TMB stripping
p13.02 jets
Run selection
Dijet mass

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TMB stripping

- **QcdSkim_x** - part of qcd_tools package
- stripping based on triggers - does not require to unpack thumbnails
- CalChunk is droped out
- the first event in every LBN is stored also for normalization purpose
  - luminosity block lasts for about 1 minute
  - this method can't be used when we switch to physical streaming
- so far, no proper SAM Metadata are generated

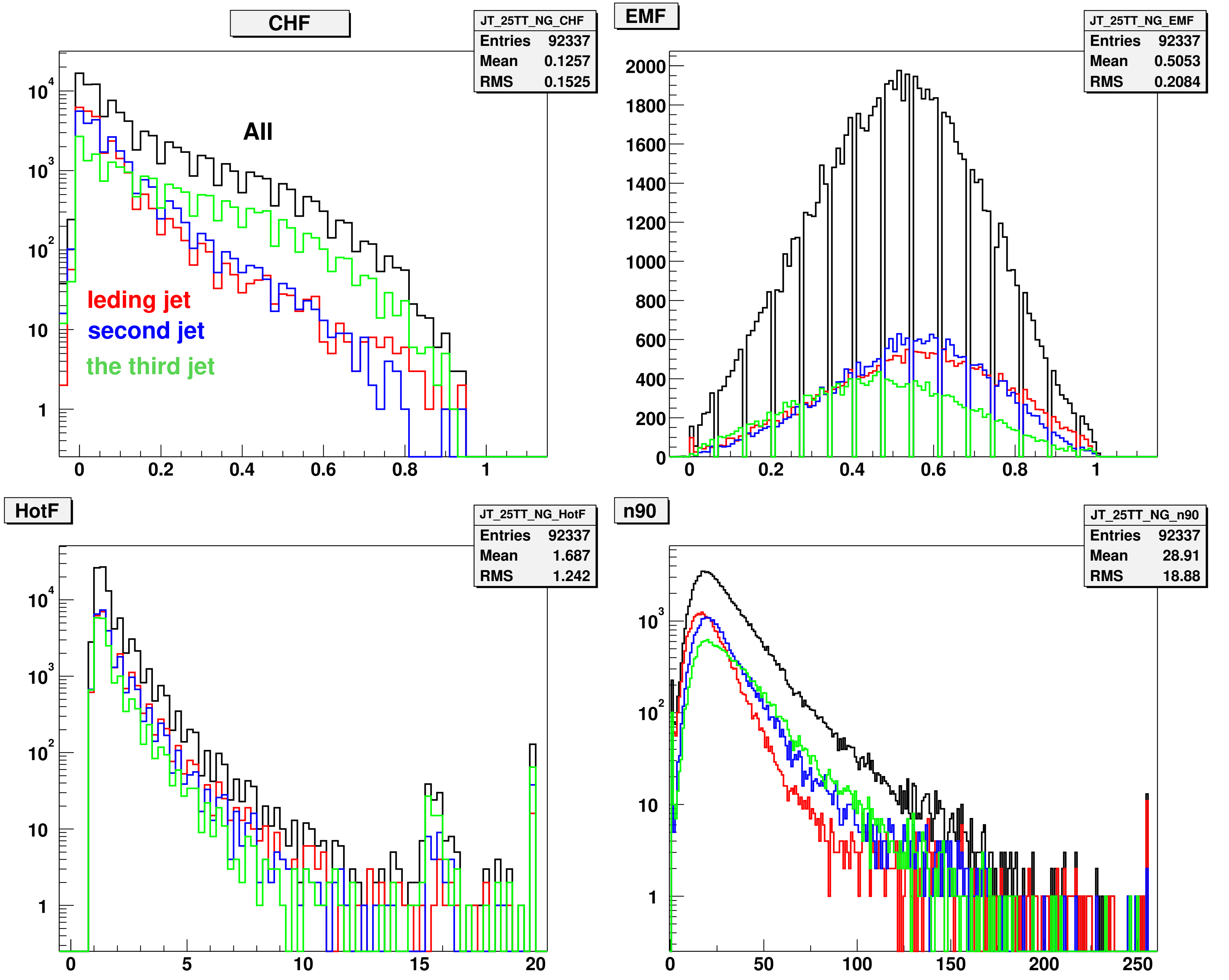
p13.02 stripped files

- single jet triggers (25-125) - event reduction 23, file size reduction 34
- EM triggers - event size reduction 7.8, file size reduction 13.5
- `CMT-9.20` - about 6.3GB, $\sim 600\,000$ events, $\mathcal{L} = 5.4\,\mathrm{pb}^{-1}$
- `CMT-9.30` - about 2.6GB, $\sim 254\,399$ events

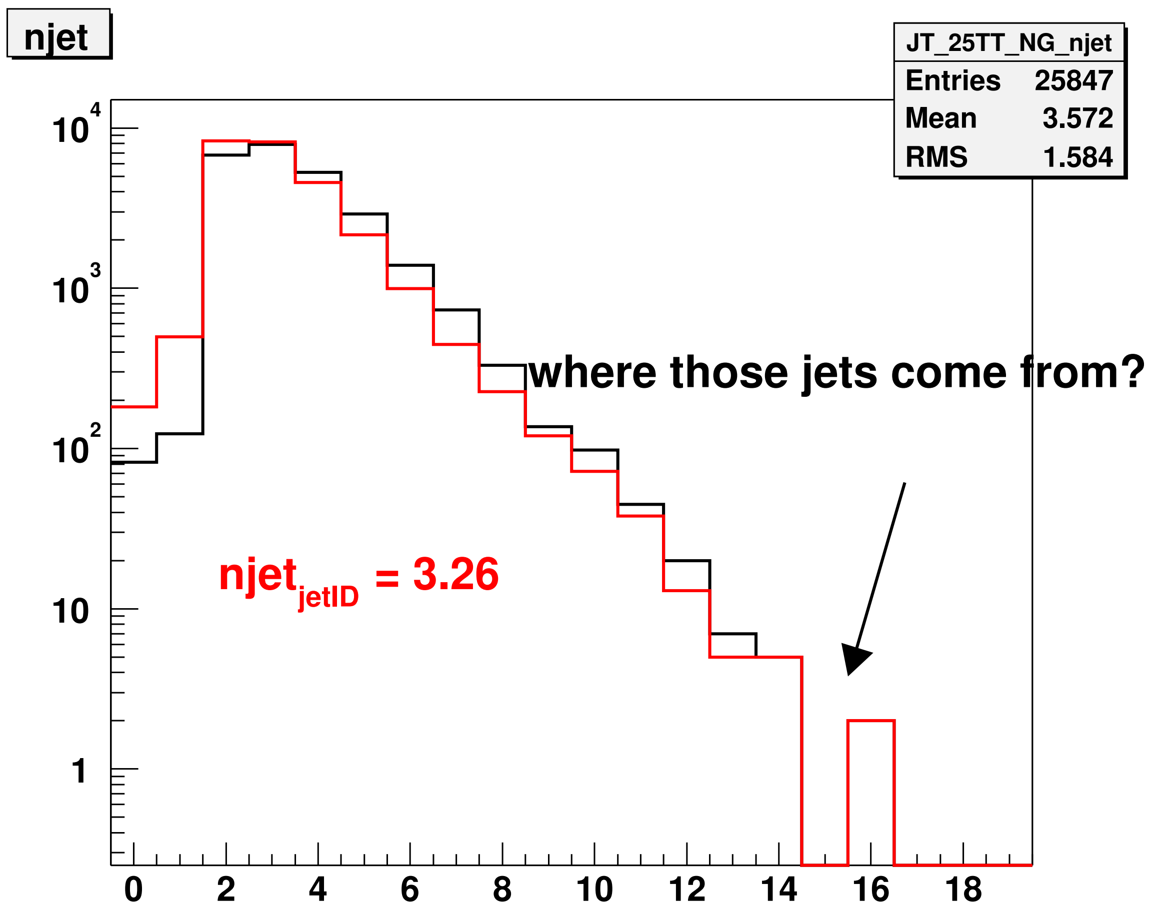
p13.02 jets - data sample

- trigger version 9.20
- p13.02 thumbnails
- about 3.4 million events for jet triggers
- 0.4 million events for minimum bias sample
- the same zero suppression as in p10
- `nItem` variable is not present in p13.02 thumbnail
- the same jetID cuts were applied
  - $0.05 < EMF < 0.95$
  - $CHF < 0.4$
  - $HotF < 10$
  - $n90 > 1$
- no run selection, only one obviously bad run removed

