma_E}{E} = \frac{21}{\sqrt{E}} \oplus 0.7 \oplus 0.004E \oplus 2.1 \left(\frac{E}{100} \right)^{+0.3} \%$$

Resolution

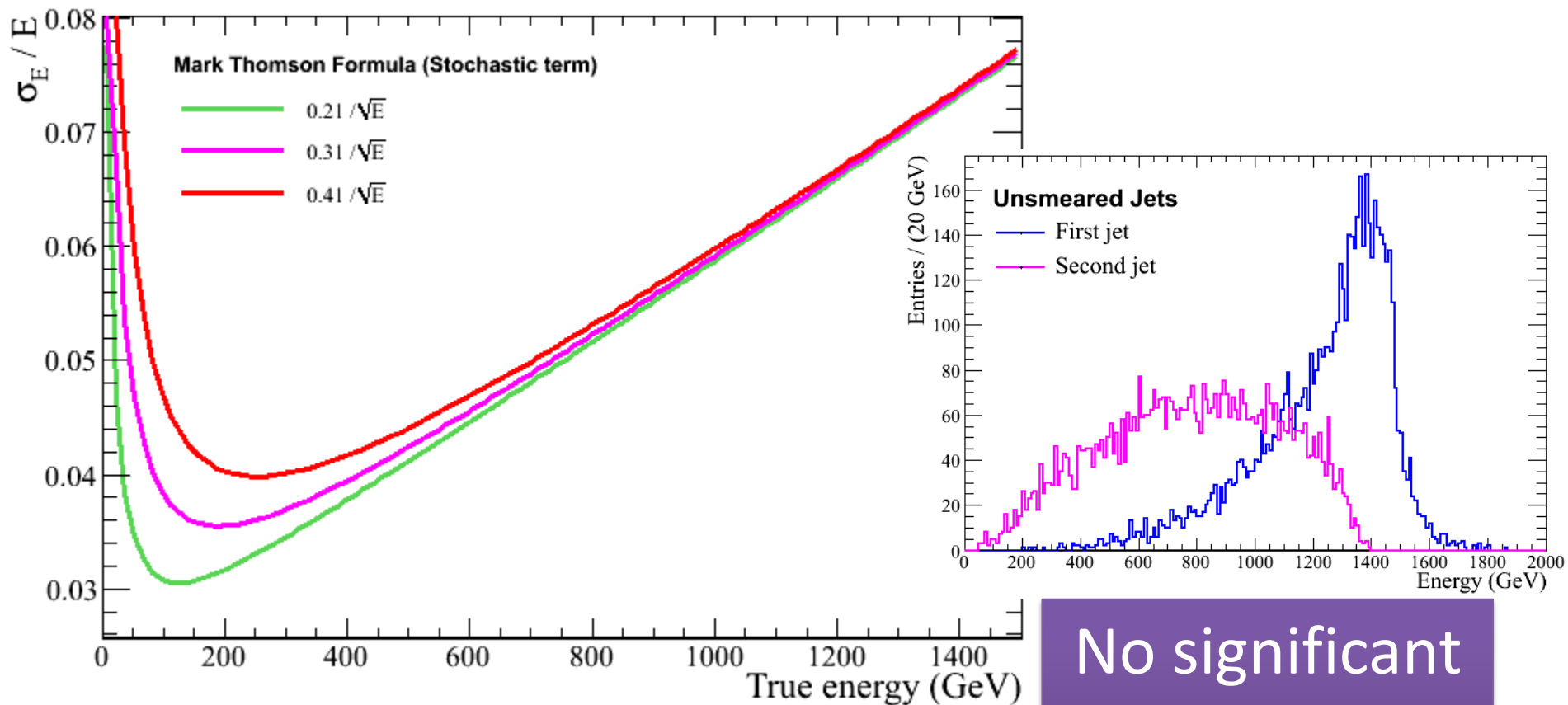
