Jets with high CH fraction

DØ Calorimeter Online Software Meeting

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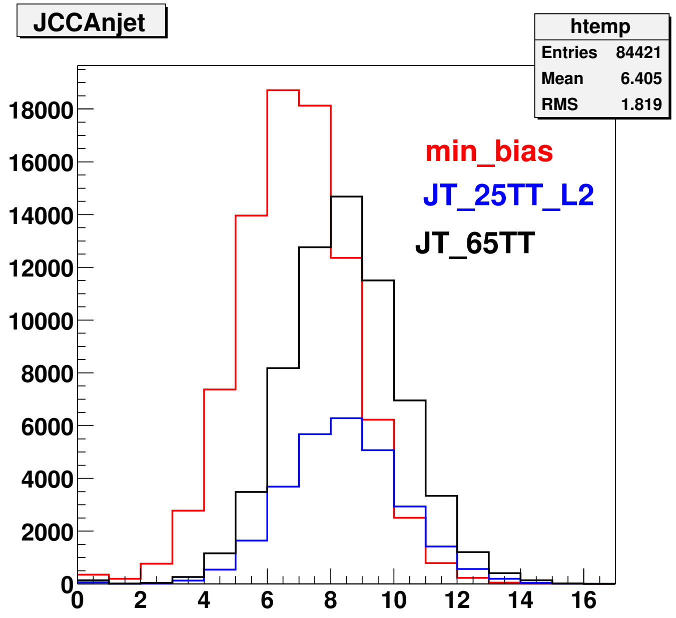
Sample

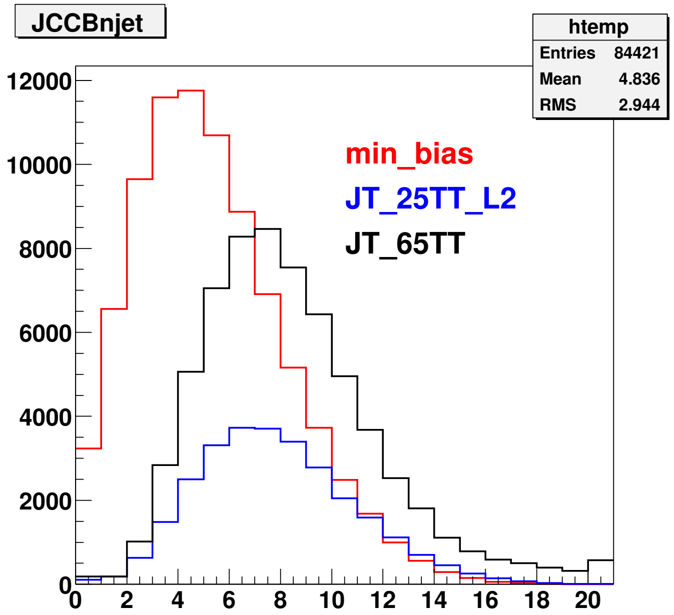
- data from trigger list version 7.40_noL2mu
  - 55 runs between 158535 (July 30) - 160554 (July 26)
  - reconstructed with `p11.09.00`
  - part of the data stripped (survived 1584755 events)
  - luminosity in JT_95TT trigger about $\mathcal{L} \sim 0.75\,\mathrm{pb}^{-1}$
- detailed look at the following three triggers
  - `min_bias` (84k events)
  - JT_25TT_L2 (28k events)
  - JT_65TT (64k events)

