Update on jets in trigger v5

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LuminosityID - Stage2

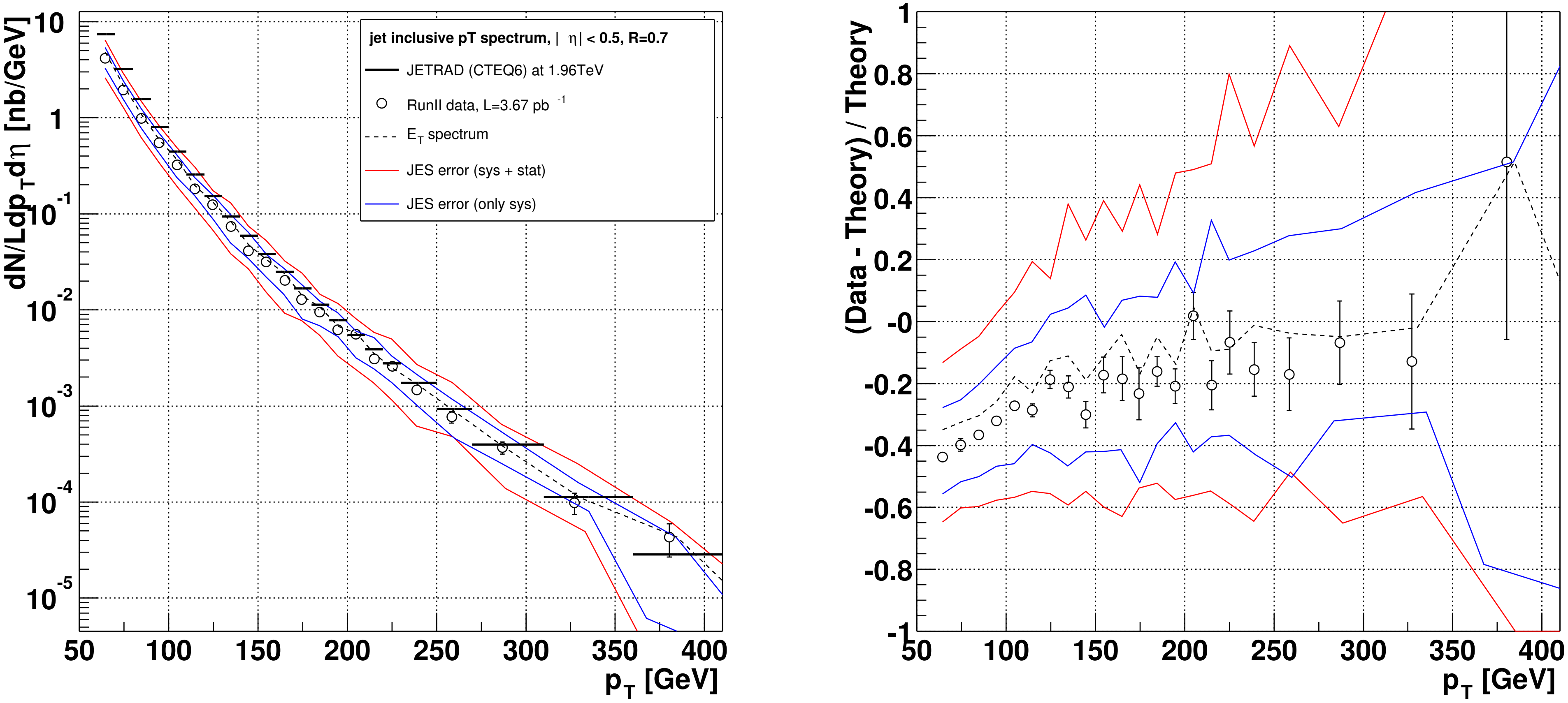
- 134 runs from 149269 (March 22) to 153368 (May 4)
- trigger version 5 data
- 485870 events out of 583966 in good LBNs (at Recorded level for `min_bias`)

