TMB stripping
p13.02 jets

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Data sample

- two p13.02 TMB files from two different runs
- trigger list **CMT-9.20**
  - run 167314, prescale $15E30$, 14532 events
  - run 167300, prescale $20E30$, 25014 events
- total
  - number of events : 39546
  - event size : 16698 Bytes

Stripping code

- **QcdSkim_x** - part of qcd_tools package
- stripping based on triggers
  - does not require to unpack thumbnails
- 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

Stripping

Jet sample

trigger	N_{evts}
JT_25TT_NG	248
JT_45TT	237
JT_65TT	677
JT_95TT	81
JT_125TT	17
total	**1145**

EM sample

trigger	N_{evts}
EM_HI_SH	3977
EM_HI	1634
EM_HI_EMFR8	866
EM_MX_SH	3563
EM_MX	1557
EM_MX_EMFR8	849
total	**5058**

N_{evts} reduction	$35\times$
file size reduction	$51\times$
event size	11310 Bytes
TMB+ event size	20429 Bytes
Moriond sample	$3 \,.\, 10^6$ evts 30 GB

N_{evts} reduction	$7.8\times$
file size reduction	$13.5\times$
event size	9657 Bytes
Moriond sample	$13 \,.\, 10^6$ evts 115 GB

Jet stripping - bigger sample

- p13.02 TMB files for trigger list CMT-9.20
- 3.4 million events, about 50 GB

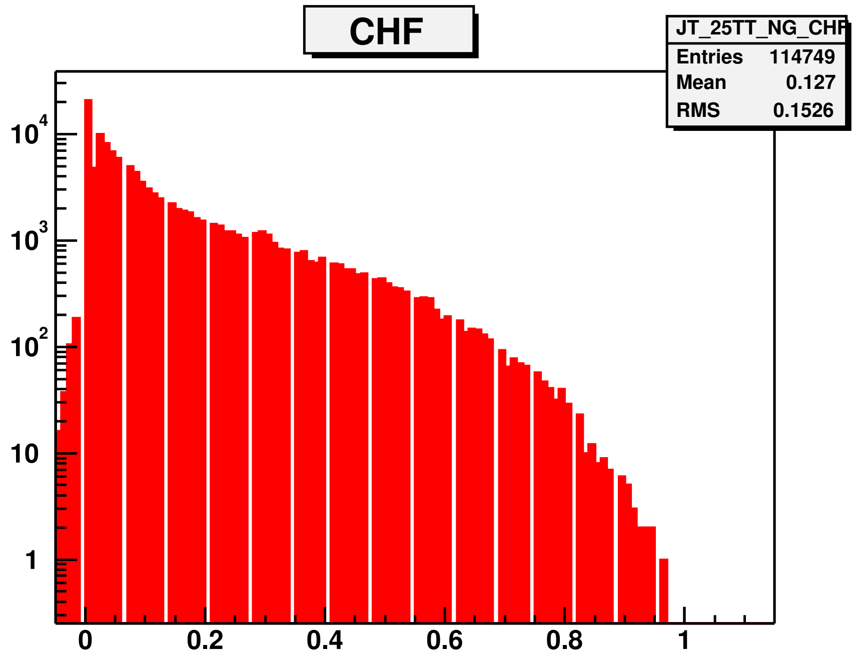
N_{evts} reduction	$23\times$
file size reduction	$34\times$
event size	10413 Bytes
Moriond sample	$4.3\,.\,10^6$ evts 42 GB

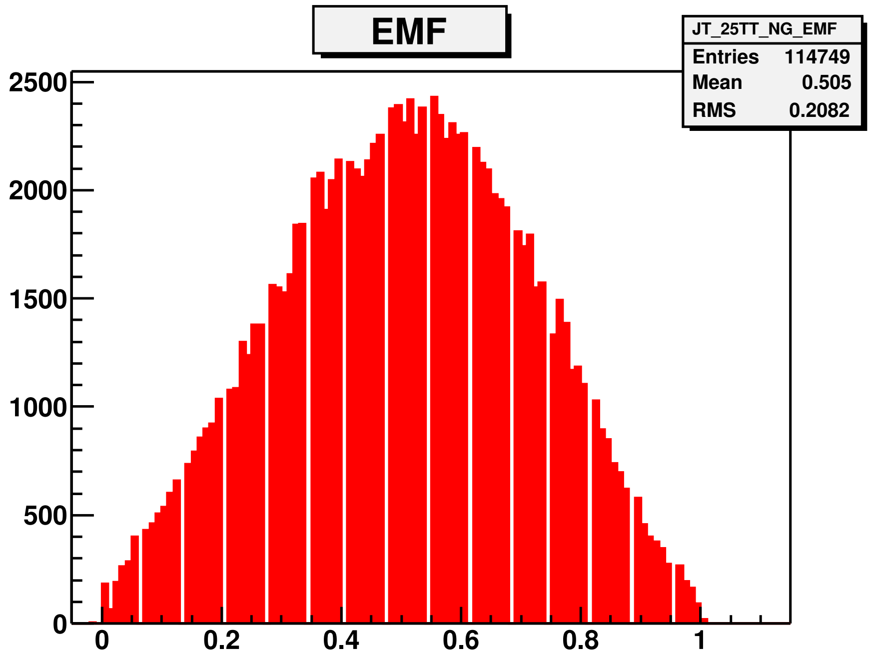
stripping time	48 h
analysis time	83 evts/s