JT_25TT_NG - jetID variables

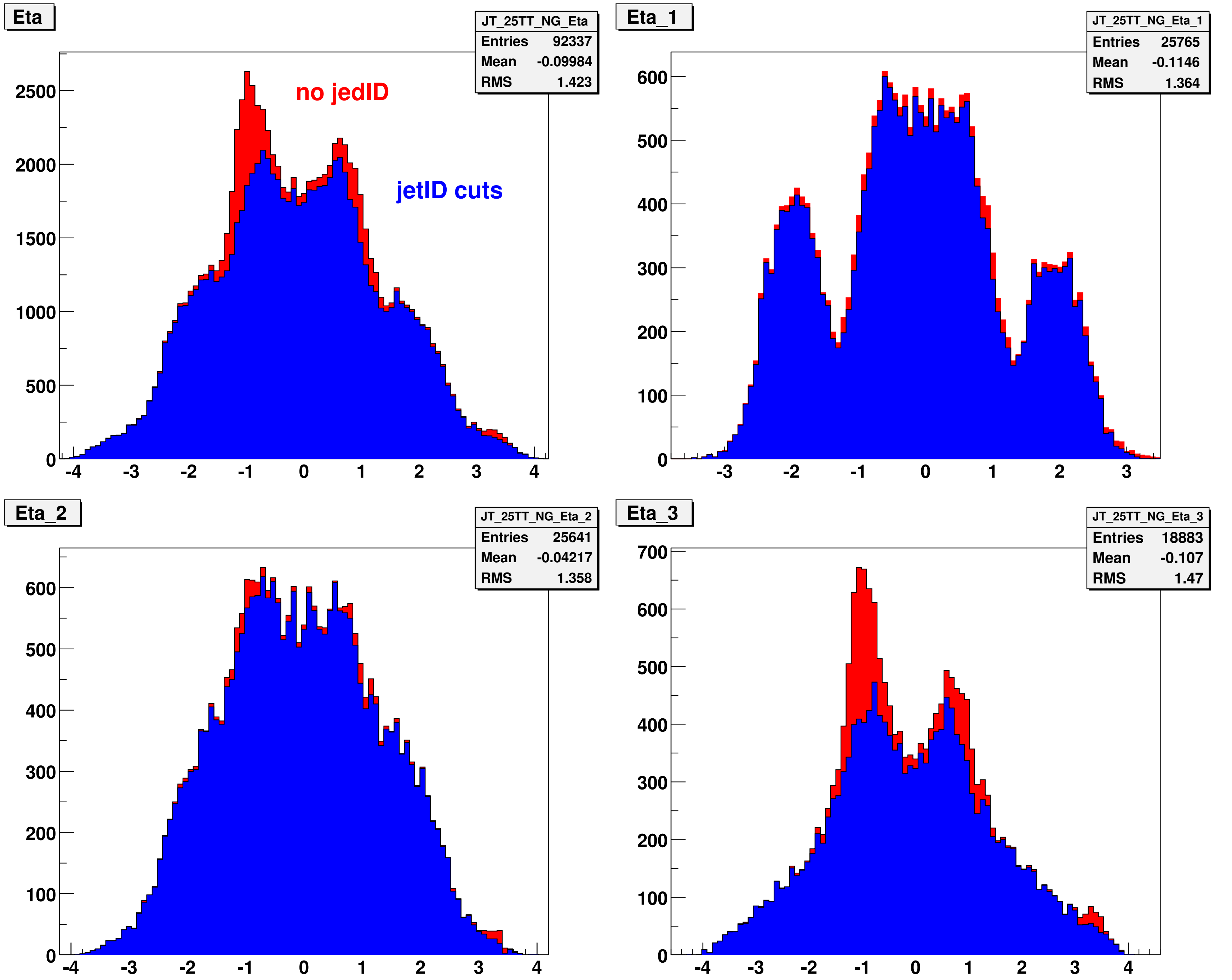


number of jets in JT_25TT_NG

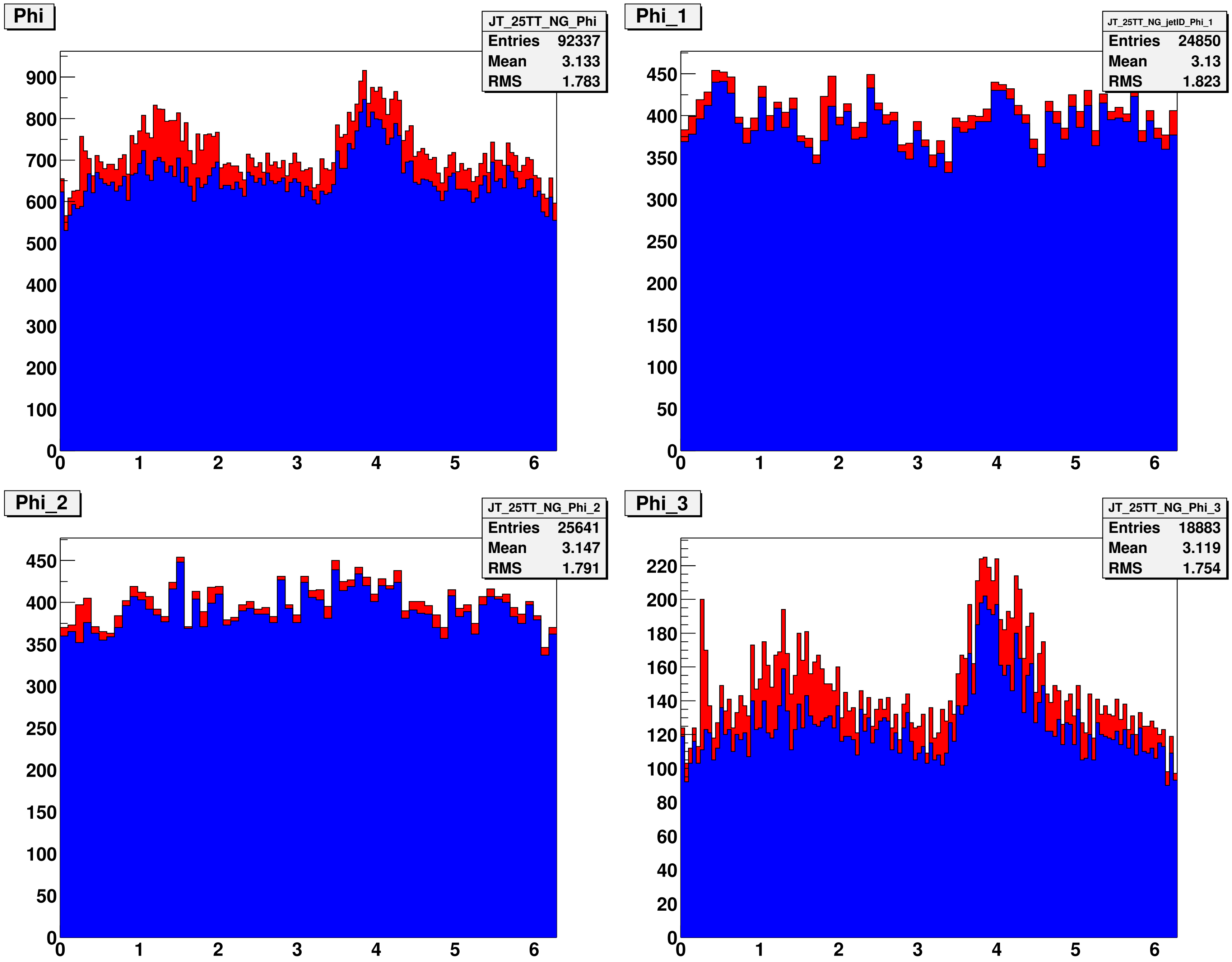


much better then in p11

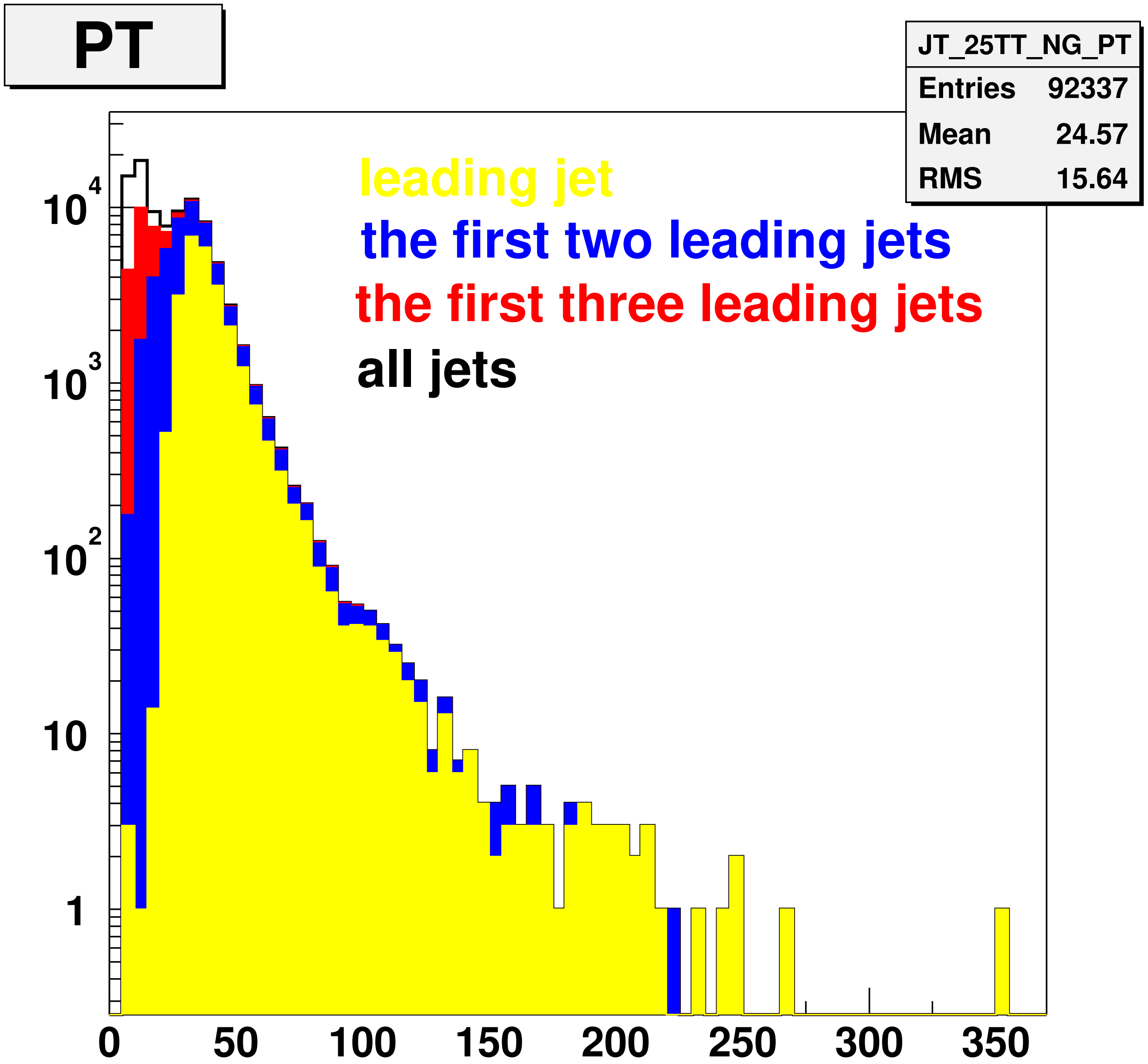
η distribution - JT_25TT_NG



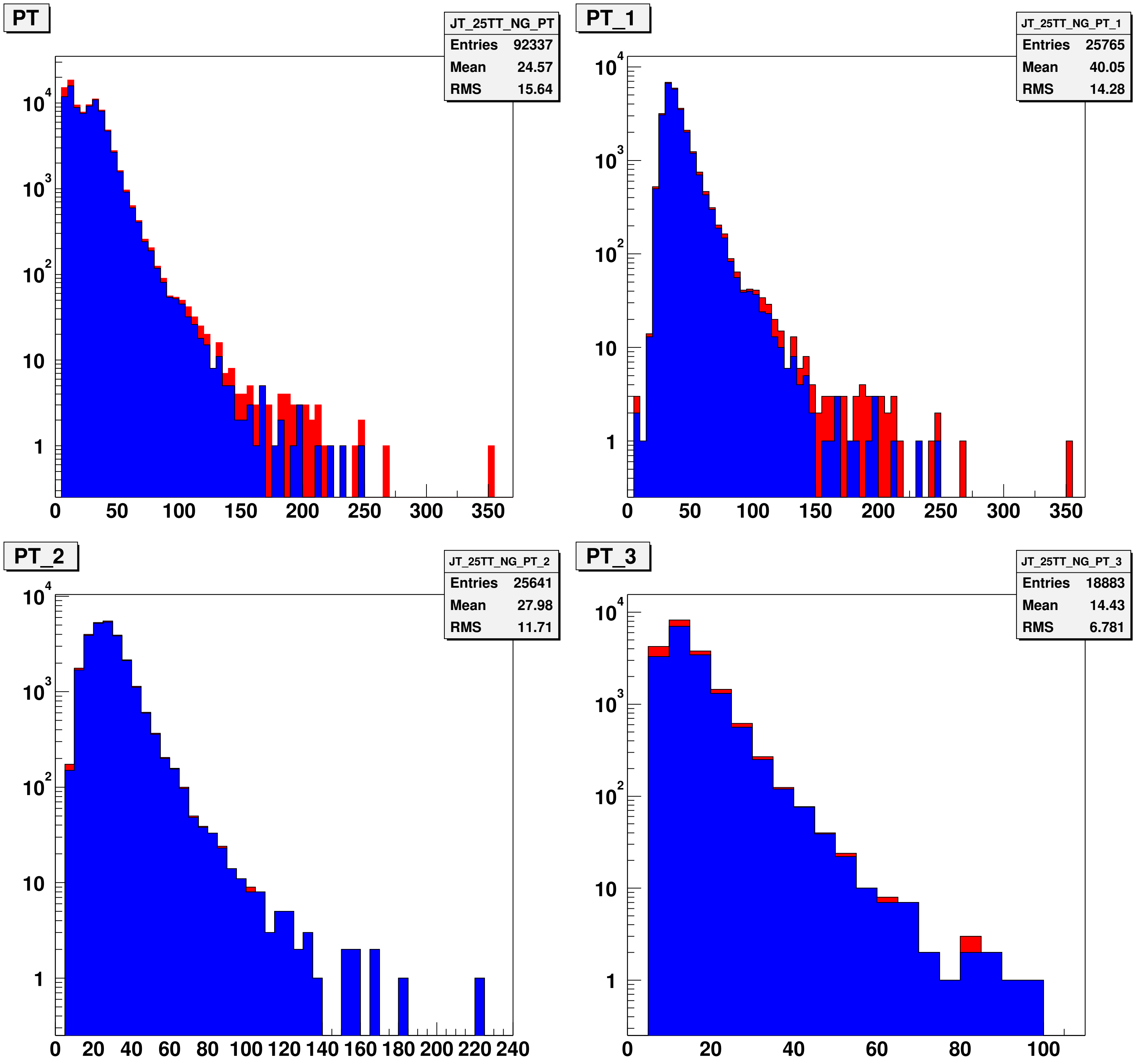