	L1	Record	RecoA
#events (mbias)	234694	234694	26
$\mathcal{L}$ (mbias)	$6.234\,\mu b^{-1}$	$6.044\,\mu b^{-1}$	$0.699\,mb^{-1}$
σ (mbias)	37.65 mb	38.82 mb	37.20 mb
$\mathcal{L}$ (JT_65TT)	$2.825\,nb^{-1}$	$2.740\,nb^{-1}$	
$\mathcal{L}$ (JT_95TT)	$2.899\,nb^{-1}$		
$\mathcal{L}$ (JT_125TT)	$2.907\,nb^{-1}$		

Stripping trigger v5 data

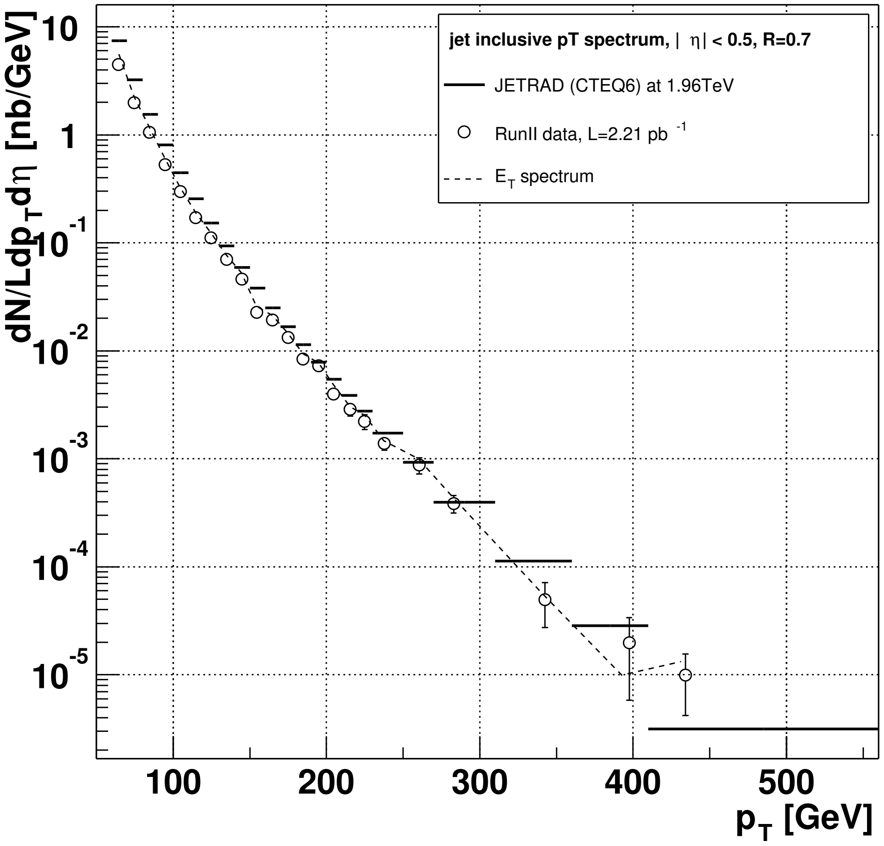
- p10.15.01
  - 196 runs (149269-1534488), 1838 files
  - data between May 8 and May 13 removed
  - after run selection, 178 runs, 1769 files
  - recorded (stage2) luminosity $\mathcal{L} = 3.67\,\mathrm{pb}^{-1}$ in trigger `JT_65TT`
  - about 14% events cannot be normalised
- p10.15.02
  - not done yet
  - 284 files
- added new stripped root-tuples
  - contain only jet triggers
  - about factor of 4 in saving the space and the speed
  - add LBN TTree (allows to use stage2 `lm_access` package)