Tracking

Leakage

Confusion

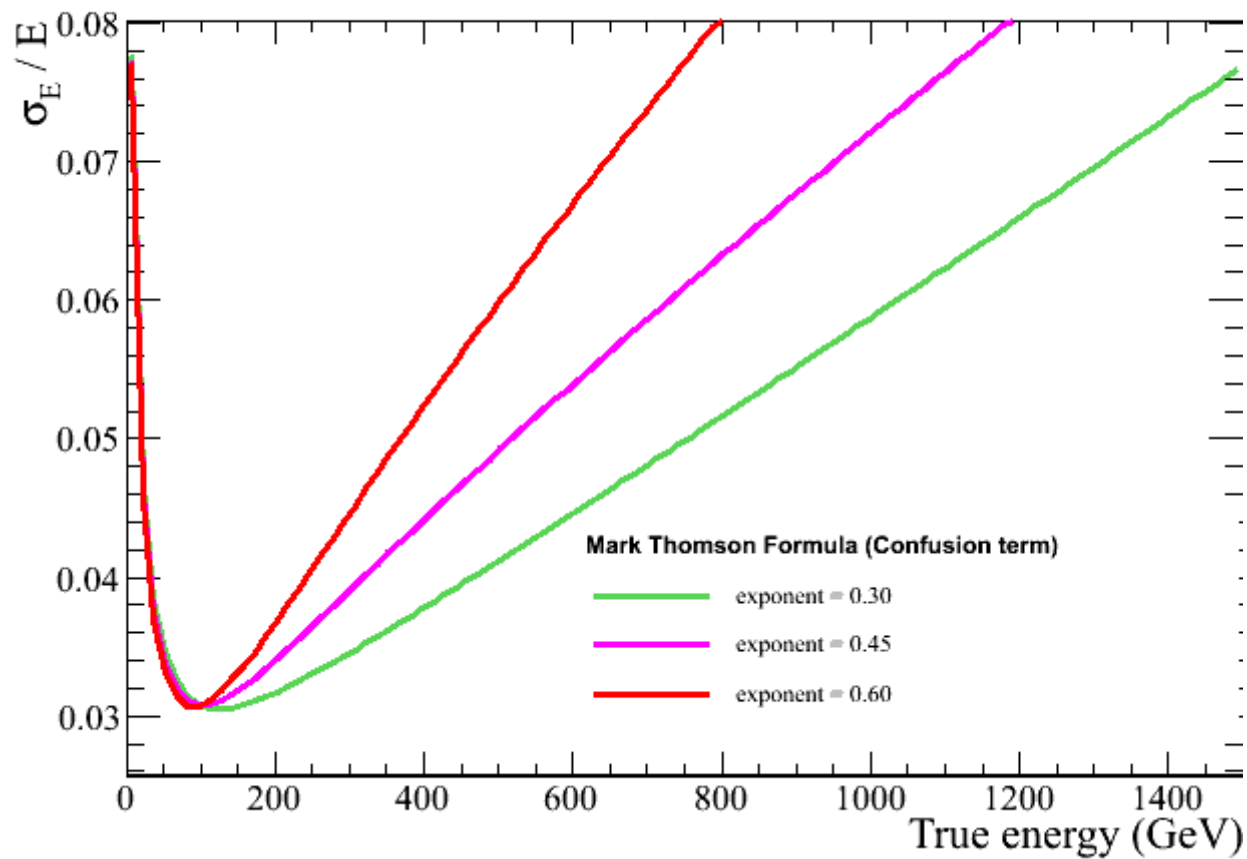
- Parameters of interest:
 - Confusion term exponent
 - Calorimeter resolution ?