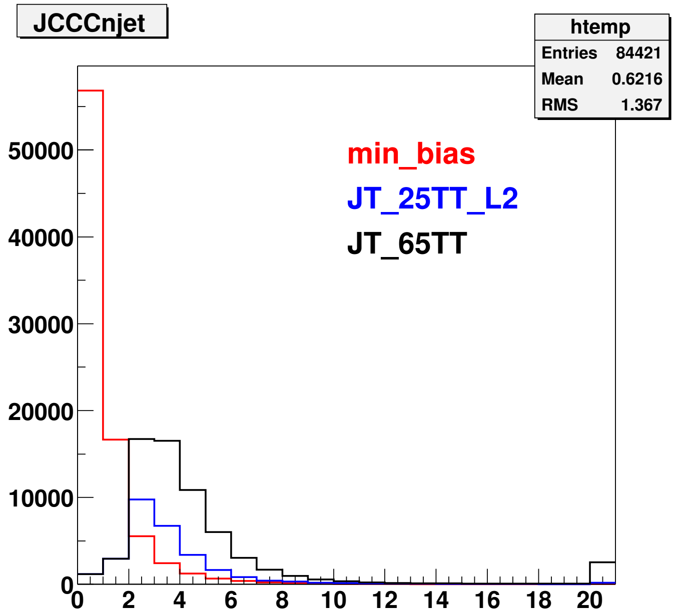
Number of jets per event

- abnormally high number of jets per event for cones R=0.7 and R =0.5
- much better for the cone R=0.3

Where all those jets come from?