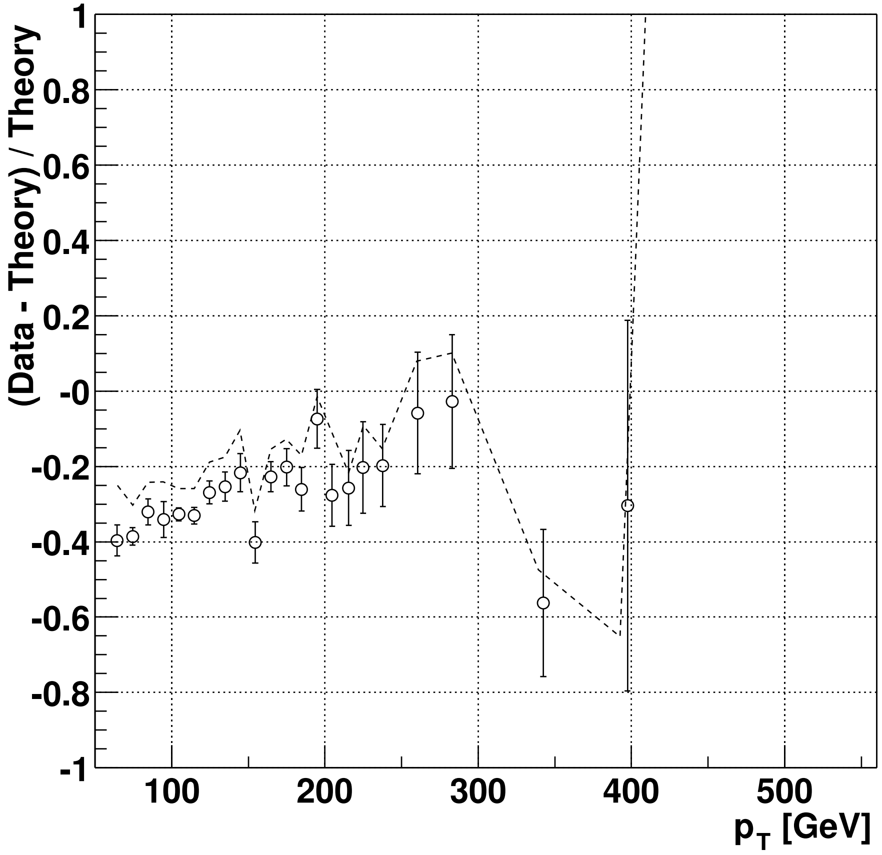
Inclusive pT spectrum - trigger v5



- ▷ back to `jetcorr v1.1.2`
- ▷ reconstructed luminosity given by stage2 `lm_access` package
- ▷ no correction for multiple interactions (about 14%)
  - cut on vertex position probably does not allow to scale the luminosity in the same way as for `min_bias` trigger