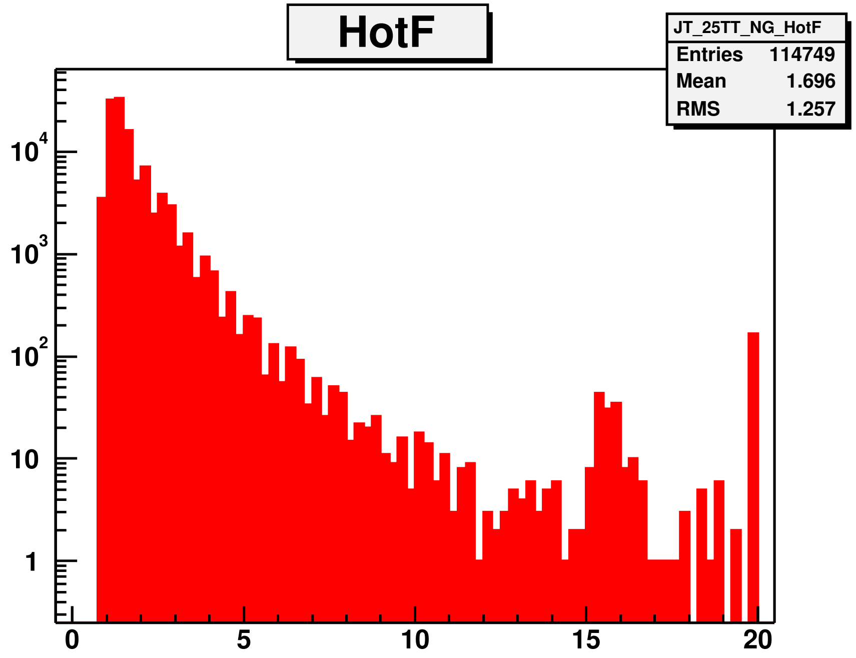
- run on Athlon MP 2000+

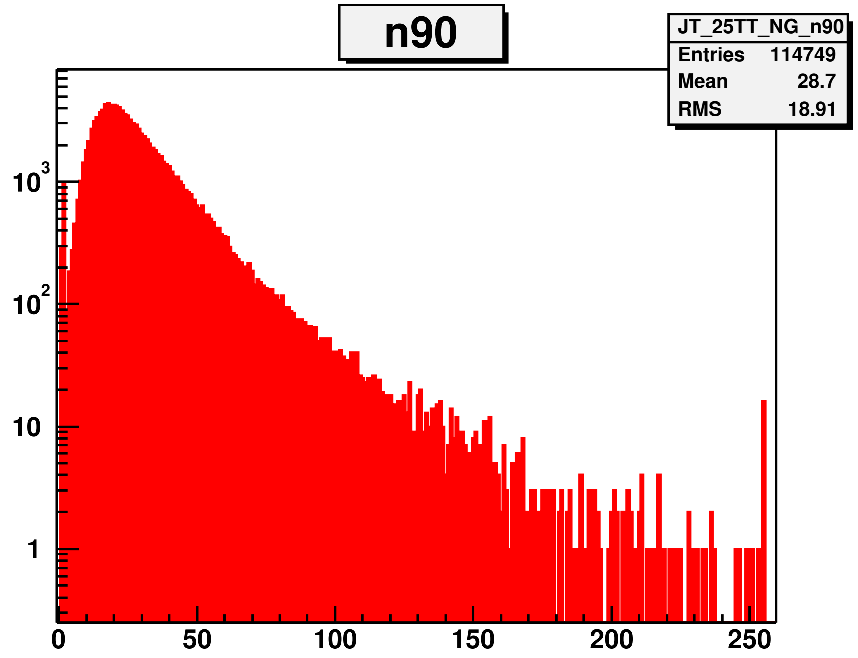
- scaling the numbers for the Moriond sample
  - stripping requires about 60days !
  - analysis will require about 15hours