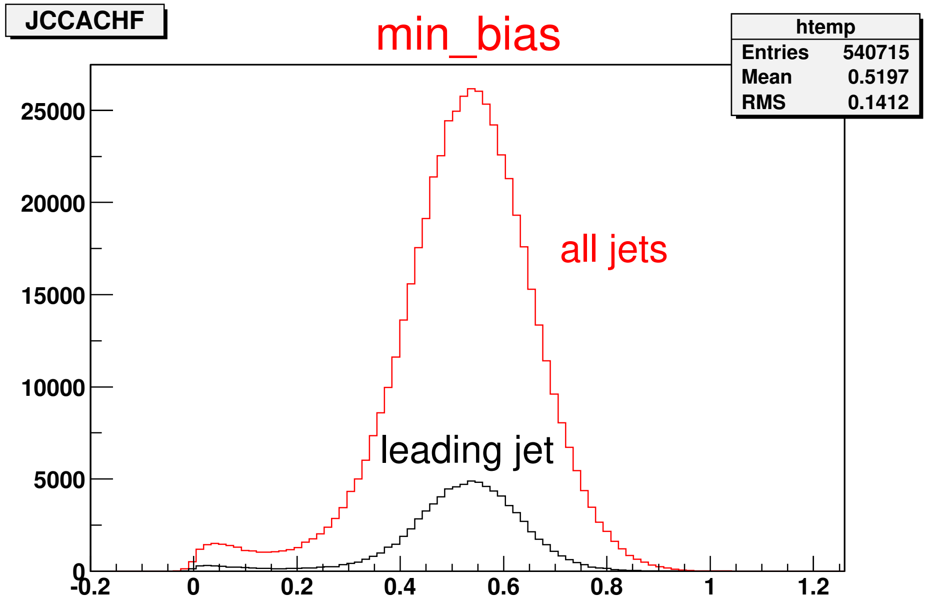


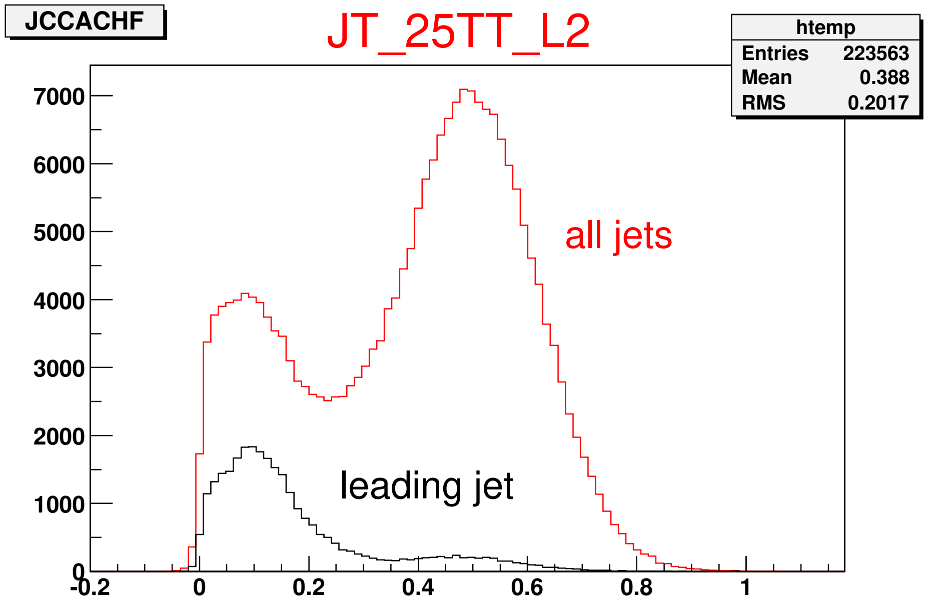


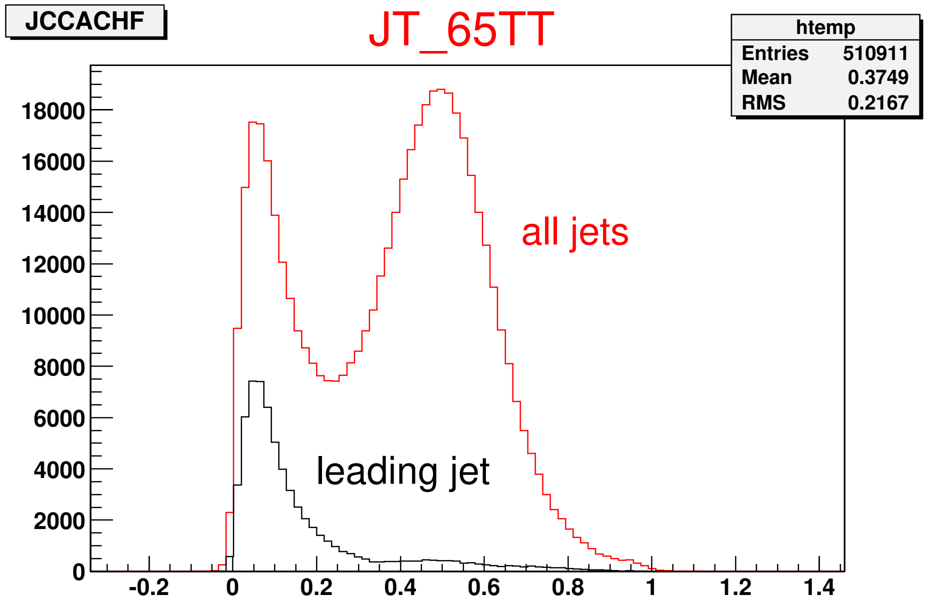


Coarse Hadronic Fraction

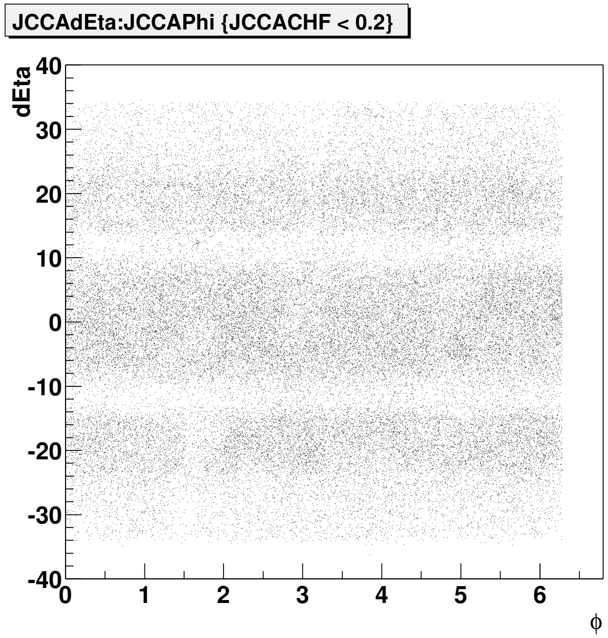
- two classes of jets with different CHF distribution
  - $a)$ CHF peaked arround 0.05
  - $b)$ CHF peaked arround 0.5
- two subsamples
  - $a)$ CHF < 0.2 - “real jets”
  - $b)$ CHF > 0.2 - “fake jets”