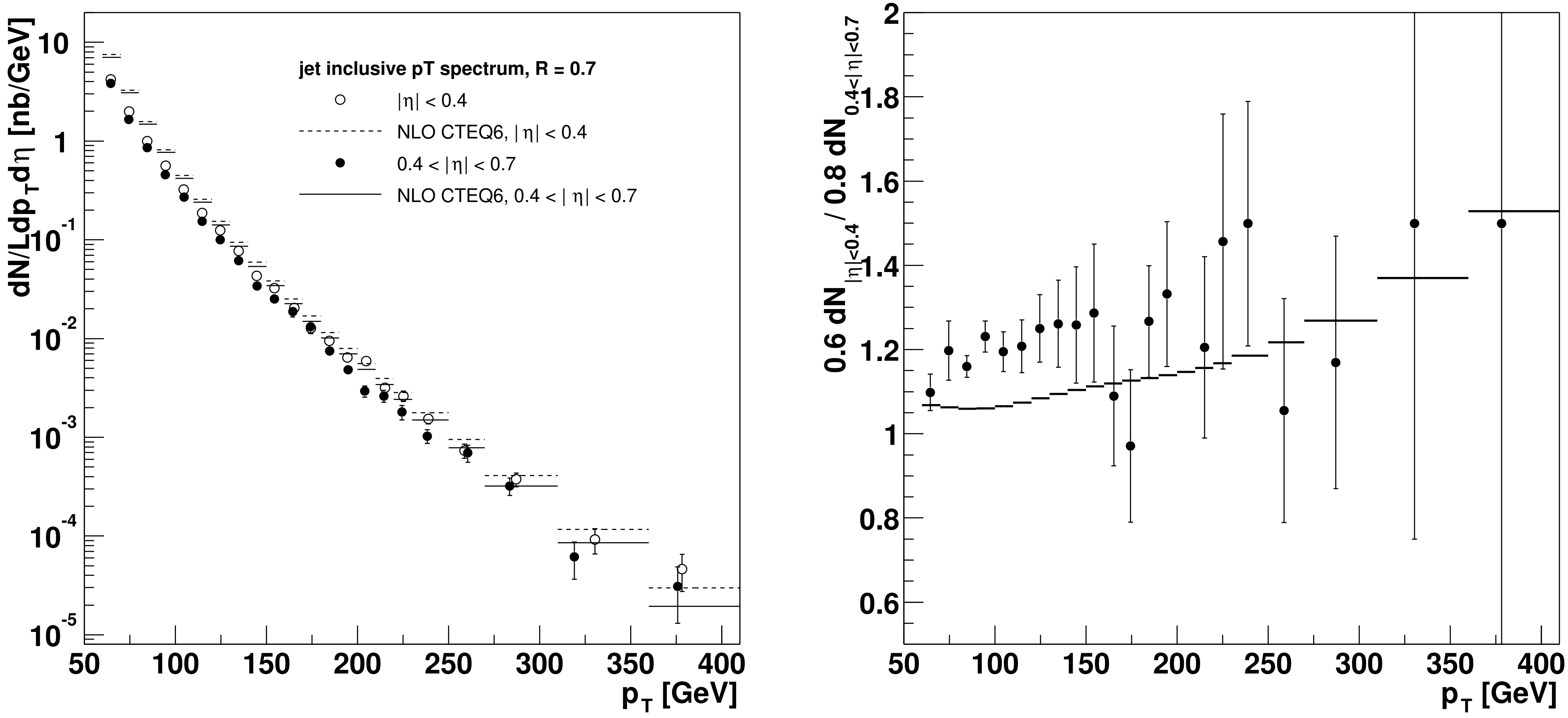
Inclusive p_T spectrum - trigger v4



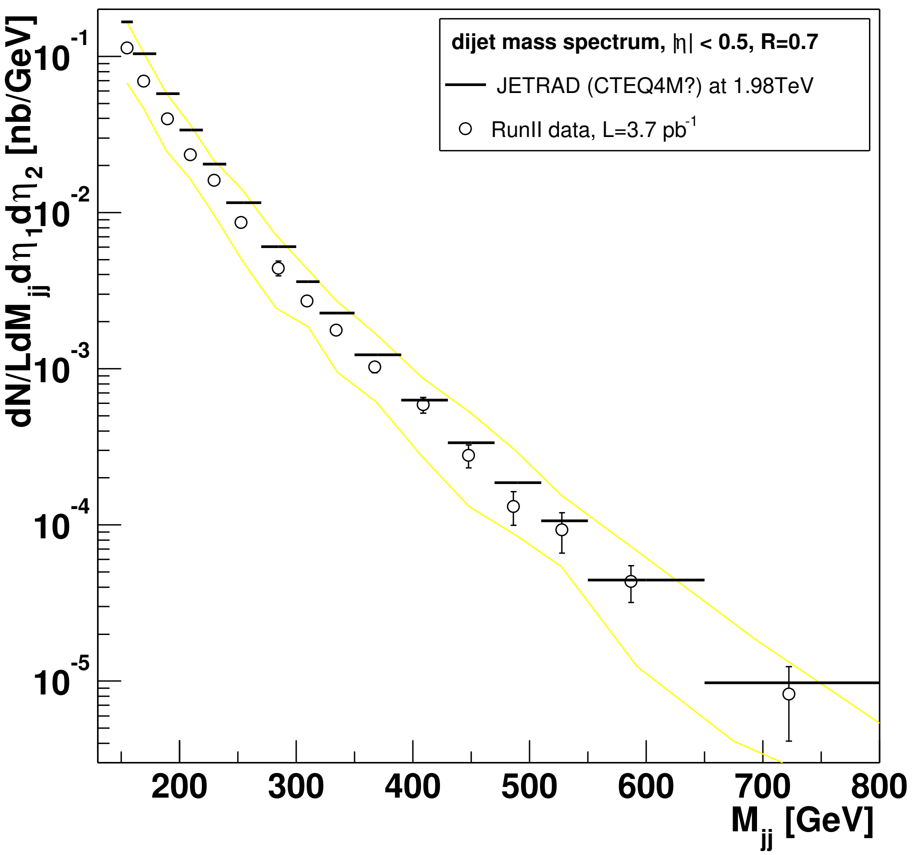


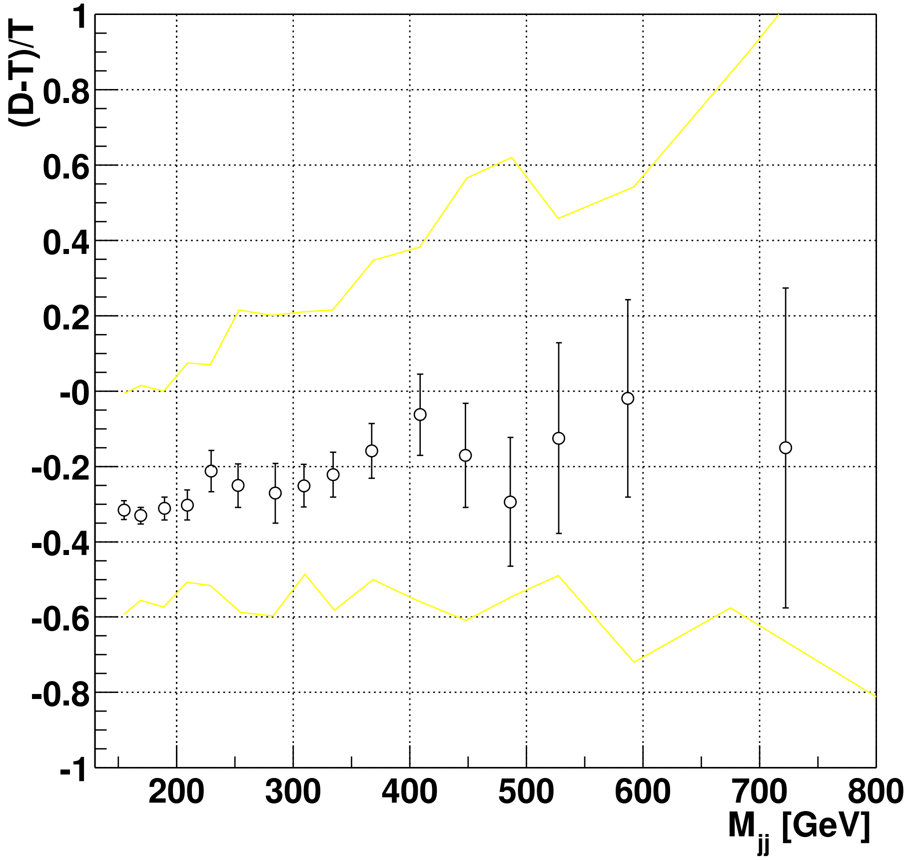
- ▷ `jetcorr v1.1.2`
- ▷ triggered (L1) luminosity from stage1b `lm_access` package
- ▷ correction for multiple interactions about 12%