JT_25TT_NG - jet ID variables

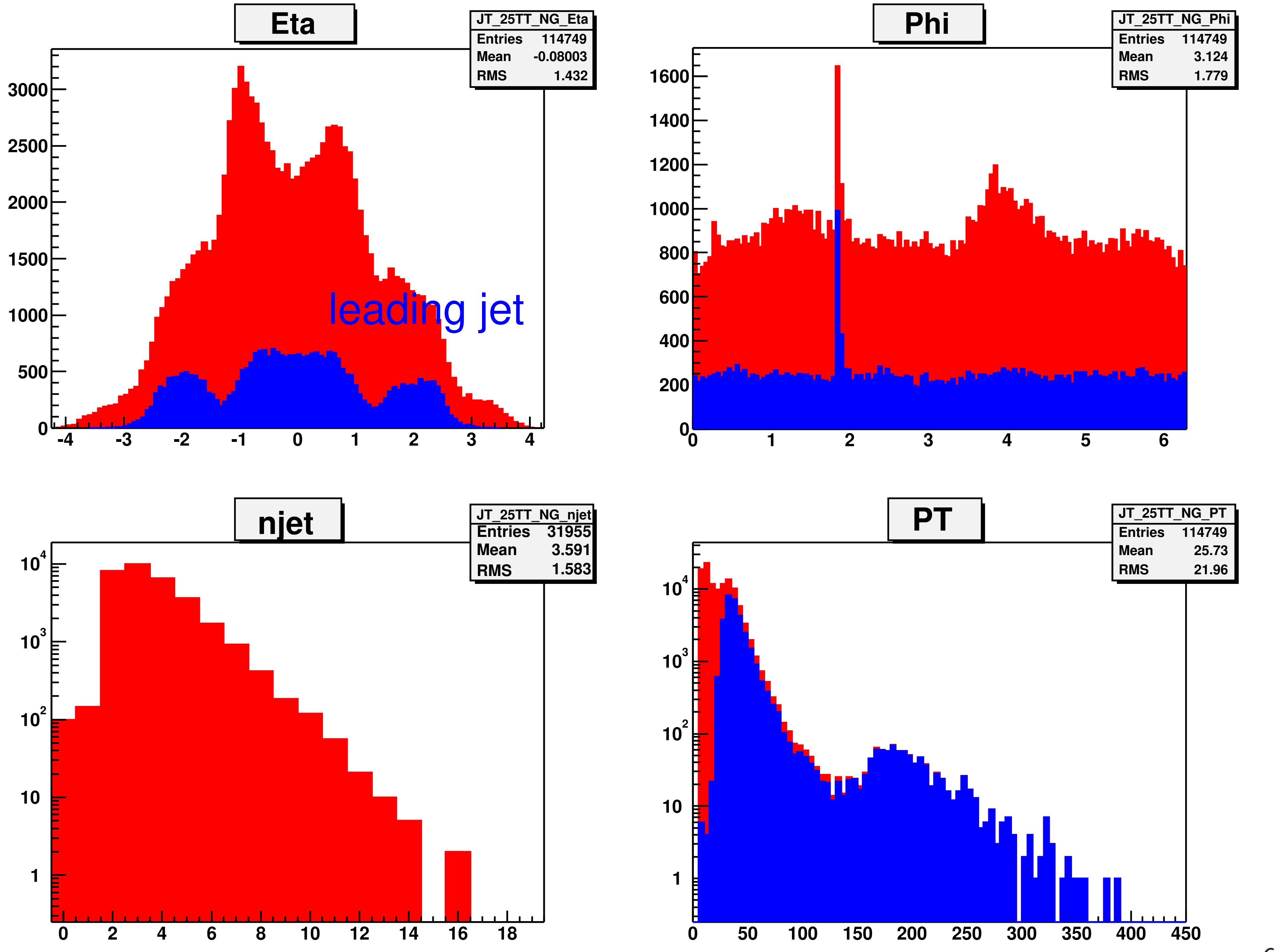




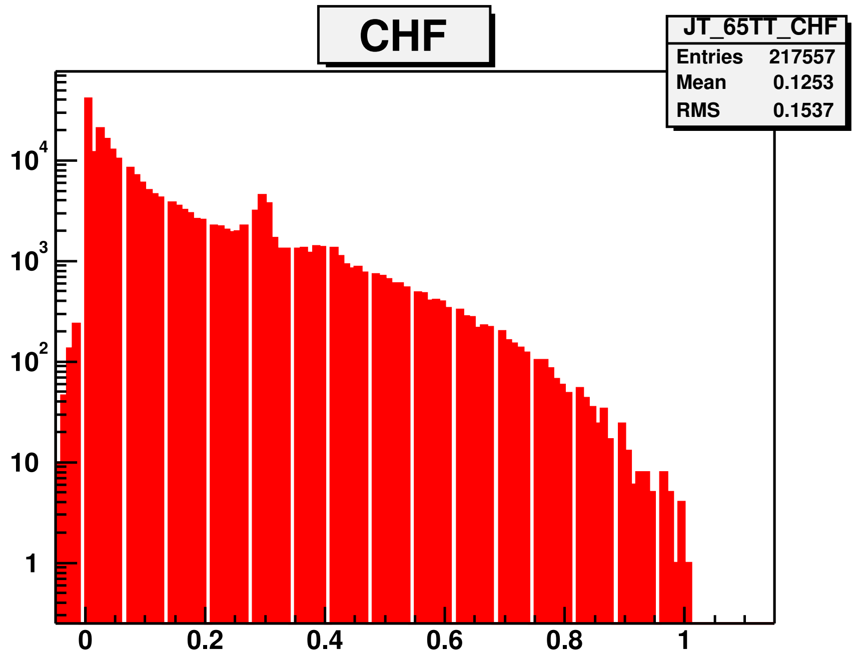


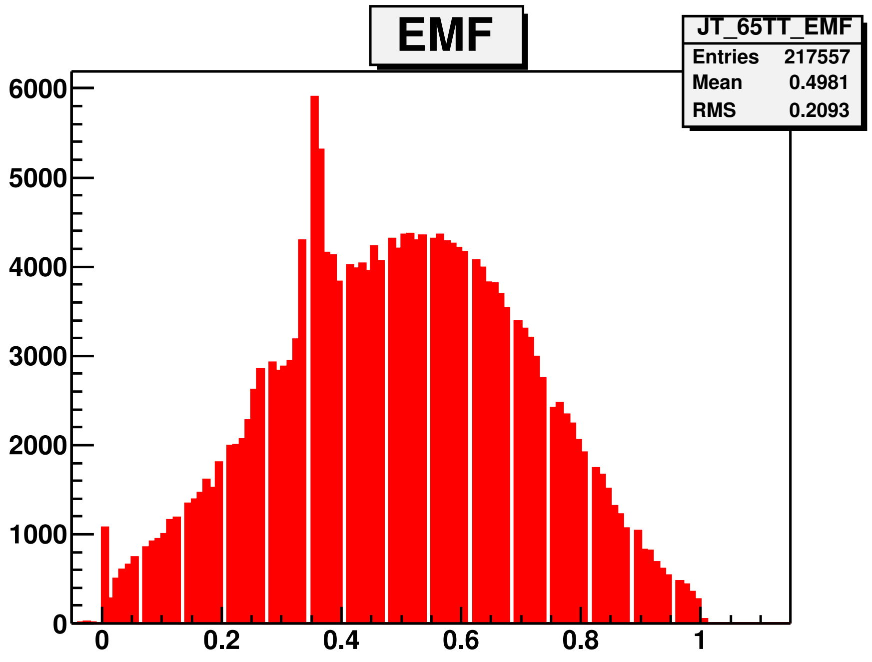


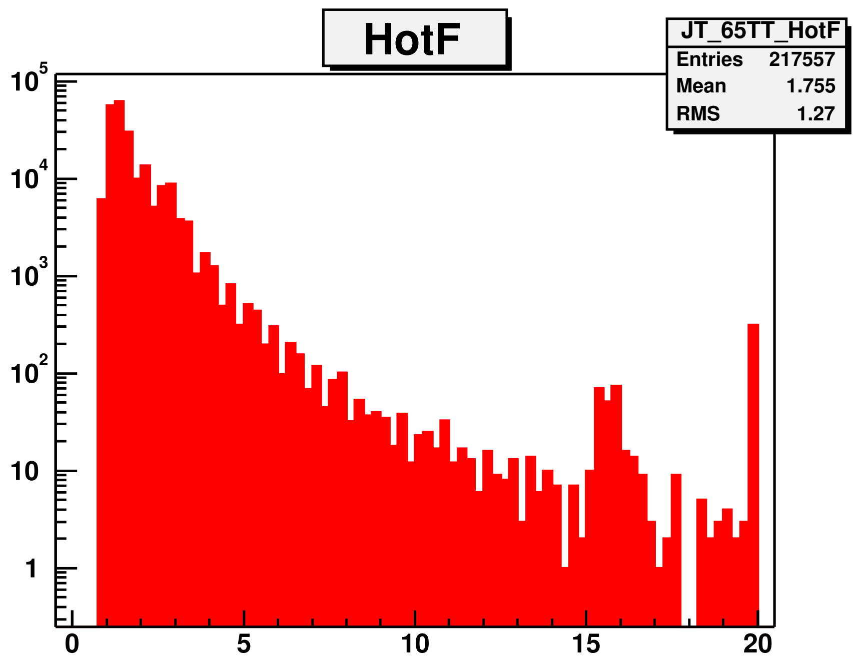
JT_25TT_NG

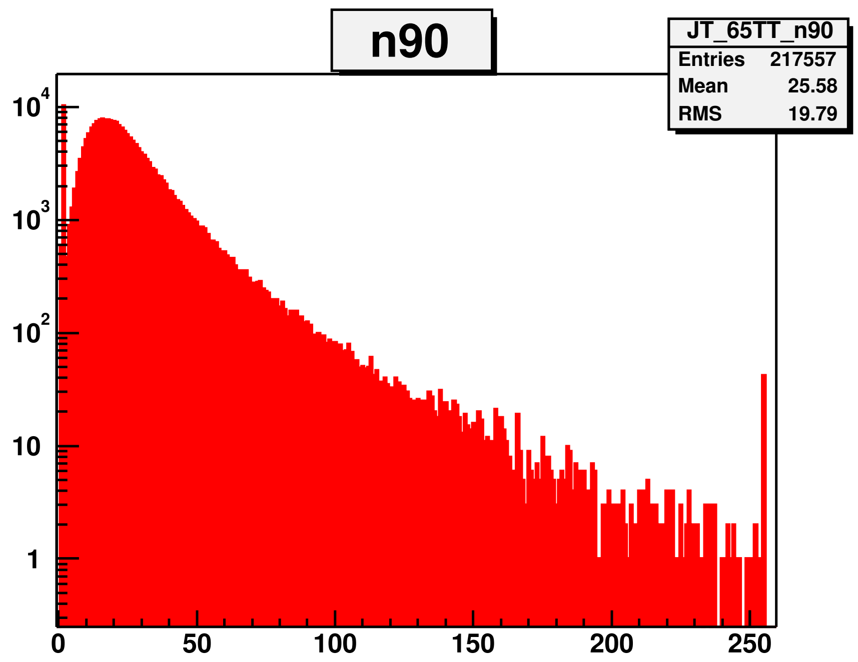

Eta
JT_25TT_NG_Eta
Entries 114749
Mean -0.08003
RMS 1.432
leading jet
Phi
JT_25TT_NG_Phi
Entries 114749
Mean 3.124
RMS 1.779
njet
JT_25TT_NG_njet
Entries 31955
Mean 3.591
RMS 1.583
PT
JT_25TT_NG_PT
Entries 114749
Mean 25.73
RMS 21.96