Simulation Smearing



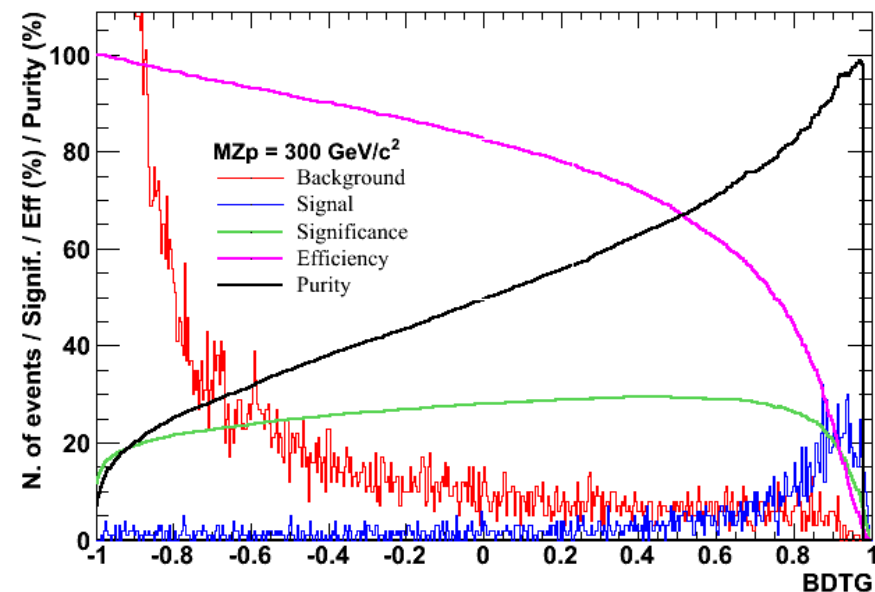
No significant
dependency

Simulation Smearing

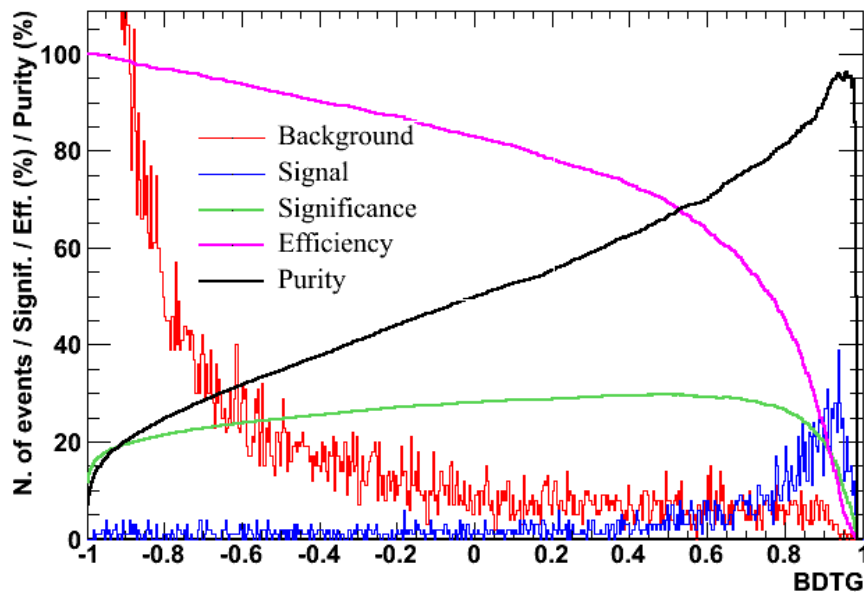


Critical
dependency

Multivariate analysis output

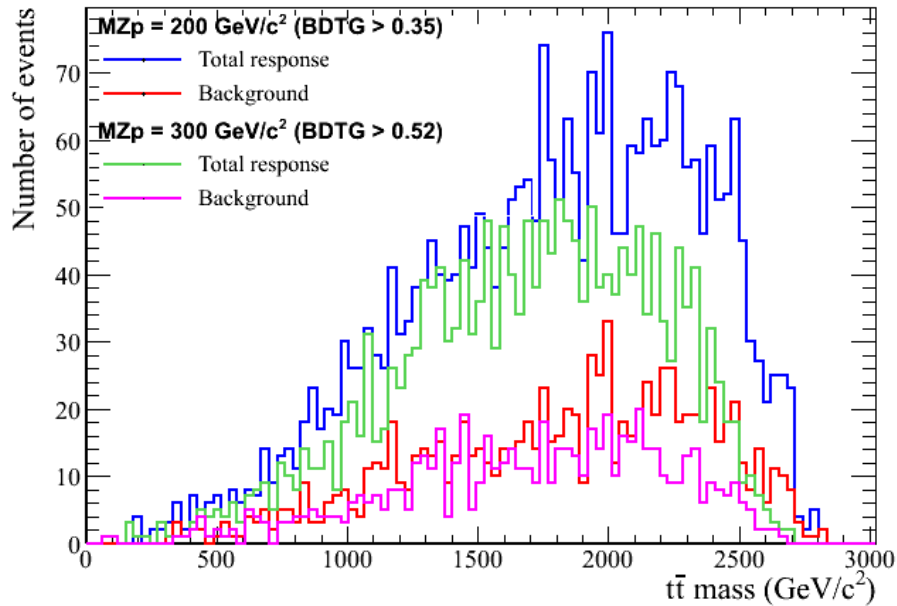


Default smearing (expo = 0.3)