jet p_T spectrum in two η bins - trigger v5



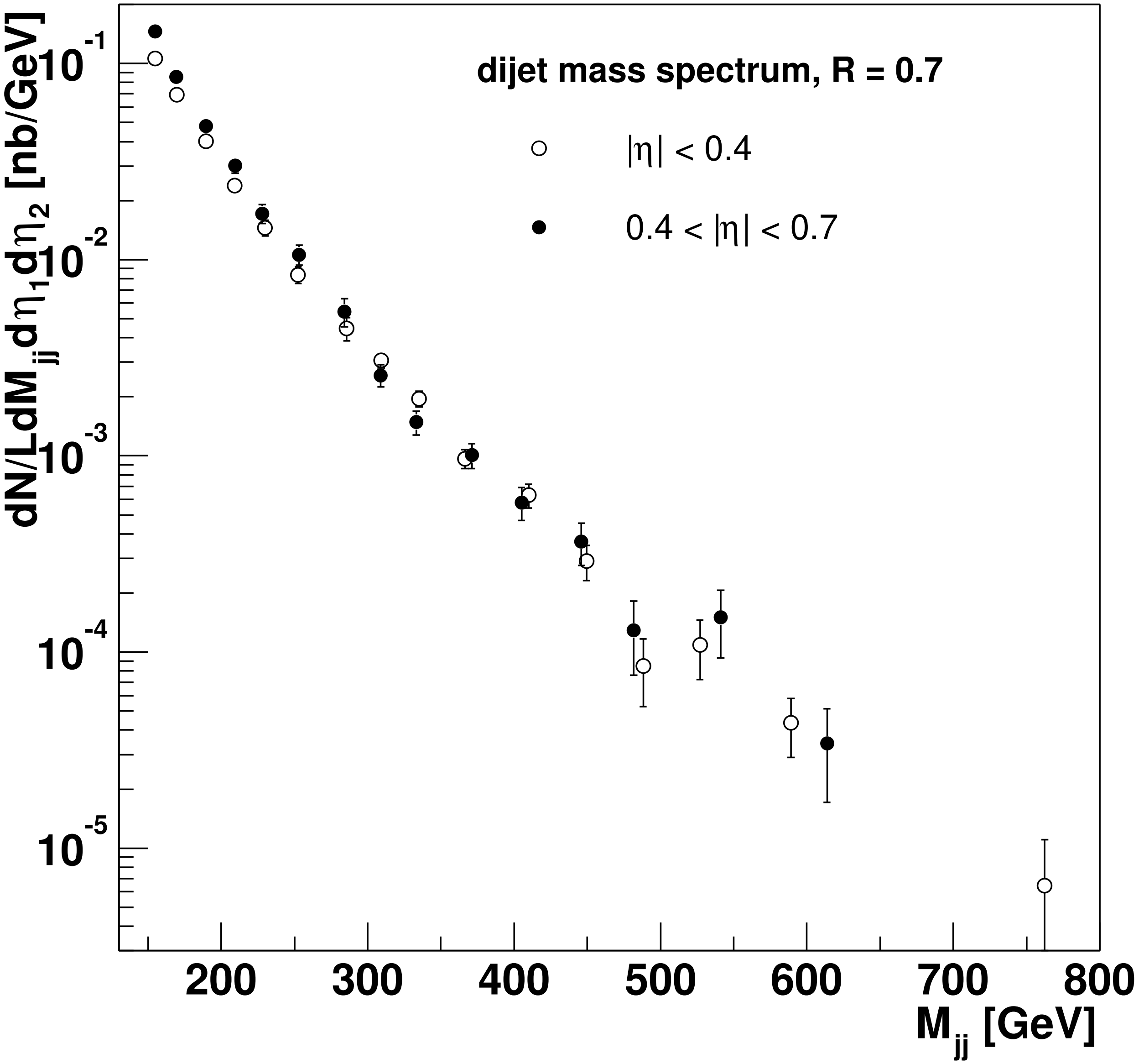
dijet mass spectrum - trigger v5



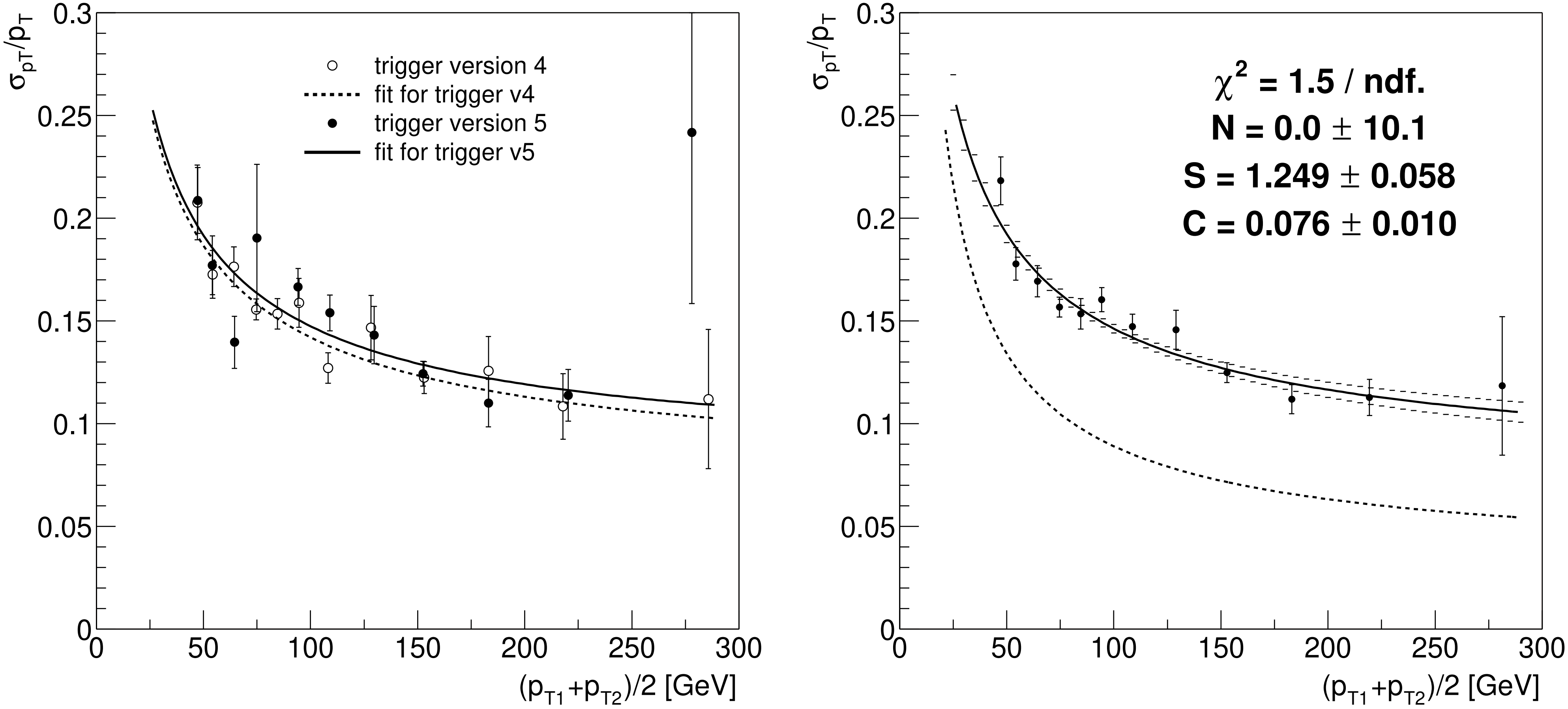


▷ back to jetcorr v1.1.2

dijet mass spectrum in two η bins - trigger v5