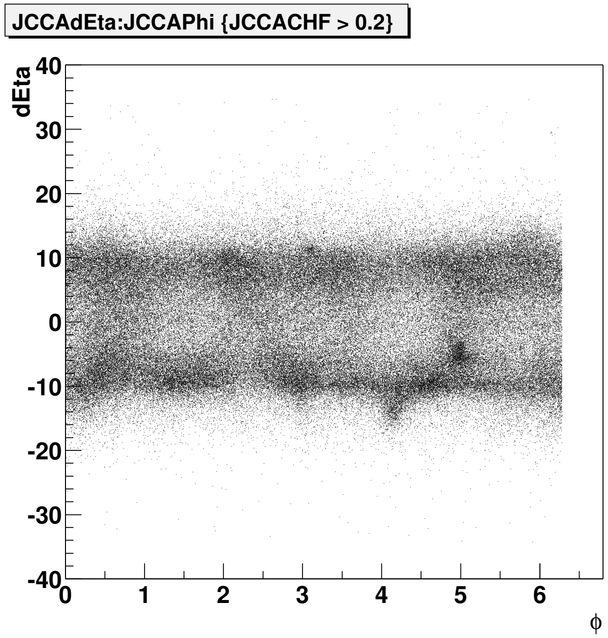


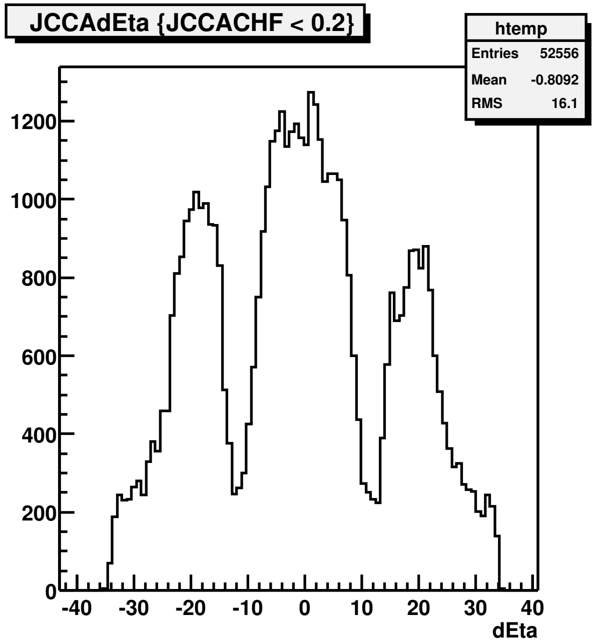


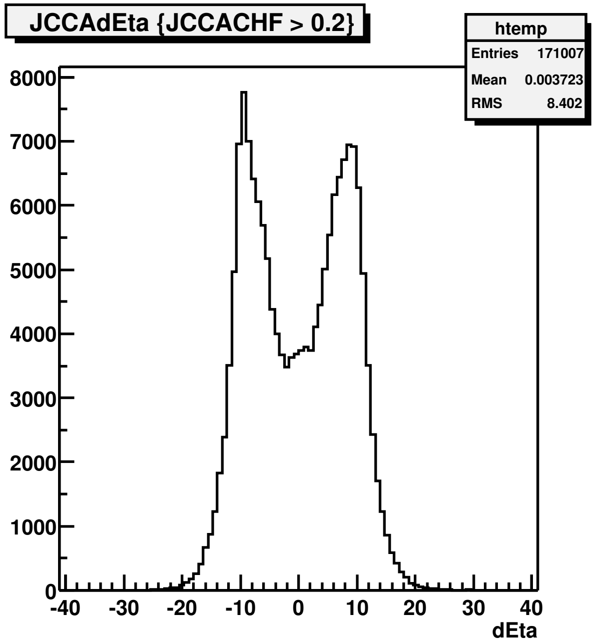


η vs. φ locations of jets from JT_25TT_L2



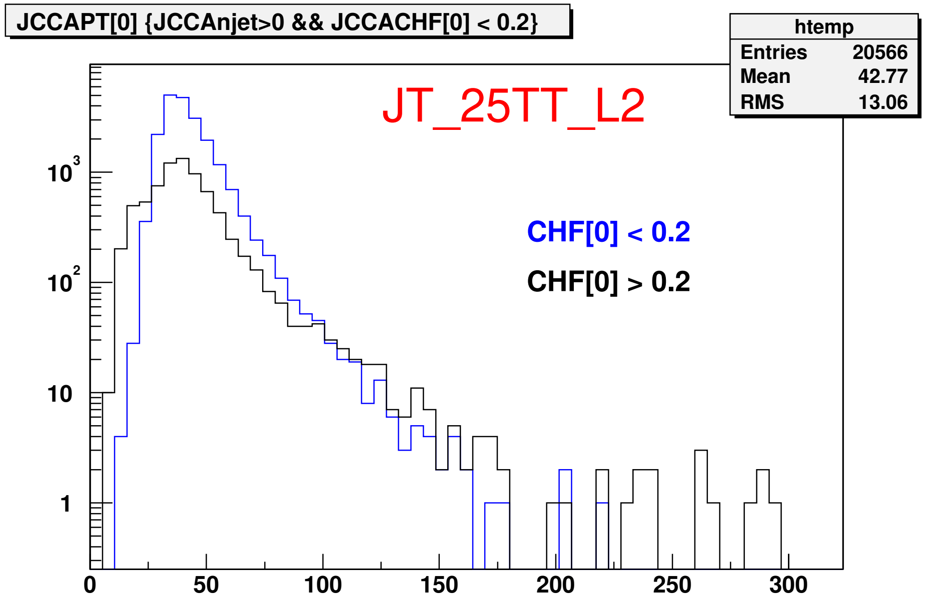




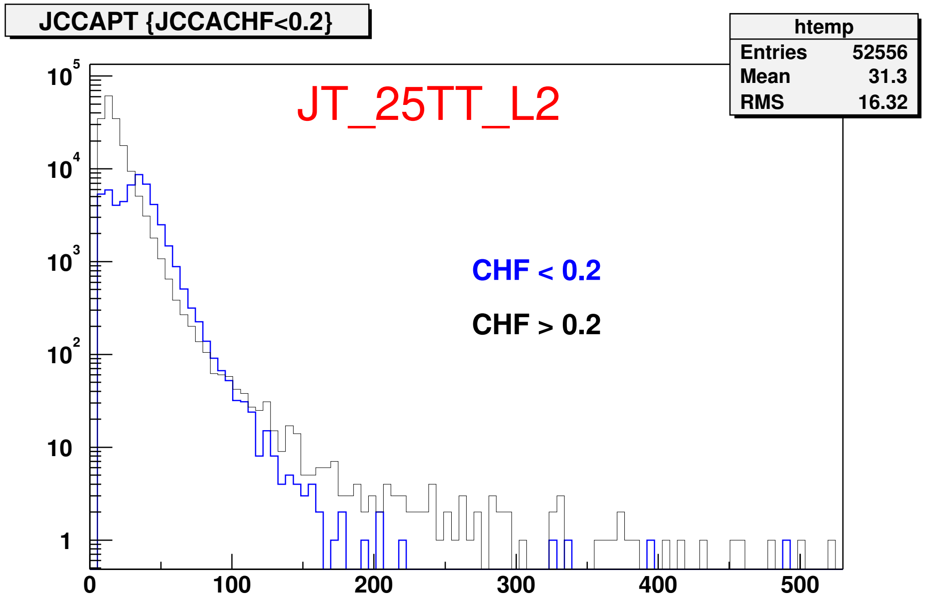


jet p_T from trigger JT_25TT_L2

Leading jet

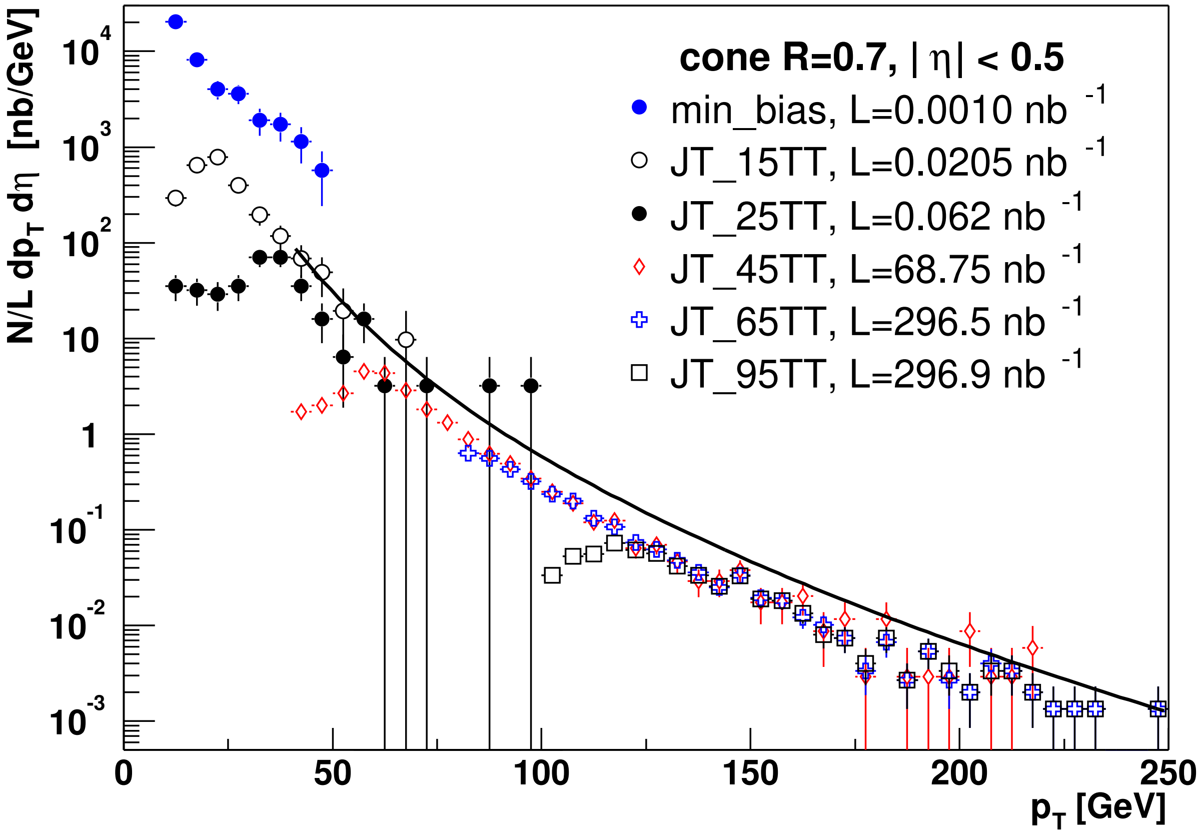


All jets



jet inclusive p_T spectrum

- ▷ smaller smaple, no run selection, no JES
- ▷ standart event and jet selection criteria
- ▷ tight critetrium on CHF - CHF < 0.2
- ▷ minimum bias trigger does not match JT_15TT trigger



Observations

- there is about 8 jets per event for bigger cone sizes
- there is a significant number of jets with high CHF (arround 0.5)
  - relative weight of those events goes down when the jet trigger thershold increases
- jets with high CHF come from all calorimeter (up to $\eta \sim 2$)
  - pseudorapidity distribution is completely different from the normal distribution
  - the distribution peaks arround $|\eta_{det}| \sim 1$
- p_T of jets with high CHF
  - most of the low p_T jets have high CHF
  - but p_T distribution of the leading jet is similar for jets with high CHF and low CHF
  - minimum bias trigger does not match the other jet low p_T triggers