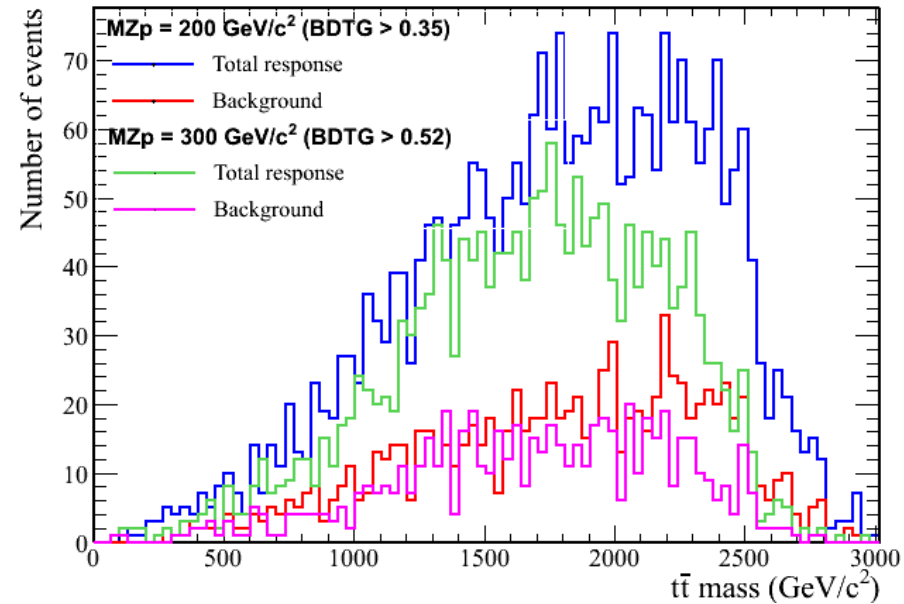


Stronger smearing (expo = 0.6)

Multivariate analysis output



Default smearing (expo = 0.3)

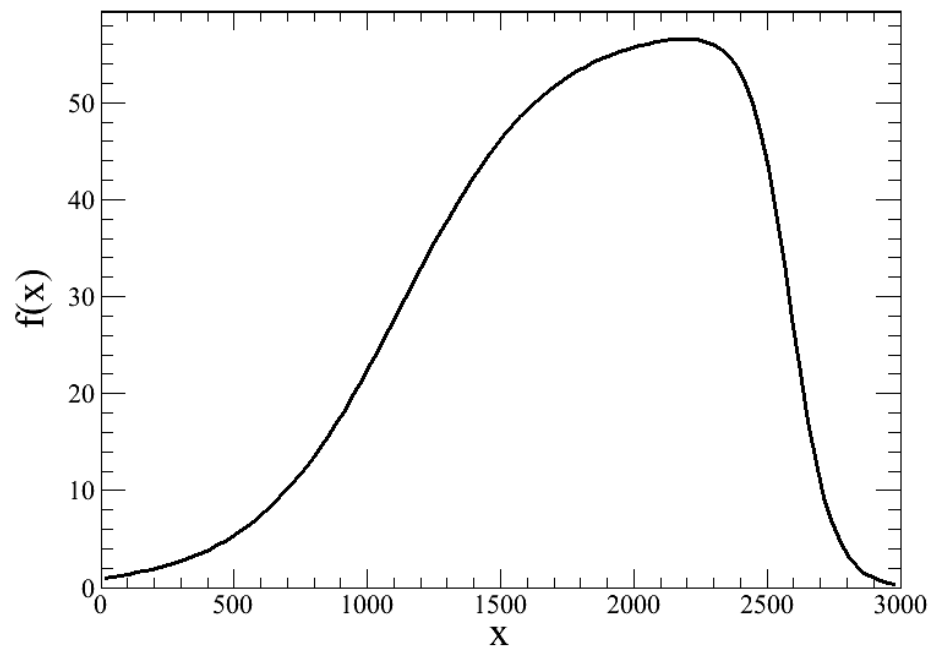


Stronger smearing (expo = 0.6)