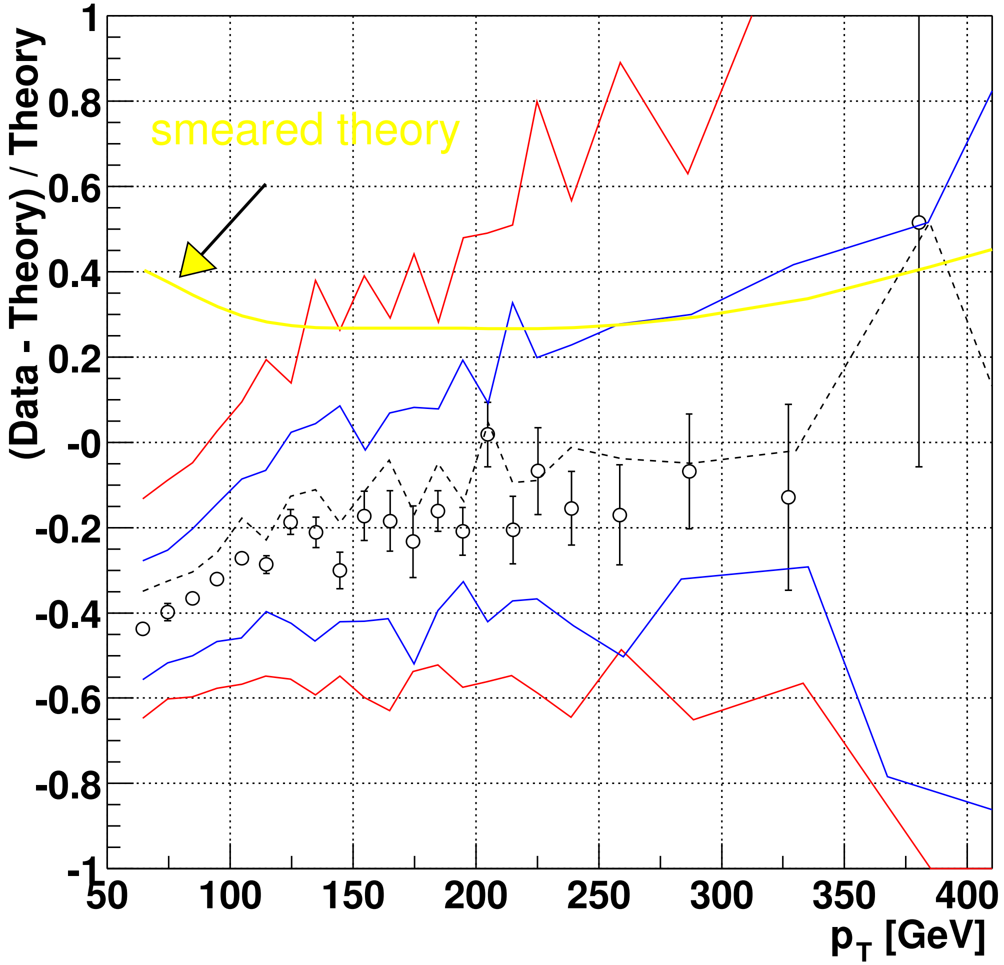
Jet energy resolution



- ▷ `jetcorr v2.0.0`
- ▷ from p_T balance in dijet events
- ▷ no soft radiation corrections
- ▷ no correction for MC particle jets imbalance

Smearing jet inclusive p_T spectrum

- smearing NLO theory



$$th_{sm}(p_T) = \int \mathrm{d}p'_T \; th(p'_T)\, S(p_T - p'_T, p'_T)$$

$$S(\Delta p_T, p_T) = \frac{1}{\sqrt{2\pi}\,\sigma(p_T)} \exp\left[-\frac{\Delta p_T^2}{2\sigma^2(p_T)}\right]$$