Events with forward rapidity gaps

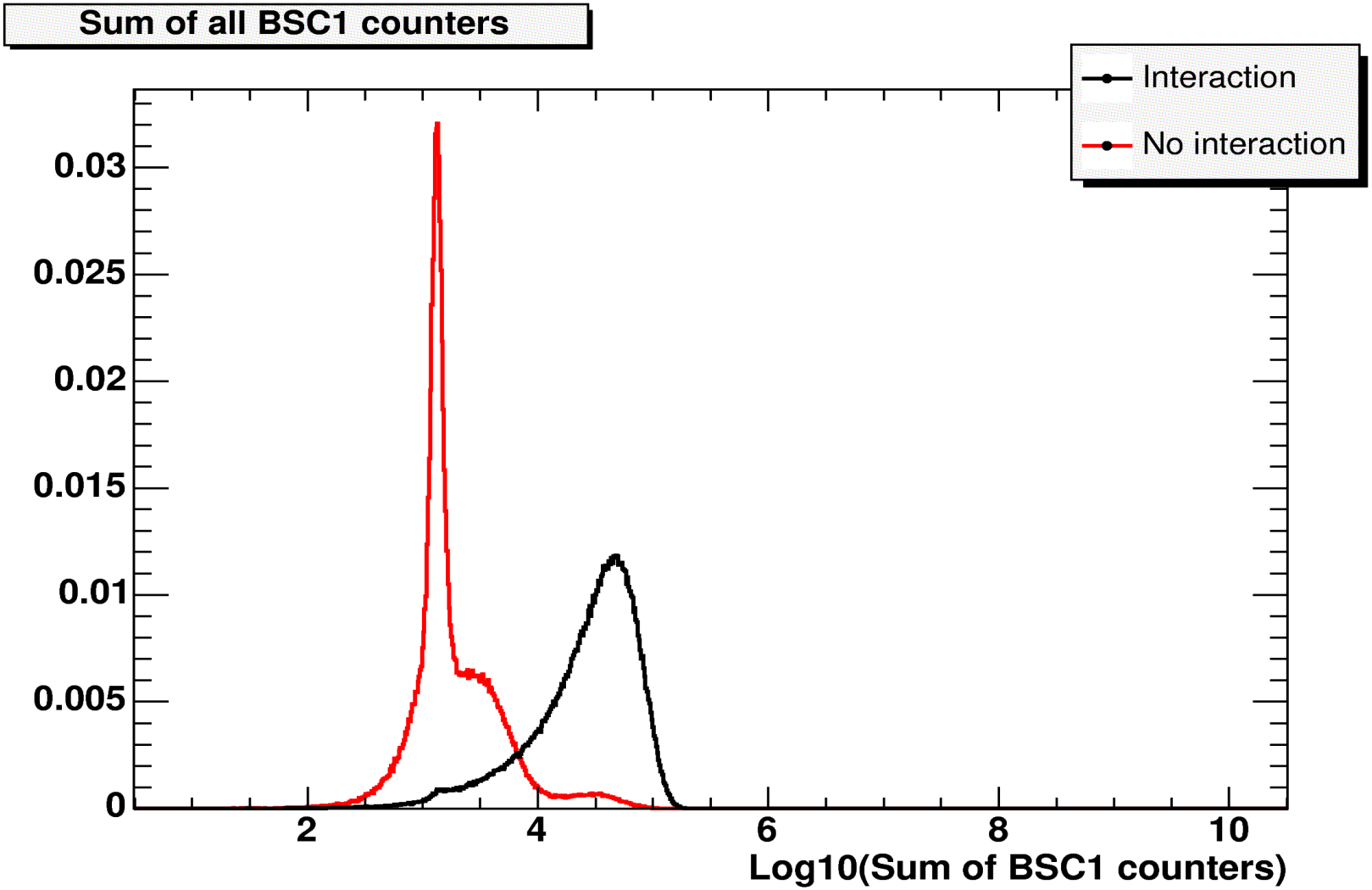
- Trigger development
- Data from 277460 test run
- Some interesting events

- Run 277460:
- Date: 2009.06.12
- BSC1 veto, CLC veto, 2EM > 0.25 GeV
- Nevents: 147275
- Time: 00:05:05.1
- Luminosity: 80E30 (<n> ~ 2.5)