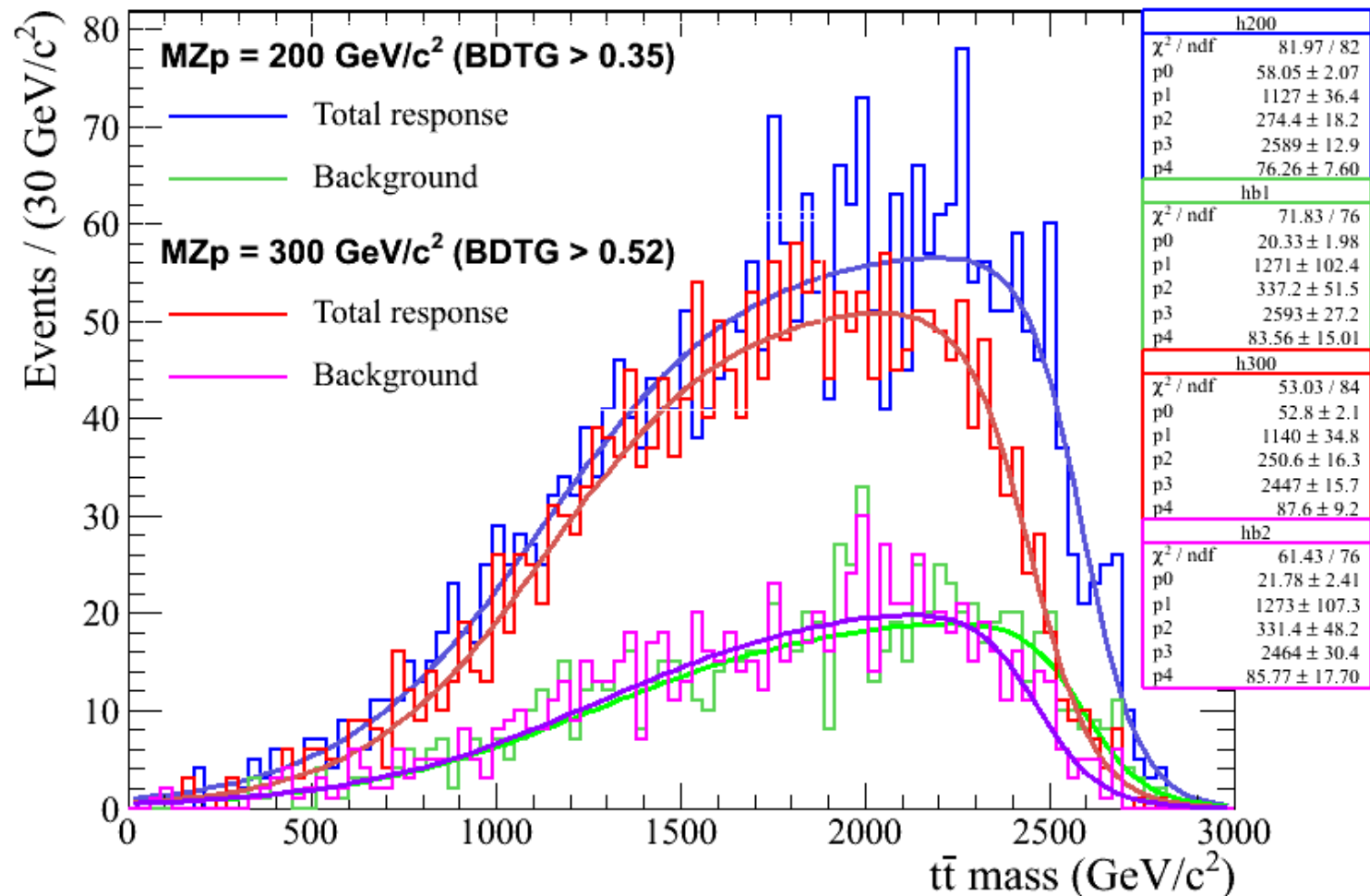
Fitting output spectrum

- Fit function: “smooth gate”