φ distribution - JT_25TT_NG



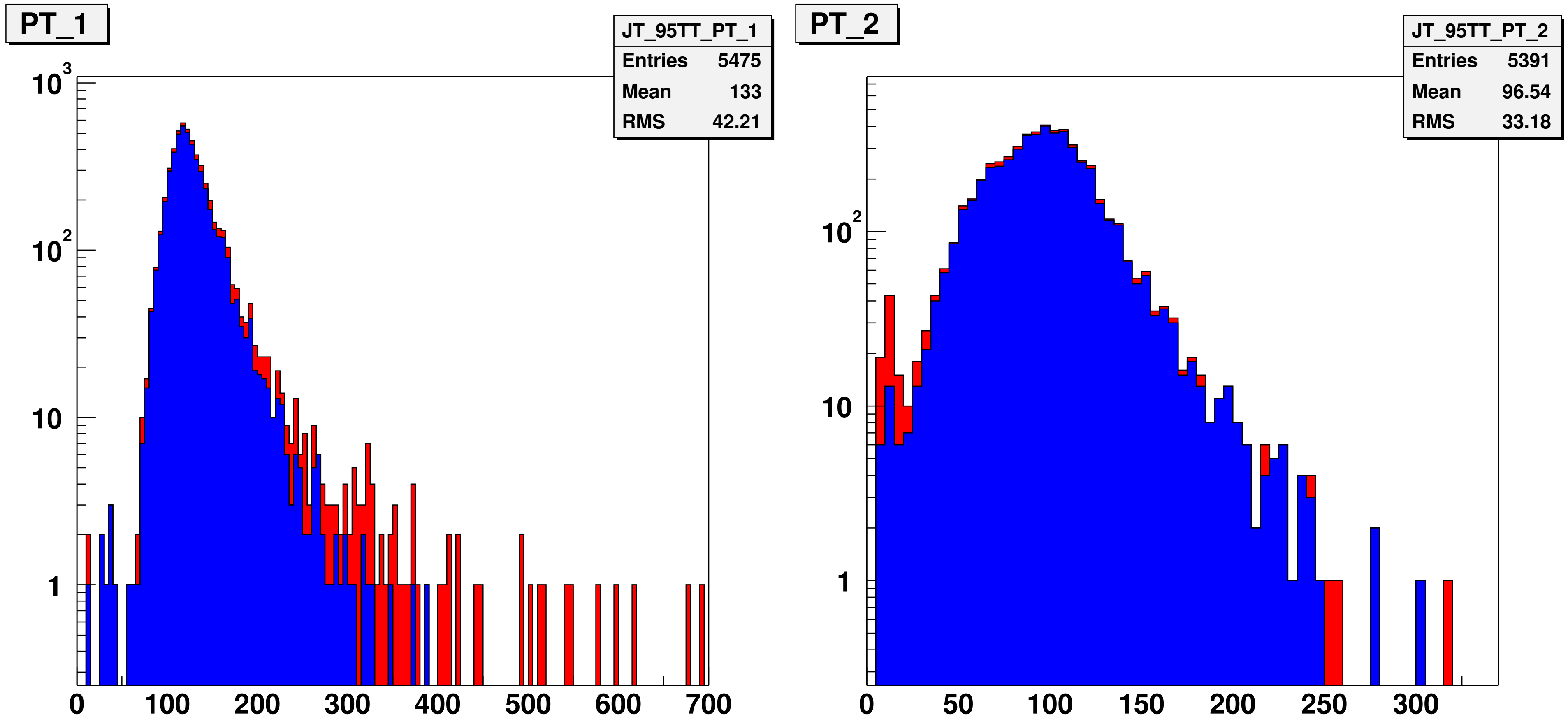
PT distribution JT_25TT_NG



p_T distribution - JT_25TT_NG

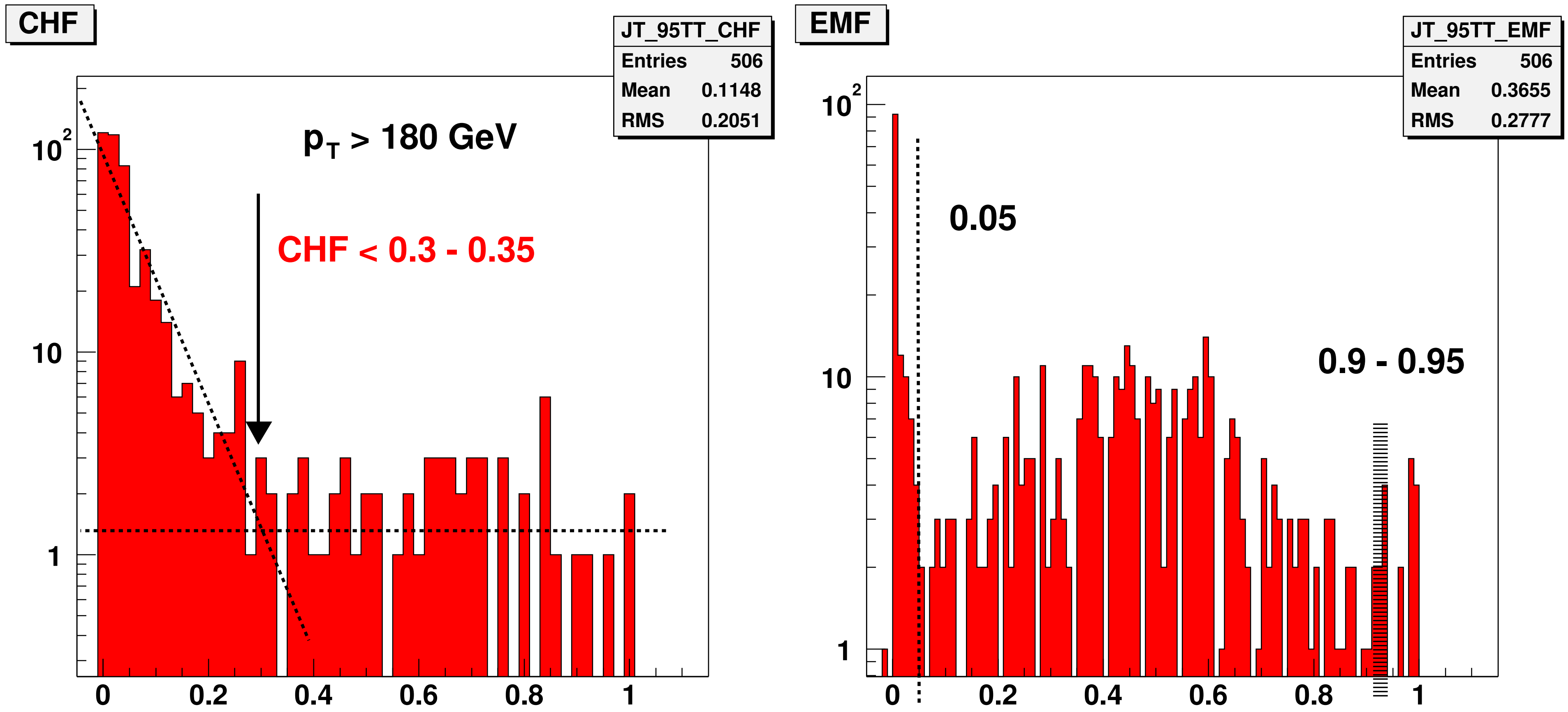


p_T distribution - JT_95TT



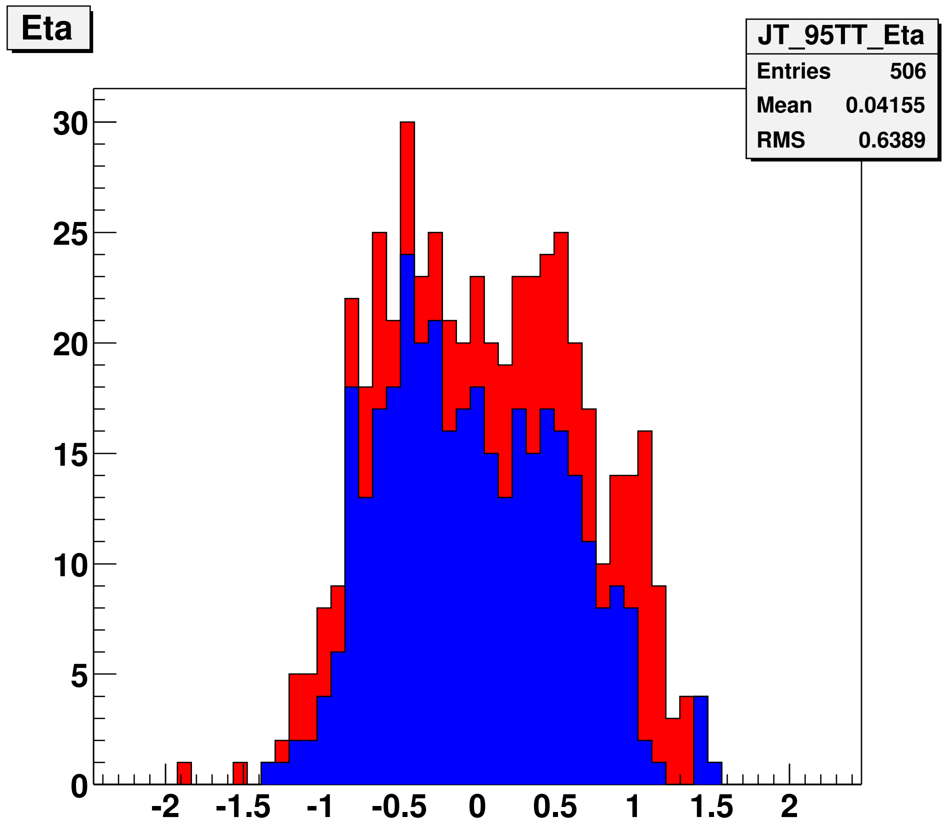
- we need to study those high pT fake jets