JT_65TT - jet ID variables

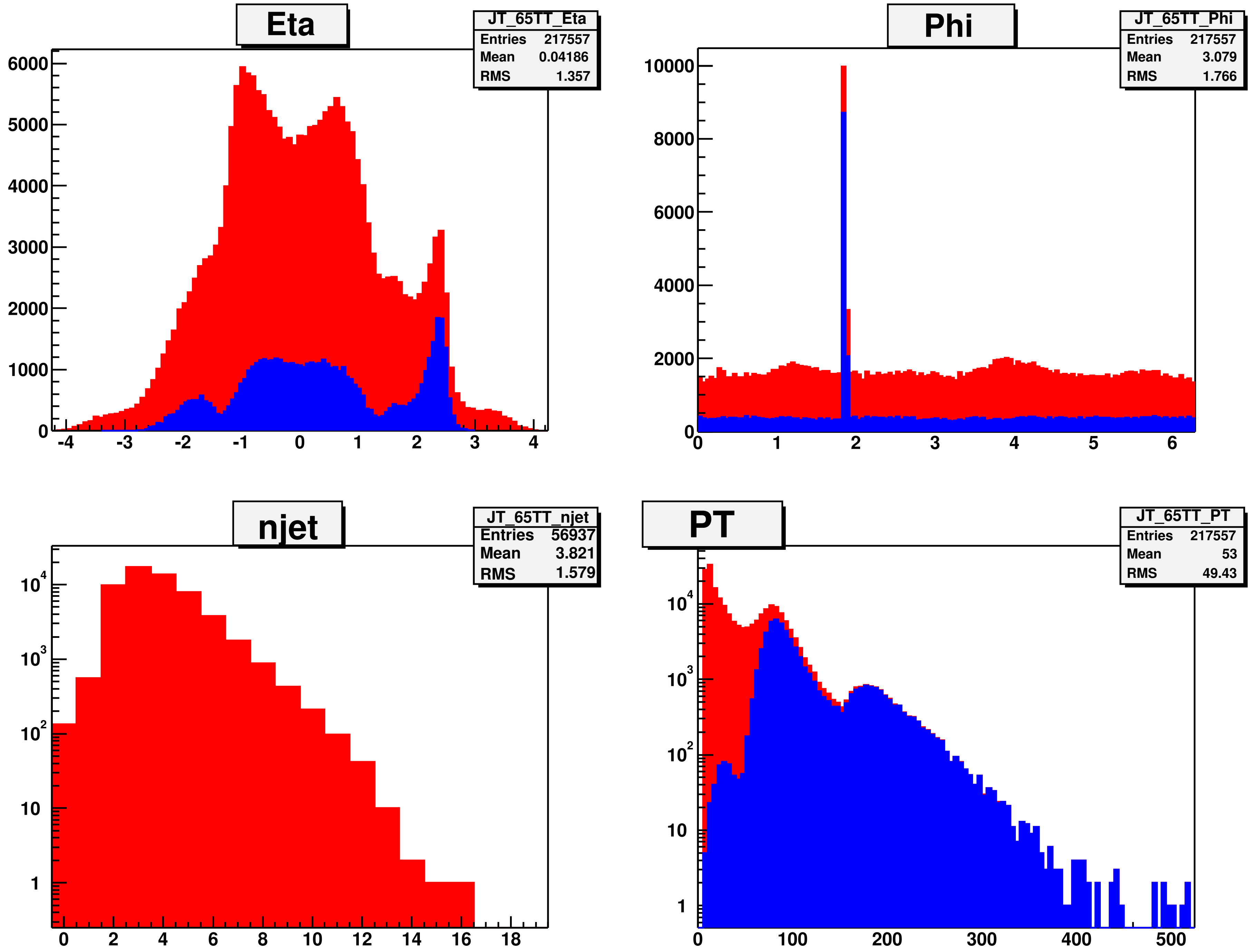




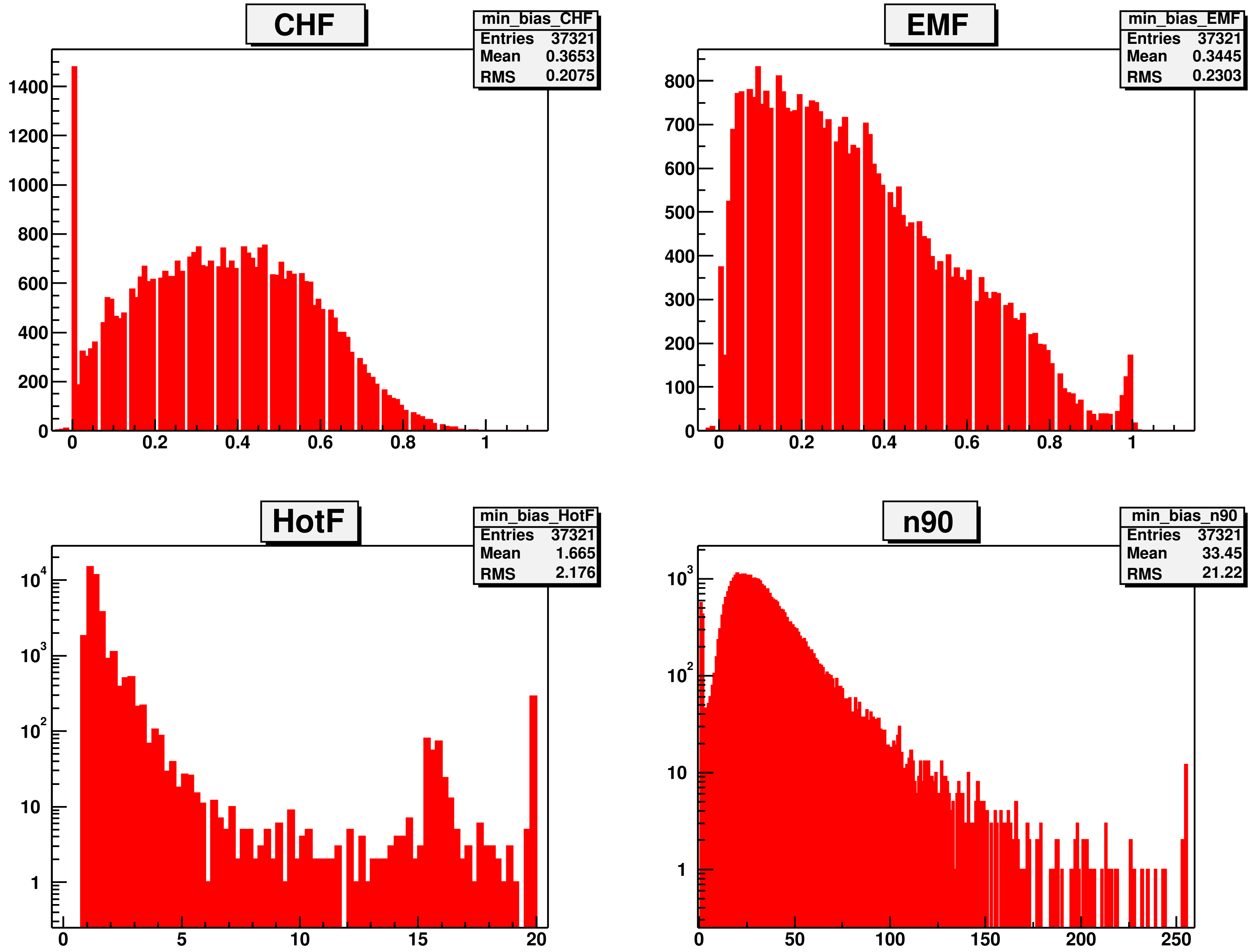




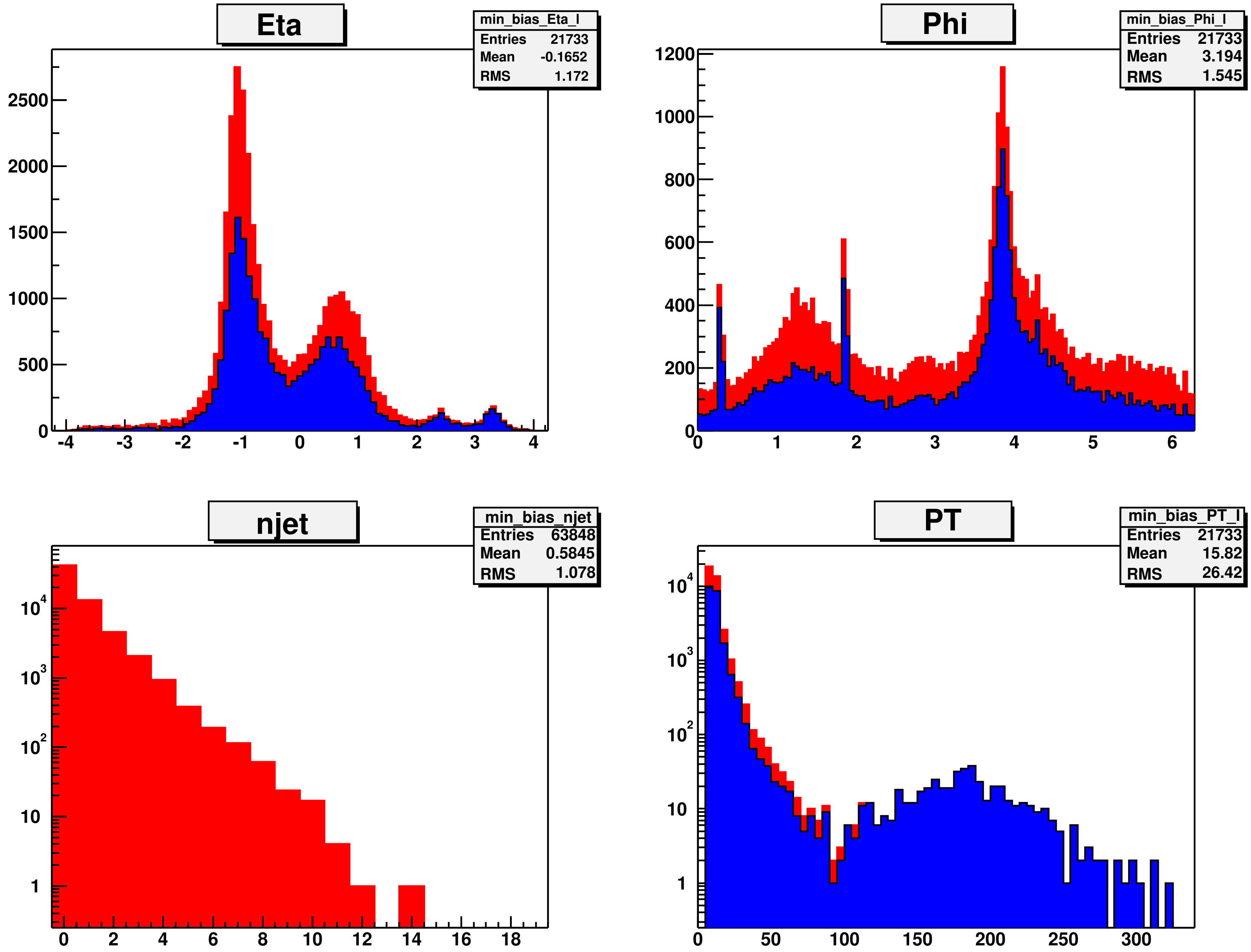
JT_65TT


Eta
JT_65TT_Eta
Entries 217557
Mean 0.04186
RMS 1.357
6000
5000
4000
3000
2000
1000
0
-4 -3 -2 -1 0 1 2 3 4
Phi
JT_65TT_Phi
Entries 217557
Mean 3.079
RMS 1.766
10000
8000
6000
4000
2000
0
0 1 2 3 4 5 6
njet
JT_65TT_njet
Entries 56937
Mean 3.821
RMS 1.579
10^4
10^3
10^2
10
1
0 2 4 6 8 10 12 14 16 18
PT
JT_65TT_PT
Entries 217557
Mean 53
RMS 49.43
10^4
10^3
10^2
10
1
0 100 200 300 400 500

min_bias - jet ID variables



min_bias


Eta
min_bias_Eta_l
Entries 21733
Mean -0.1652
RMS 1.172
0 500 1000 1500 2000 2500
-4 -3 -2 -1 0 1 2 3 4
Phi
min_bias_Phi_l
Entries 21733
Mean 3.194
RMS 1.545
0 200 400 600 800 1000 1200
0 1 2 3 4 5 6
njet
min_bias_njet
Entries 63848
Mean 0.5845
RMS 1.078
1 10 10^2 10^3 10^4
0 2 4 6 8 10 12 14 16 18
PT
min_bias_PT_l
Entries 21733
Mean 15.82
RMS 26.42
1 10 10^2 10^3 10^4
0 50 100 150 200 250 300

comments on jet properties

Hot region

- hot region around $\eta \sim 2.2$ and $\varphi \sim 1.9$
- is it permanent or just one bad run?
- need tools for looking at run quality