$$A / [1 + \exp(a_1 - x)/b_1][1 + \exp(x - a_2)/b_2]$$

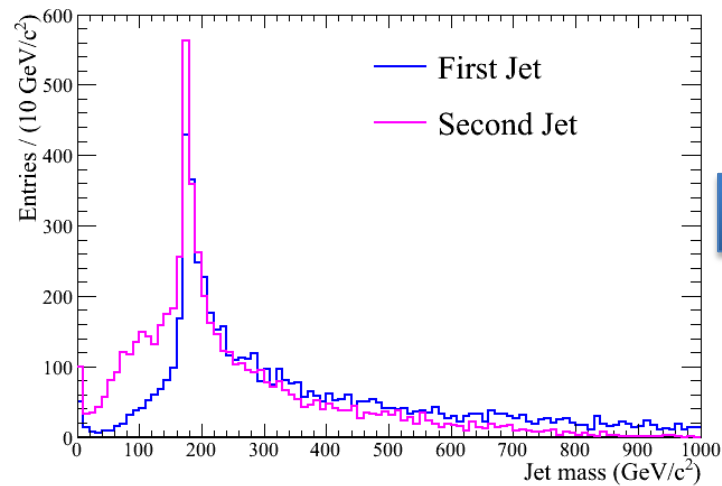


Fitting output spectrum

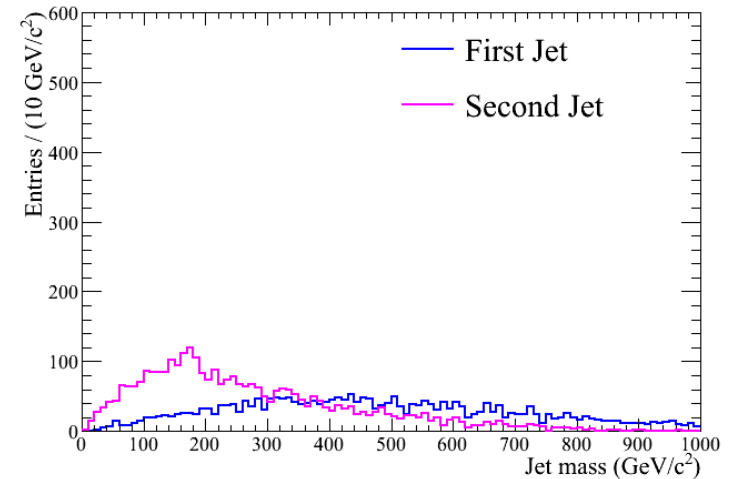


Backup slides

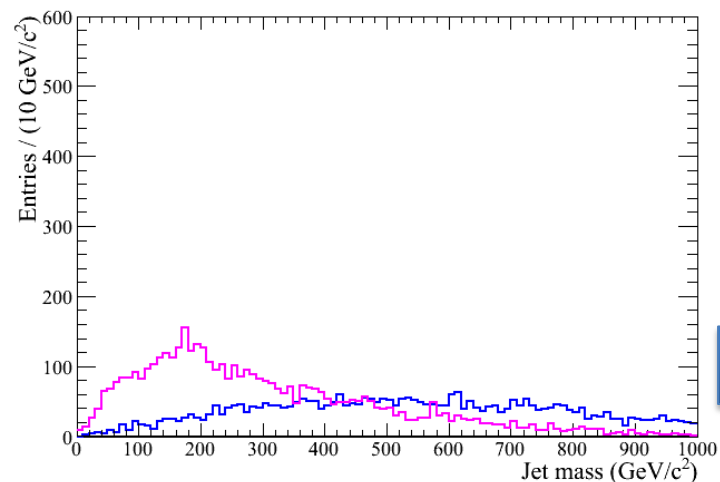
Top mass spectrum



No smearing



Stronger smearing (expo = 0.6)



Default smearing (expo = 0.3)