- at $p_T = 500$ GeV only $\sim 10\%$ of jets will satisfy jetID criteria
- it may not be that bad (cut on MET)
  - second jet looks very nice

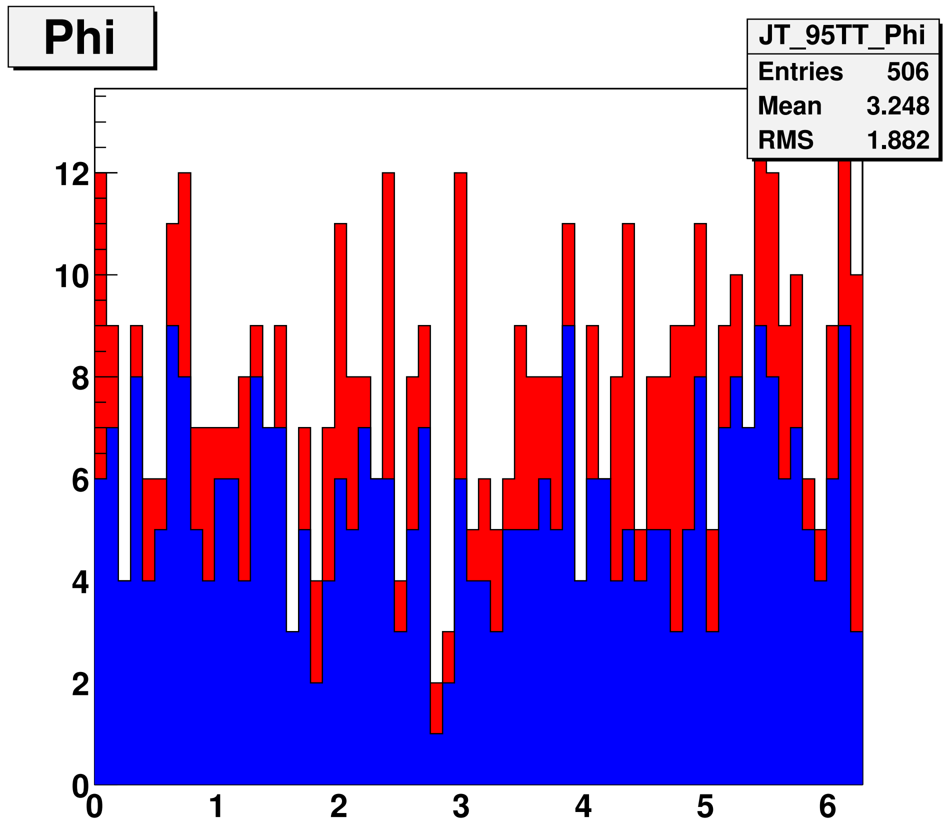
jets with $p_T > 180\,\mathrm{GeV}$ in JT_95TT



- ○ is there any particular region where the jets come from?