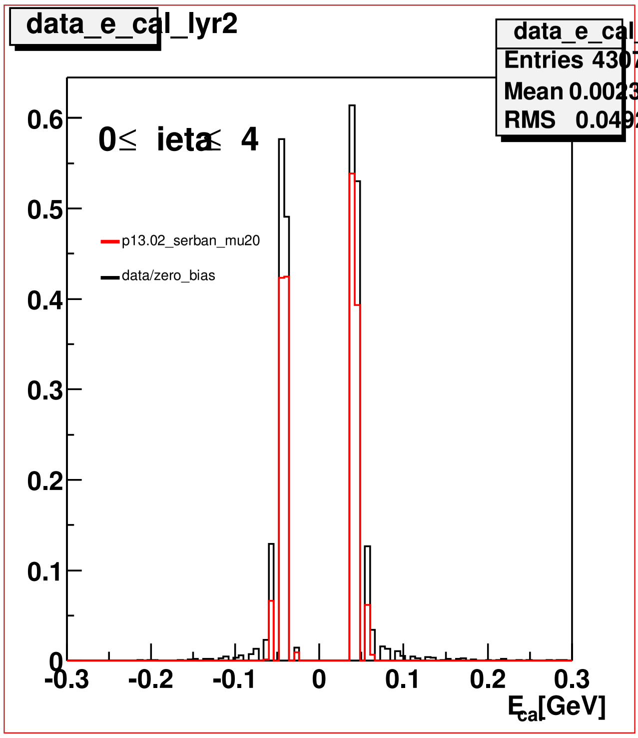
Fake jets

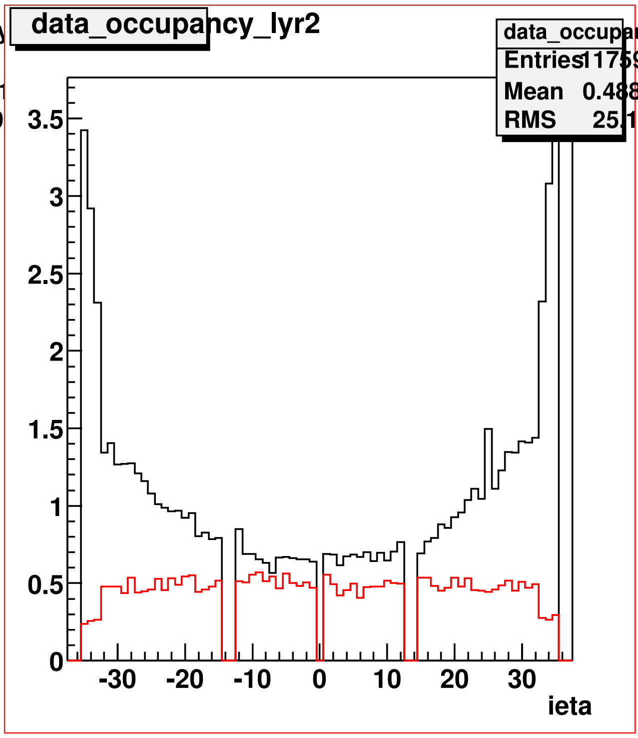
- number of fake jets is much smaller
- mean number of jets per event much more reasonable
- still it looks like there are still too many jets in forward region
  - unfortunately even leading jets are fake
  - probably connected to the higher occupancy of calorimeter cells
  - doesn't hurt inclusive pT spectrum in the central region
  - problem for dijet mass spectrum

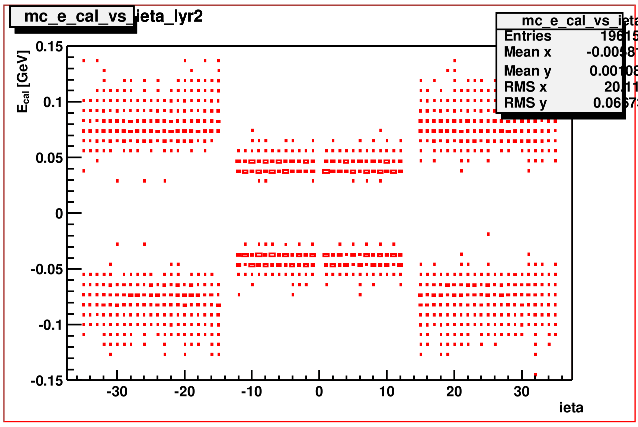
Jet ID cuts

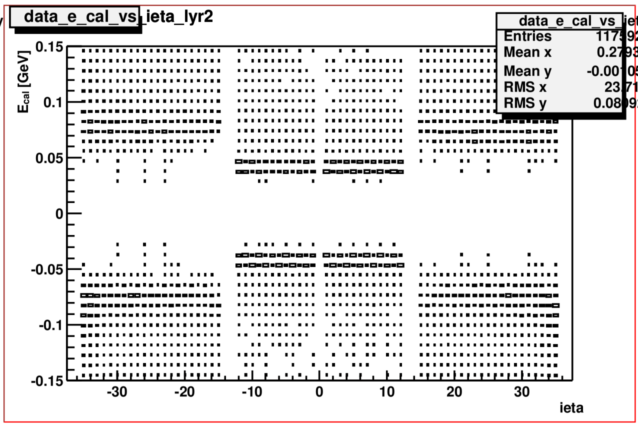
- make stronger cut on n90 $(n90 > 2)$

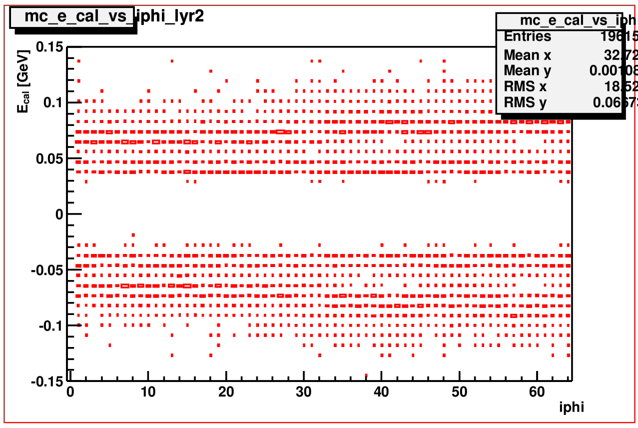
layer 2

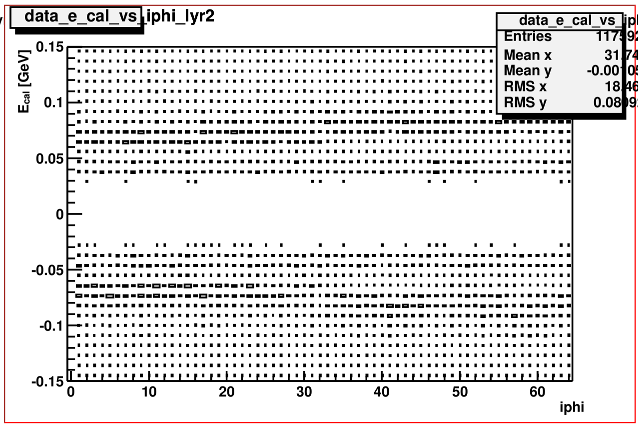

data_e_cal_lyr2
Entries 4307
Mean 0.002361
RMS 0.04929
0≤ ieta≤ 4
p13.02_serban_mu20
data/zero_bias
E_{cal}[GeV]