jets with $p_T > 180\,\mathrm{GeV}$ in JT_95TT





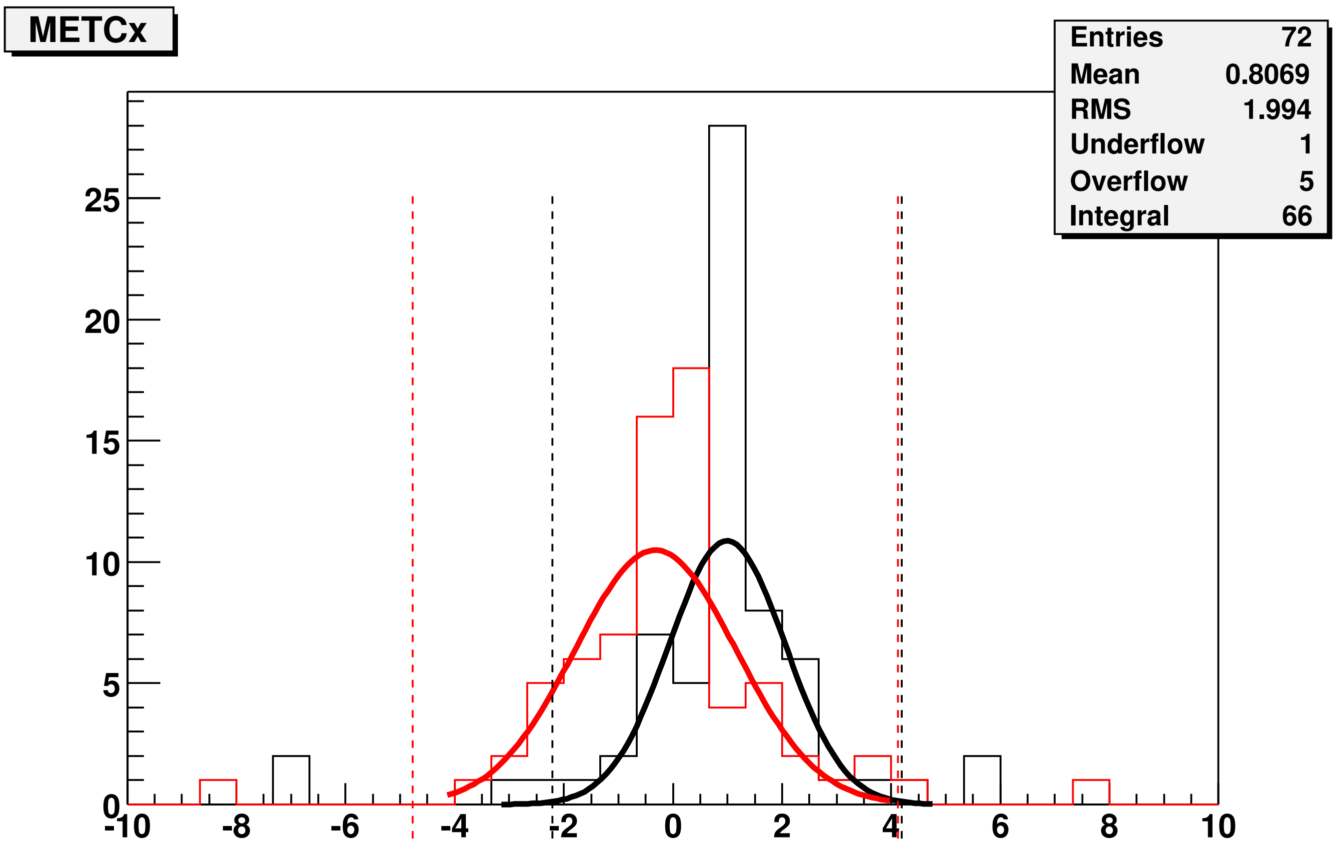
Run Selection

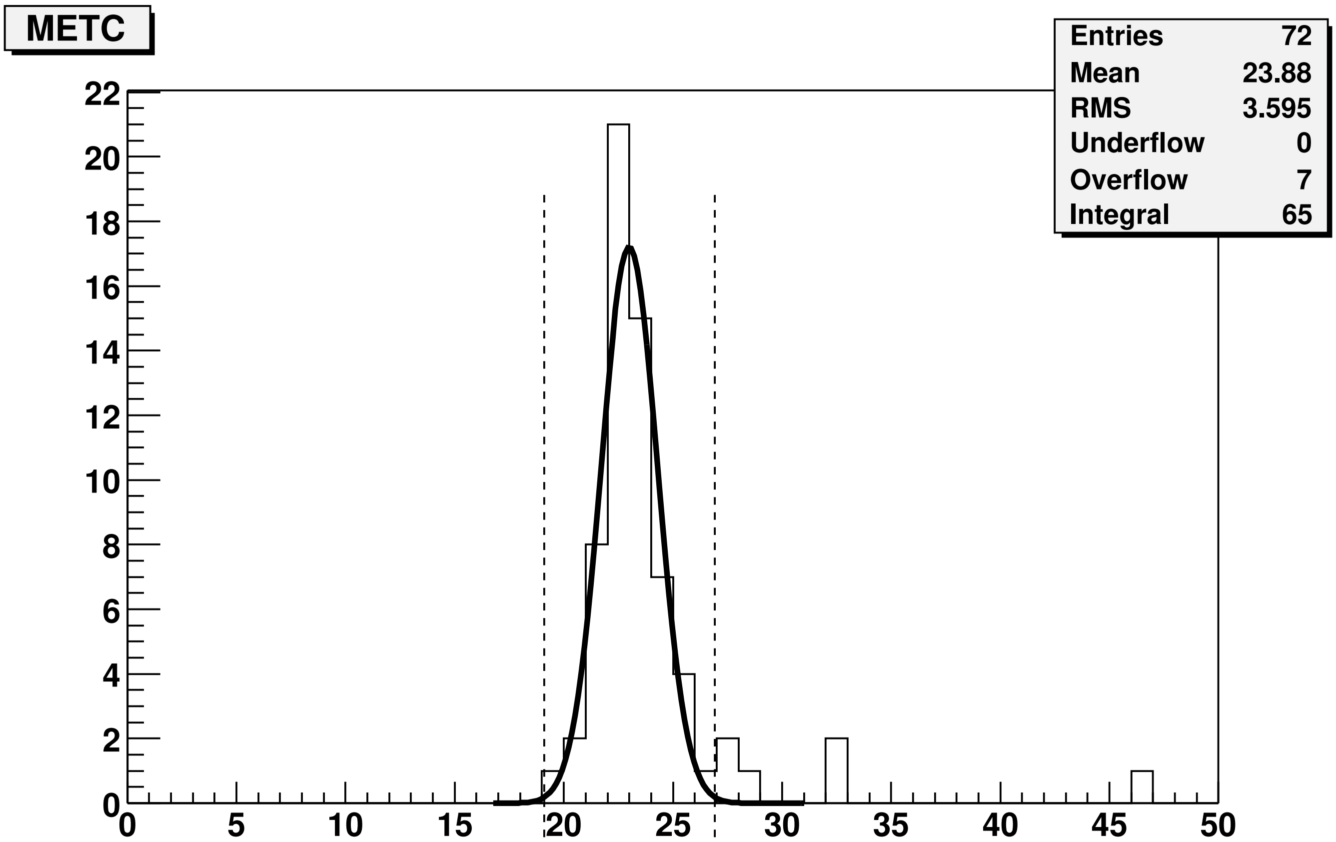
Run Quality criteria

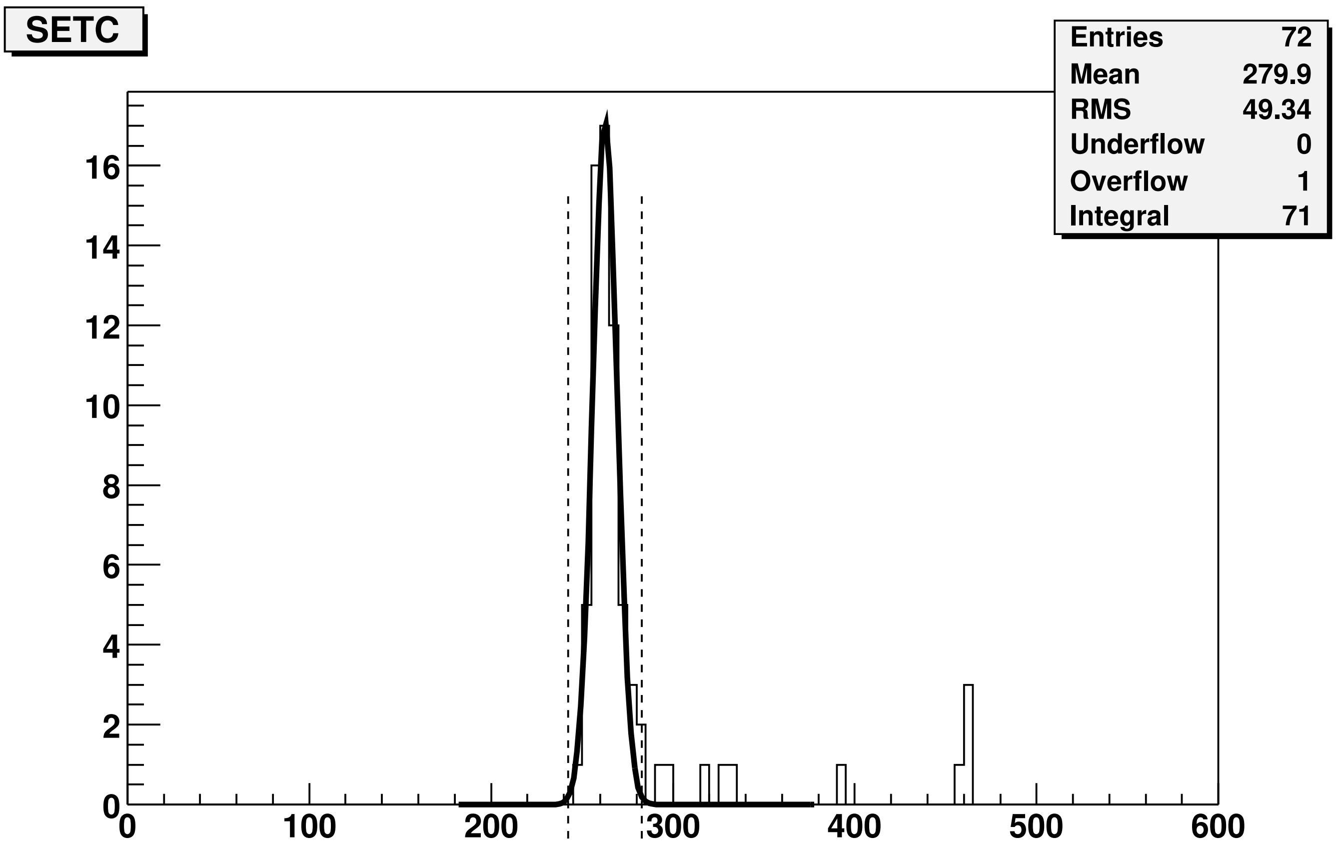
- only events from trigger JT_65TT
- at least 50 events per run
- 3σ cut on METCx, METCy, METC, SETC
- spikes at φ_{jet} distributions ($\chi^2 < 3$ for the constant line fit)

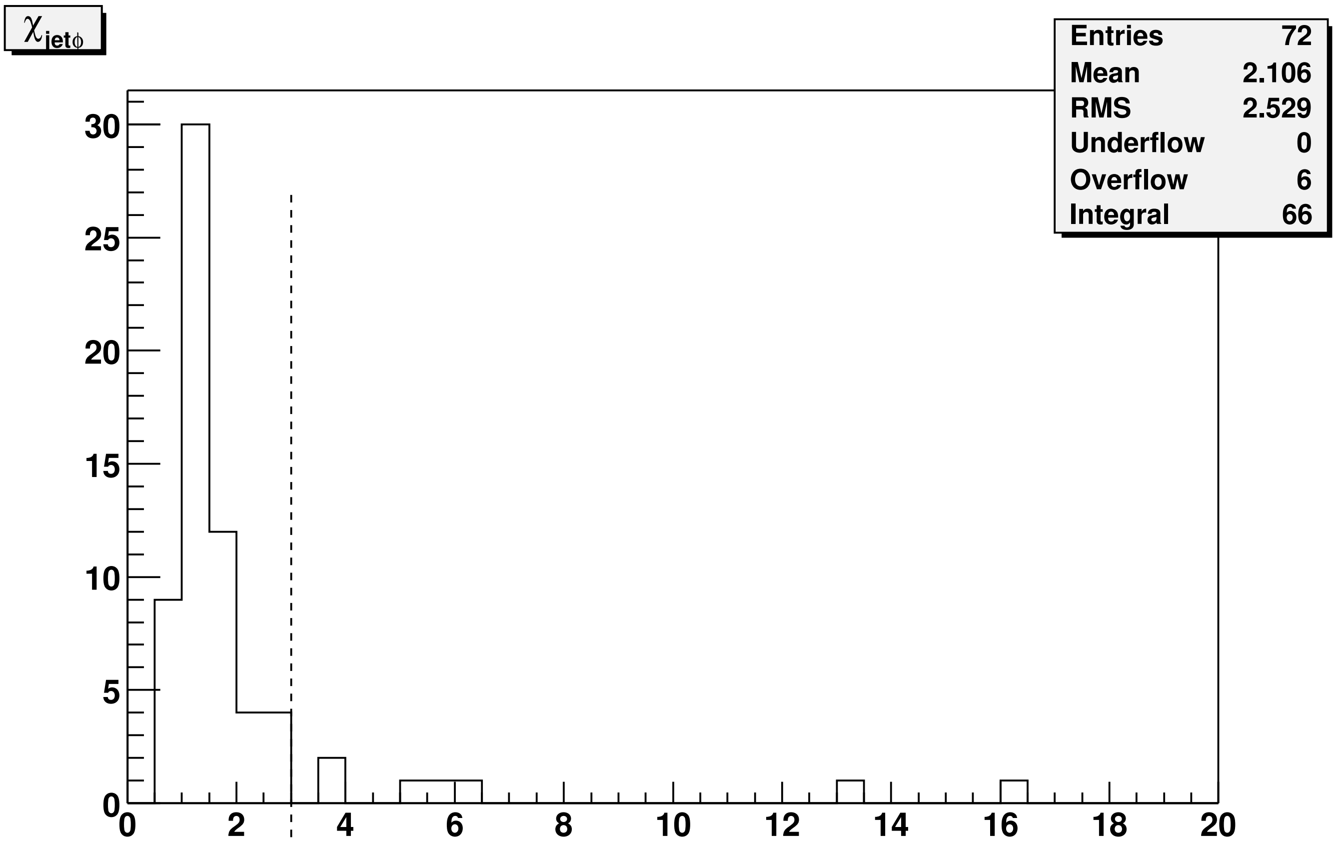
Results for CMT-9.20 stripped files

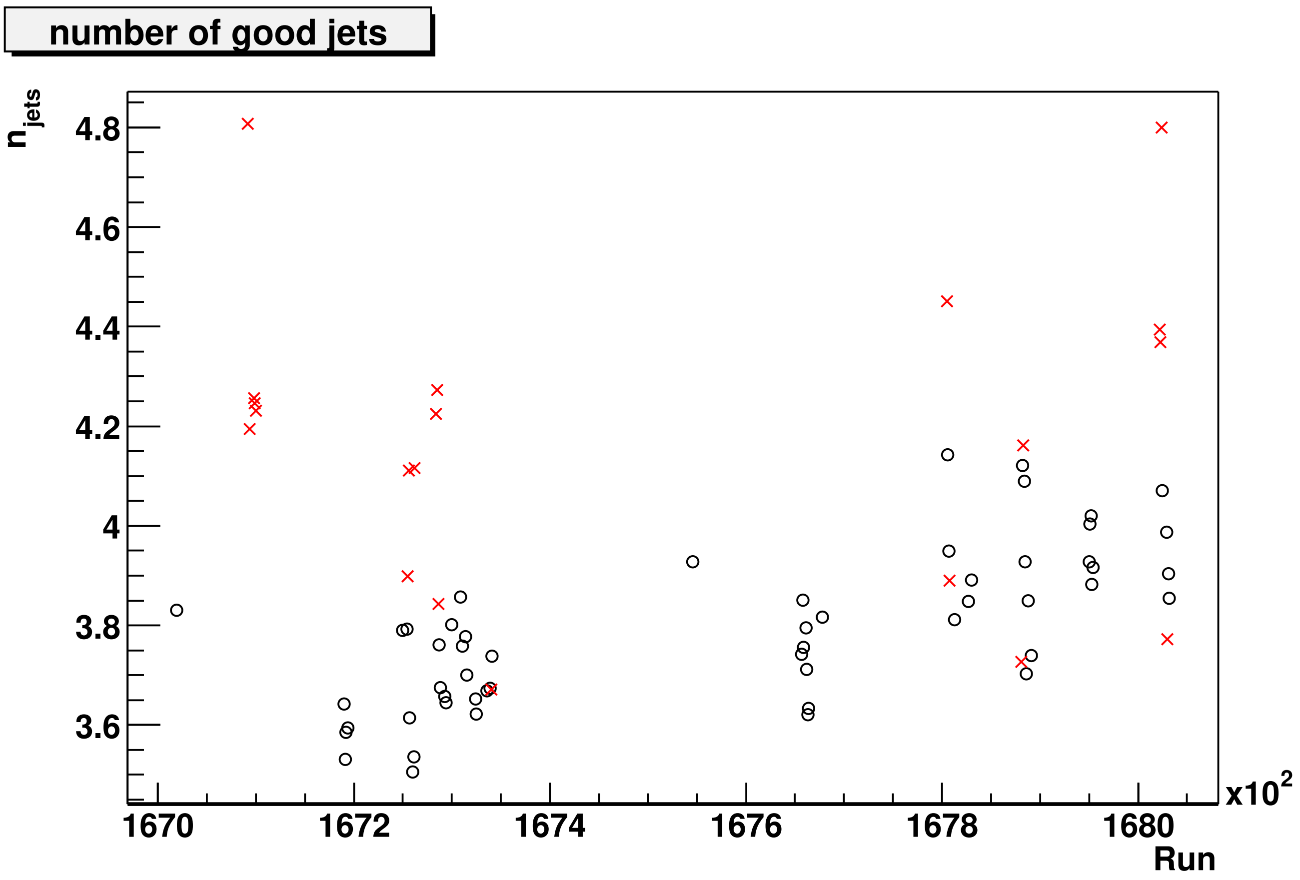
- Number of good runs : 53 (126295 events, $\mathcal{L} = 3.61\,\mathrm{pb}^{-1}$)
- Number of bad runs : 22 (102146 events, $\mathcal{L} = 1.22\,\mathrm{pb}^{-1}$)
- allmost identical selection as Patrice Verdier list