data_occupancy_lyr2
Entries 117592
Mean 0.4883
RMS 25.11
ieta

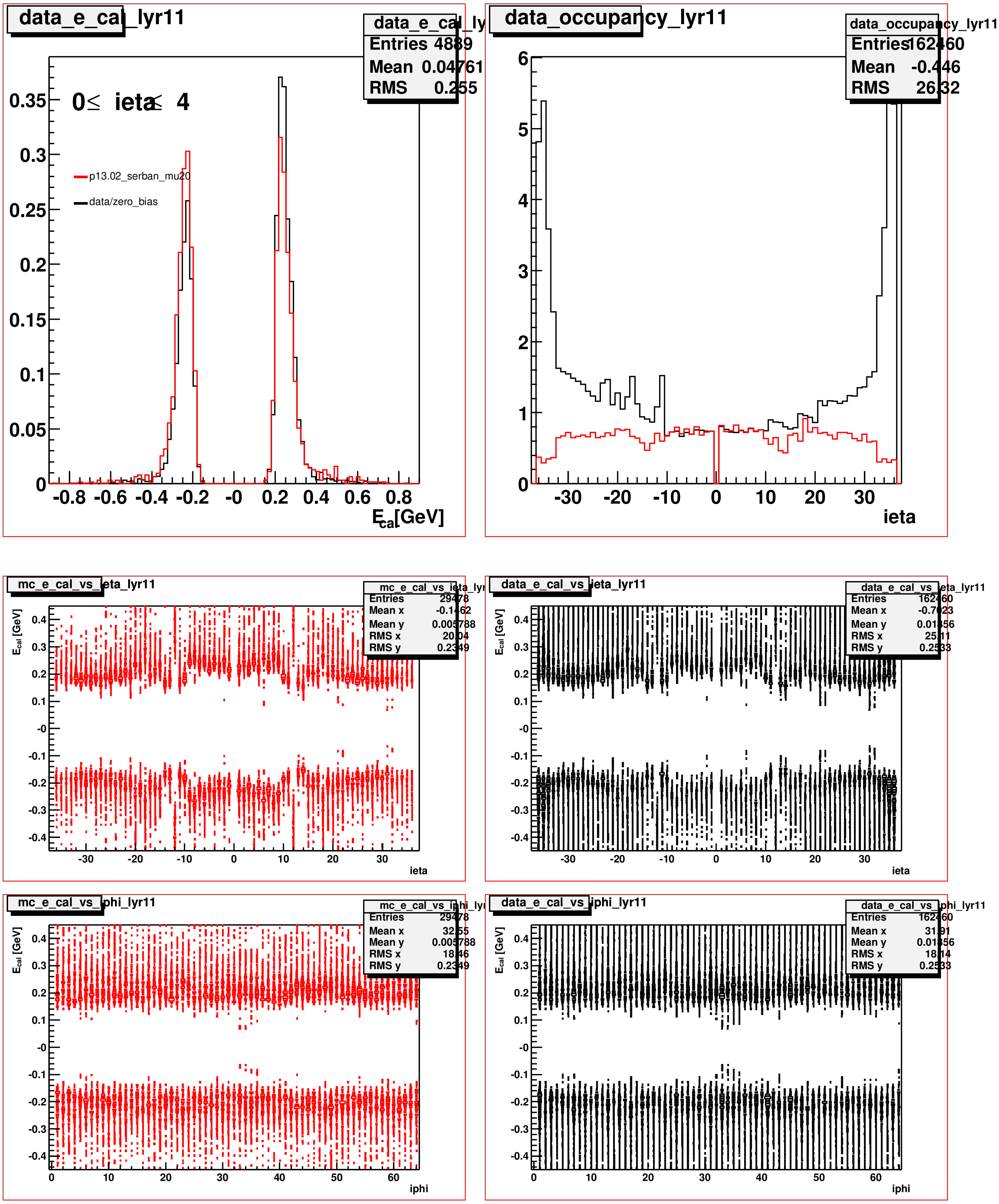

mc_e_cal_vs_ieta_lyr2
Entries 19615
Mean x -0.005818
Mean y 0.001086
RMS x 20.11
RMS y 0.06573
E_{cal} [GeV]
ieta


data_e_cal_vs_ieta_lyr2
Entries 117592
Mean x 0.2793
Mean y -0.001054
RMS x 23.71
RMS y 0.08092
E_{cal} [GeV]
ieta