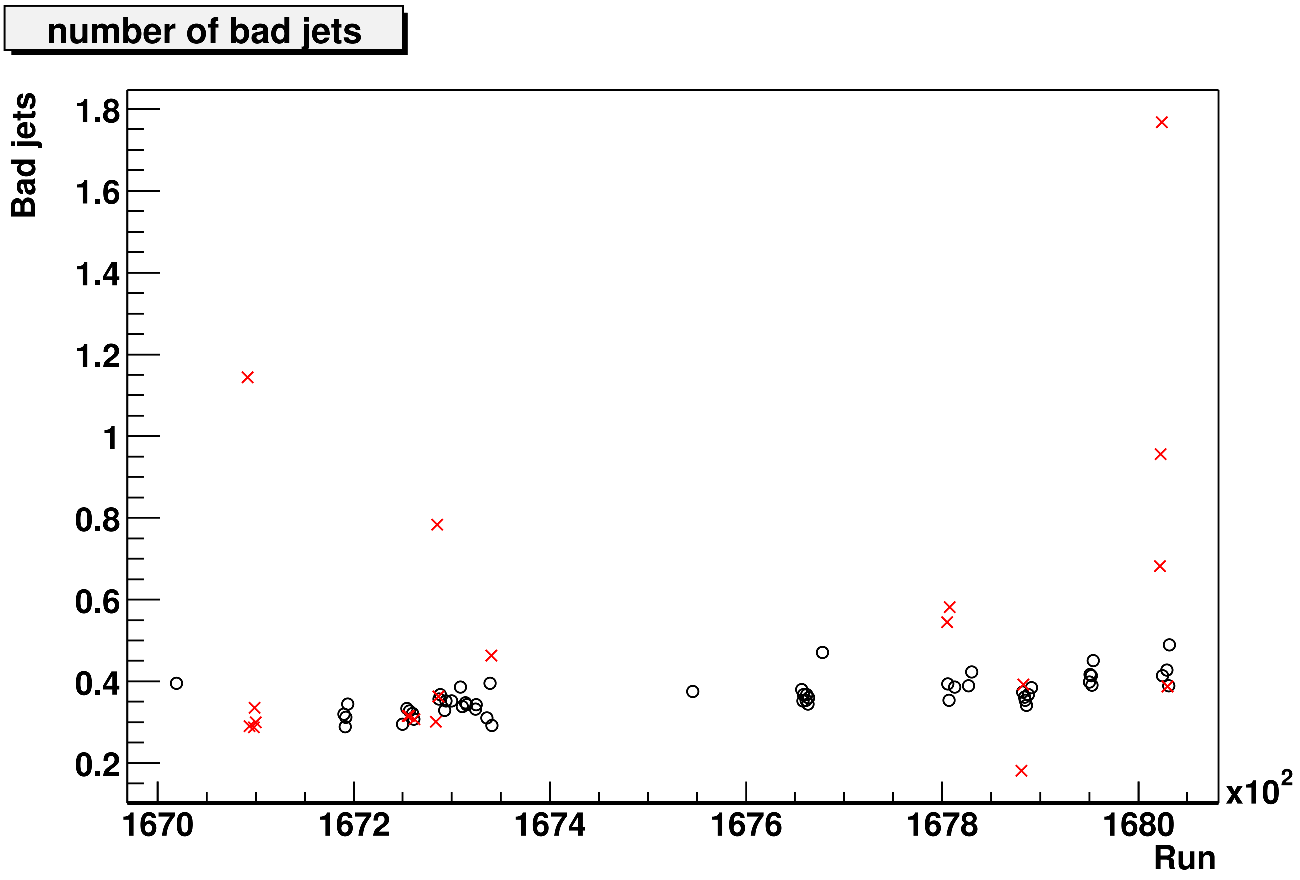

METCx
Entries 72
Mean 0.8069
RMS 1.994
Underflow 1
Overflow 5
Integral 66
0
5
10
15
20
25
-10
-8
-6
-4
-2
0
2
4
6
8
10

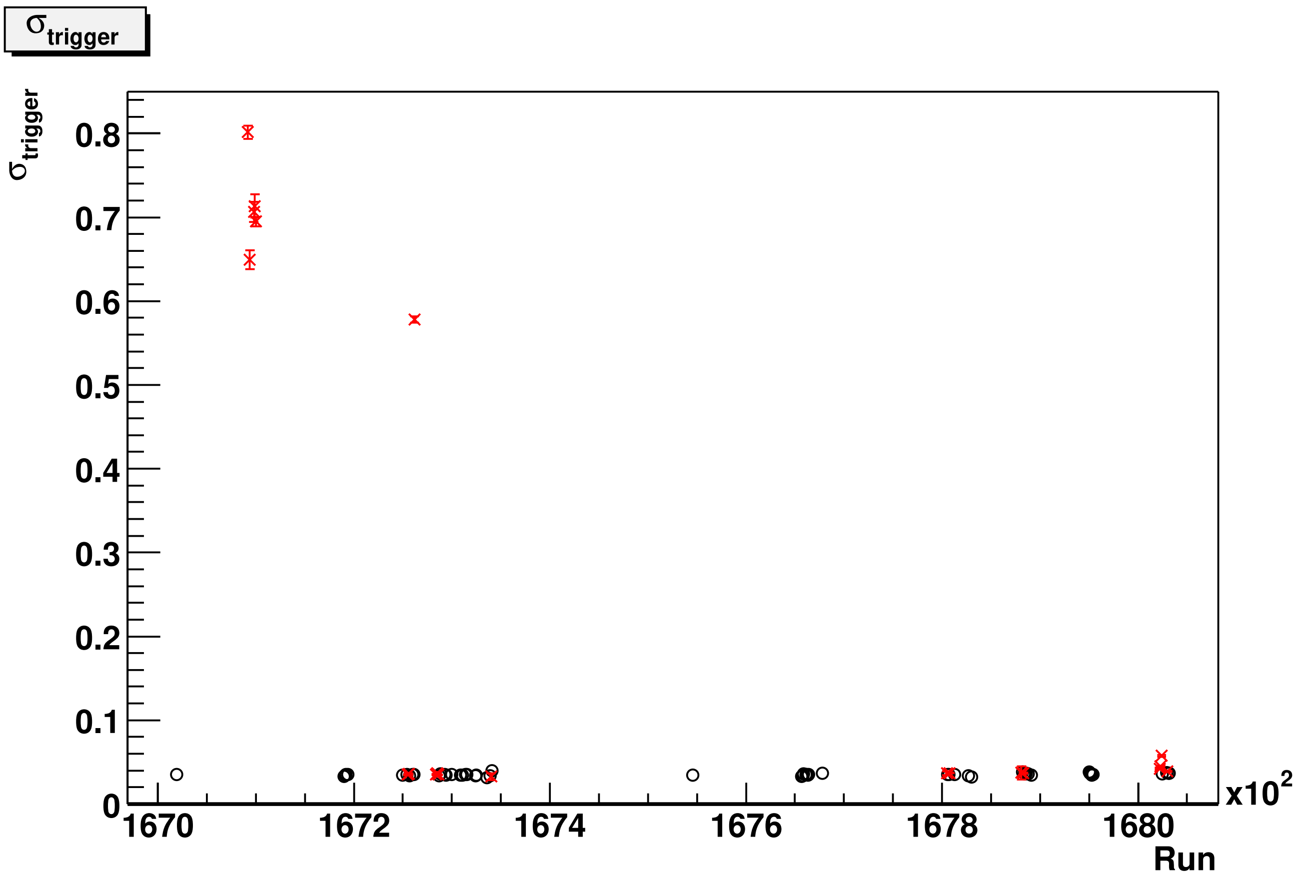

METC
Entries 72
Mean 23.88
RMS 3.595
Underflow 0
Overflow 7
Integral 65
0
2
4
6
8
10
12
14
16
18
20
22
0
5
10
15
20
25
30
35
40
45
50

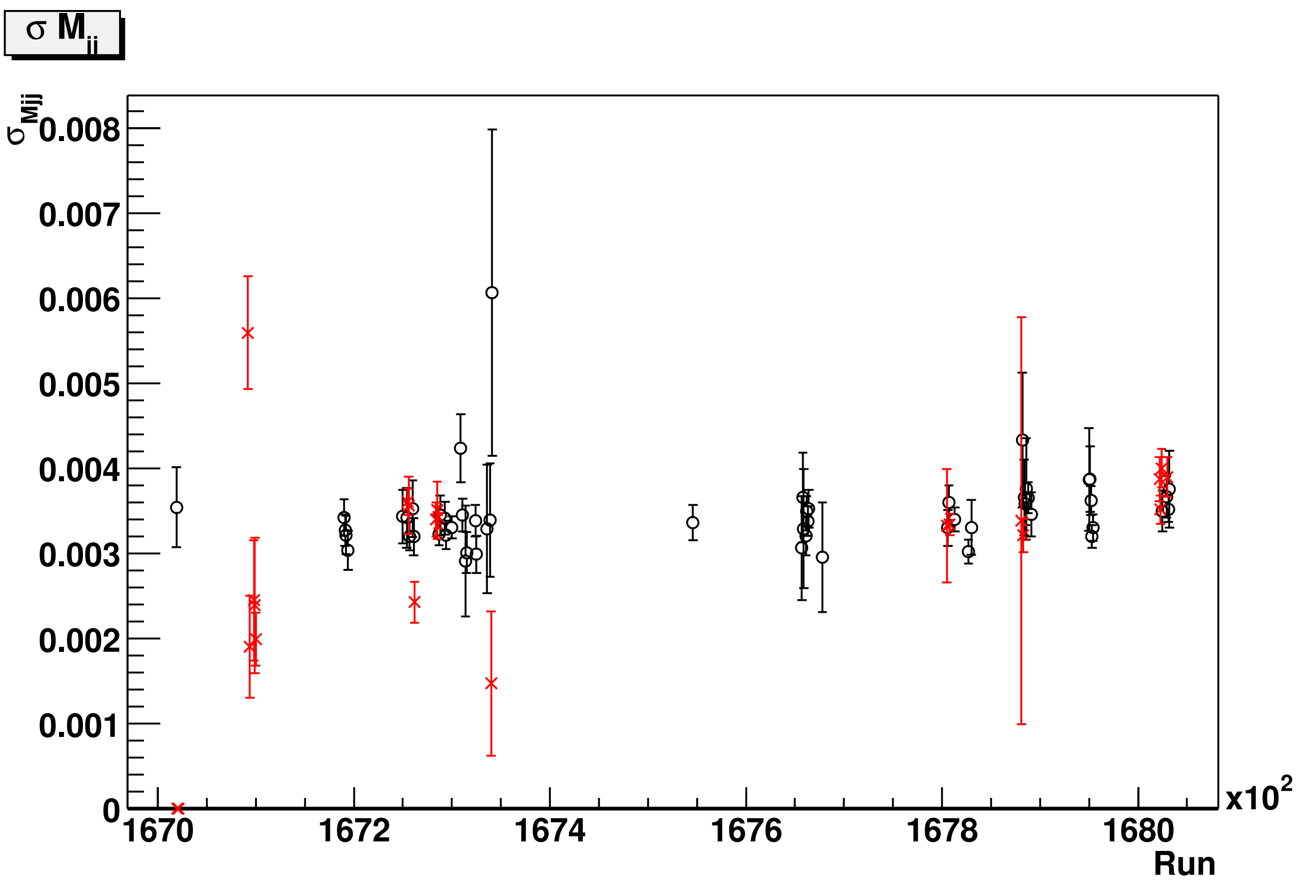

SETC
Entries 72
Mean 279.9
RMS 49.34
Underflow 0
Overflow 1
Integral 71
0
2
4
6
8
10
12
14
16
0
100
200
300
400
500
600


$\chi_{jet\phi}$
Entries 72
Mean 2.106
RMS 2.529
Underflow 0
Overflow 6
Integral 66
0
5
10
15
20
25
30
0
2
4
6
8
10
12
14
16
18
20


number of good jets
n_jets
4.8
4.6
4.4
4.2
4
3.8
3.6
1670
1672
1674
1676
1678
1680
x10^2
Run

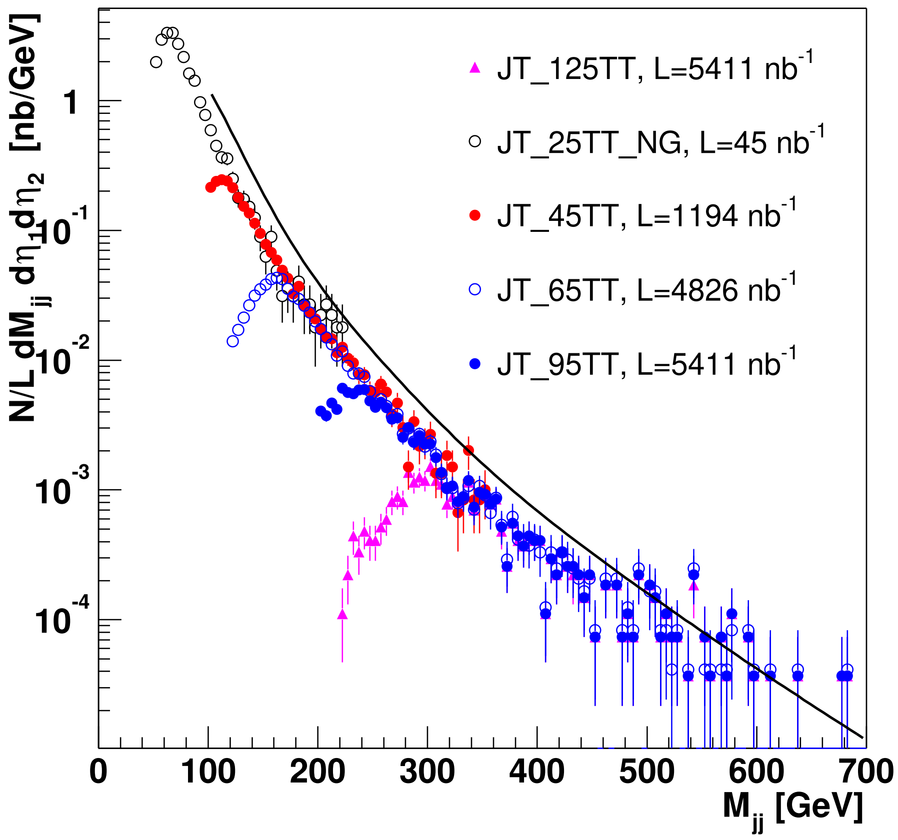

number of bad jets
Bad jets
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
1670
1672
1674
1676
1678
1680
x10^2
Run


$\sigma_{trigger}$
$\sigma_{trigger}$
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1670
1672
1674
1676
1678
1680
x10^2
Run

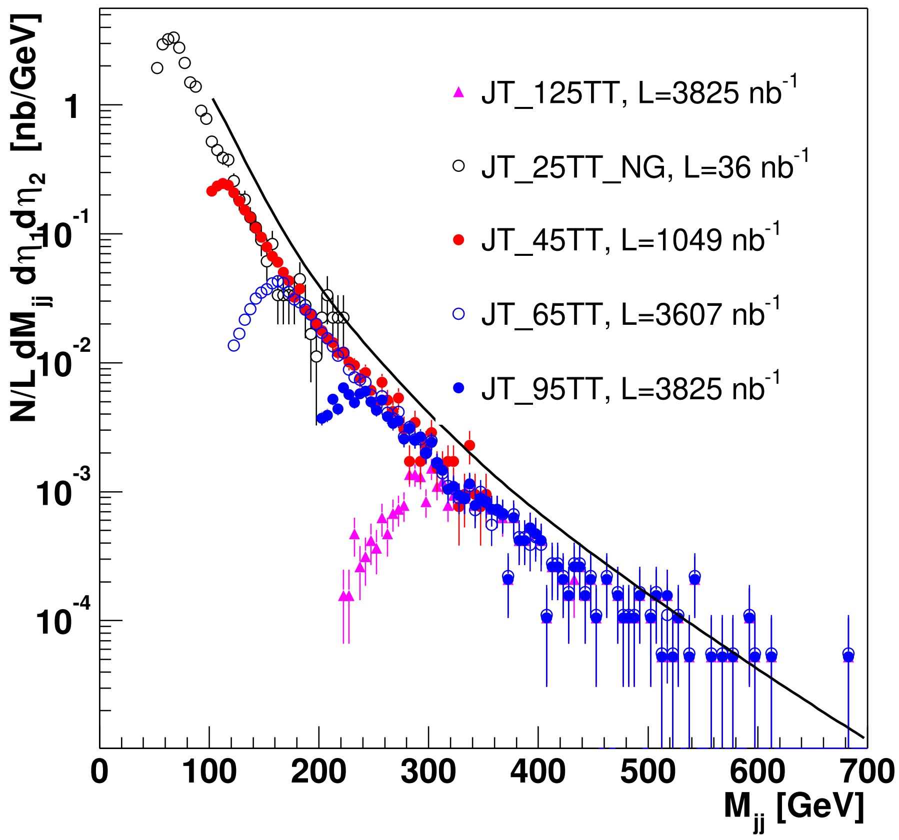

σ M$_{jj}$
σ_{Mjj}
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
1670
1672
1674
1676
1678
1680
x10^2
Run

dijet mass spectrum

no run selection



run selection



To-do list

- wait for p13.04 thumbnails (nItem variable + fixing memory leak)
- efficiencies for jetID cuts
- event selection efficiencies (cut on MET + vertex)
- we need to wait for jet energy scale for p13
- measure jet energy resolutions
- unsmearing method
- other sources of error
  - η - bias (could be done only on MC level)
- if we wan't to compare with NLO QCD calculations
  - determine R_{sep} parameter for new RunII jet cone algorithm