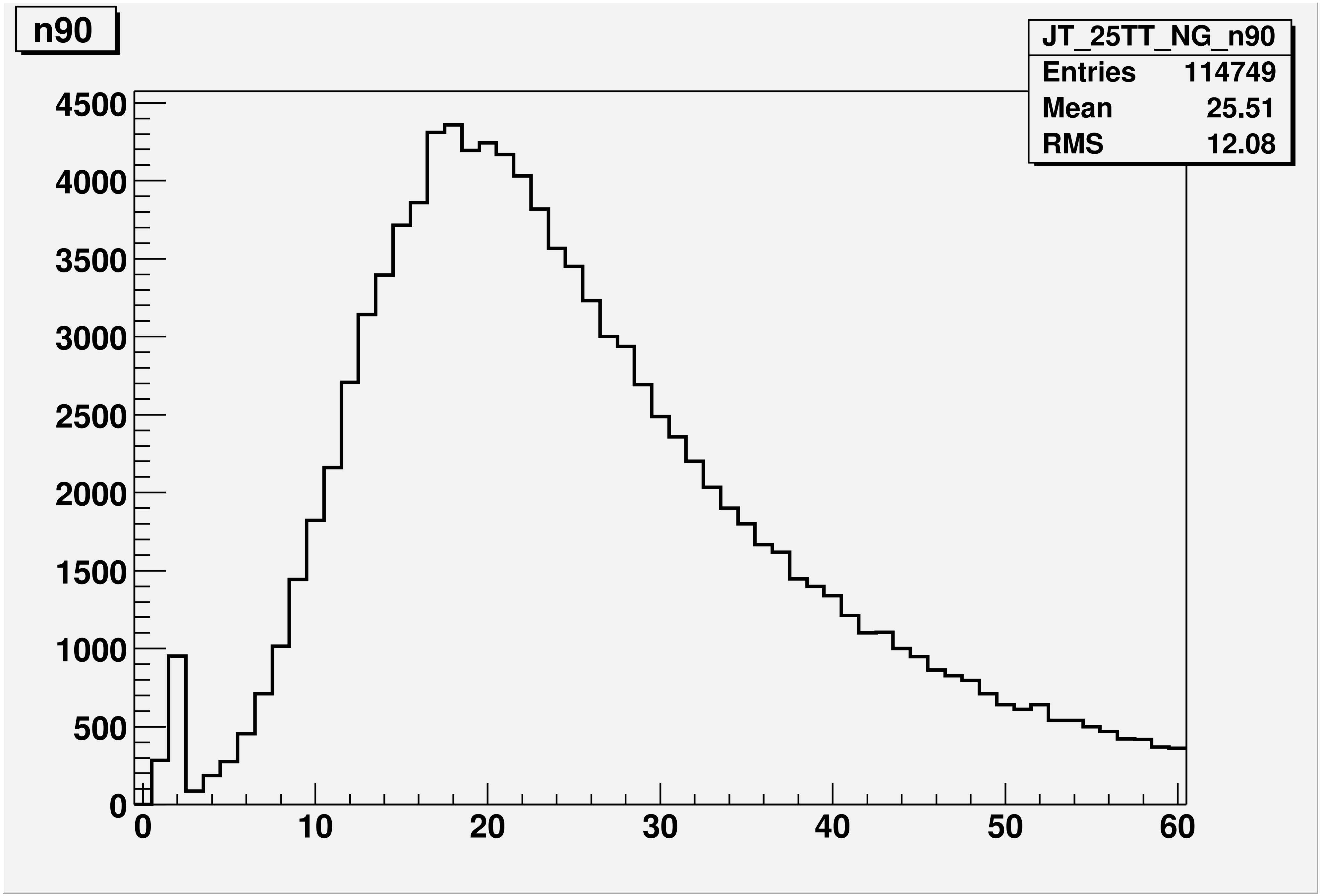

mc_e_cal_vs_iphi_lyr2
Entries 19615
Mean x 32.72
Mean y 0.001086
RMS x 18.52
RMS y 0.06573
E_{cal} [GeV]
iphi


data_e_cal_vs_iphi_lyr2
Entries 117592
Mean x 31.74
Mean y -0.001054
RMS x 18.46
RMS y 0.08092
E_{cal} [GeV]
iphi

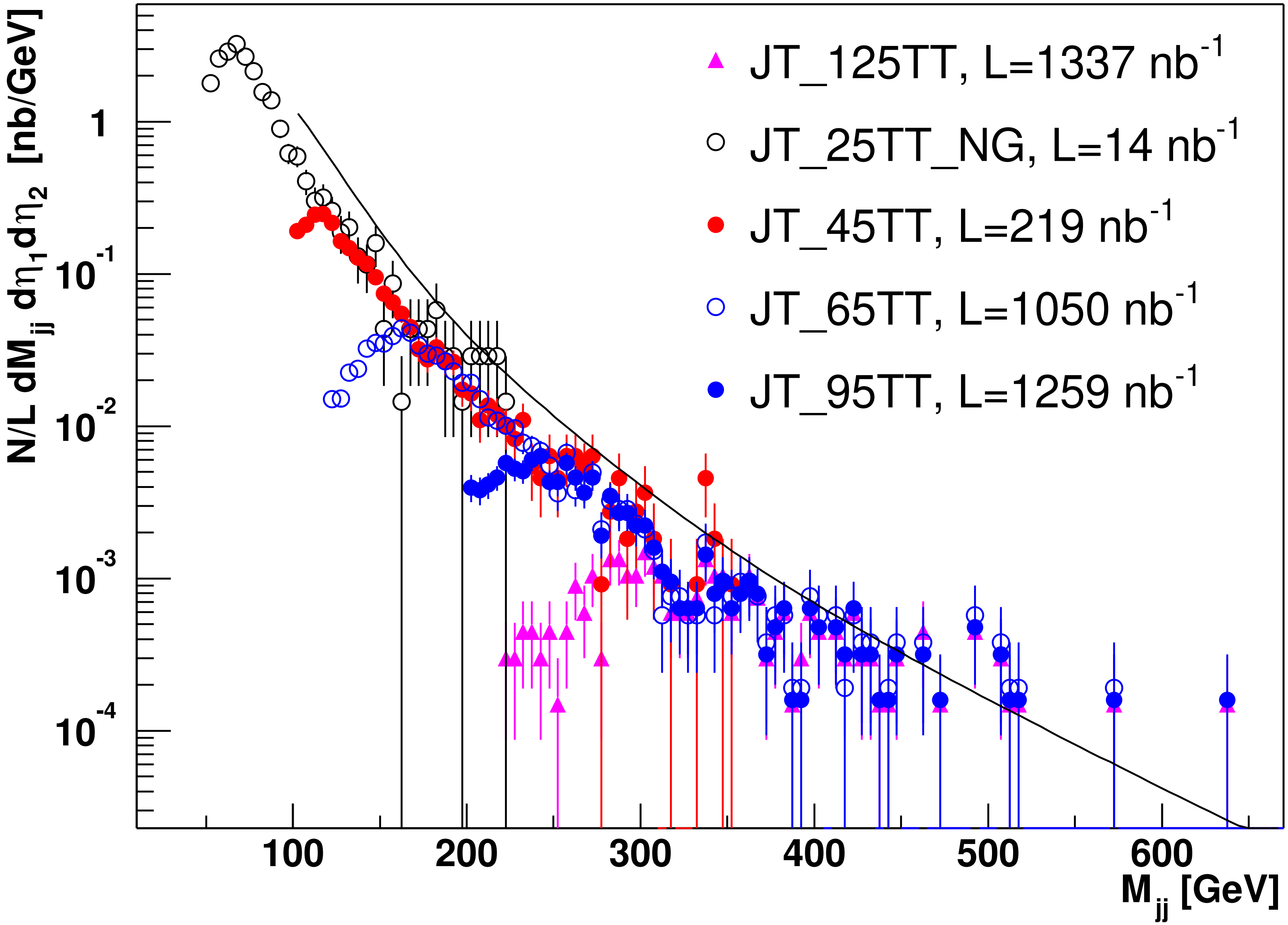
layer 11


data_e_cal_lyr11
0≤ ieta≤ 4
p13.02_serban_mu20
data/zero_bias
Entries 4889
Mean 0.04761
RMS 0.255
E_{cal}[GeV]
data_occupancy_lyr11
Entries 162460
Mean -0.446
RMS 26.32
ieta
mc_e_cal_vs_ieta_lyr11
Entries 29478
Mean x -0.1462
Mean y 0.005788
RMS x 20.04
RMS y 0.2349
E_{cal} [GeV]
data_e_cal_vs_ieta_lyr11
Entries 162460
Mean x -0.7023
Mean y 0.01856
RMS x 25.11
RMS y 0.2533
mc_e_cal_vs_iphi_lyr11
Entries 29478
Mean x 32.55
Mean y 0.005788
RMS x 18.46
RMS y 0.2349
iphi
data_e_cal_vs_iphi_lyr11
Entries 162460
Mean x 31.91
Mean y 0.01856
RMS x 18.14
RMS y 0.2533

n90 JT_25TT_NG



dijet mass



JT_125TT, L=1337 nb^{-1}
JT_25TT_NG, L=14 nb^{-1}
JT_45TT, L=219 nb^{-1}
JT_65TT, L=1050 nb^{-1}
JT_95TT, L=1259 nb^{-1}
N/L dM$_{jj}$ dη_1dη_2 [nb/GeV]
1
10^{-1}
10^{-2}
10^{-3}
10^{-4}
100
200
300
400
500
600
M$_{jj}$ [GeV]