Artur Swiech

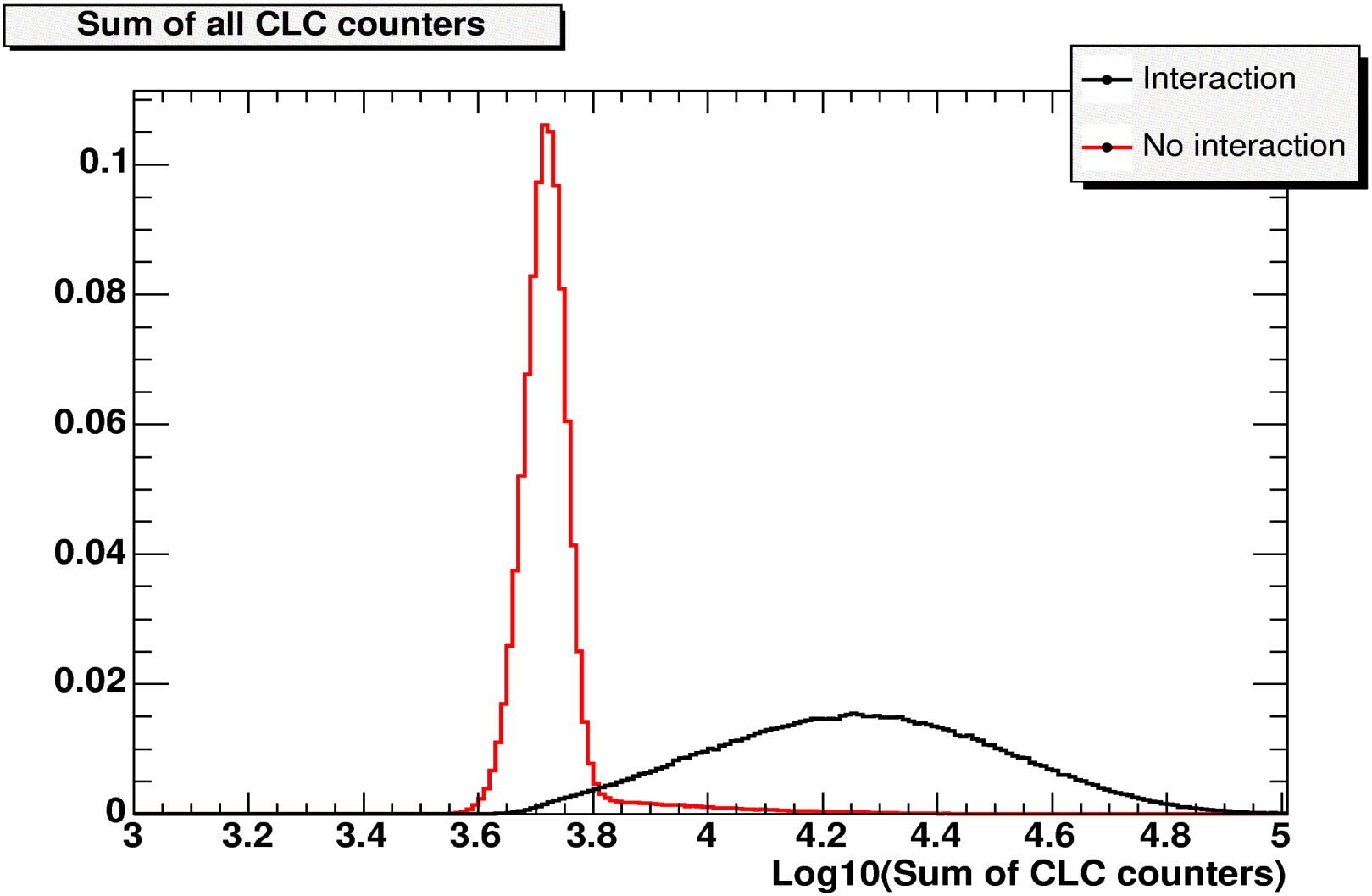
Trigger development

BSC1 sum with/without tracks in event
Cut made on Log10(2500)~3.4



Trigger development

CLC sum with/without tracks in event
Cut made on Log10(6300)~3.8



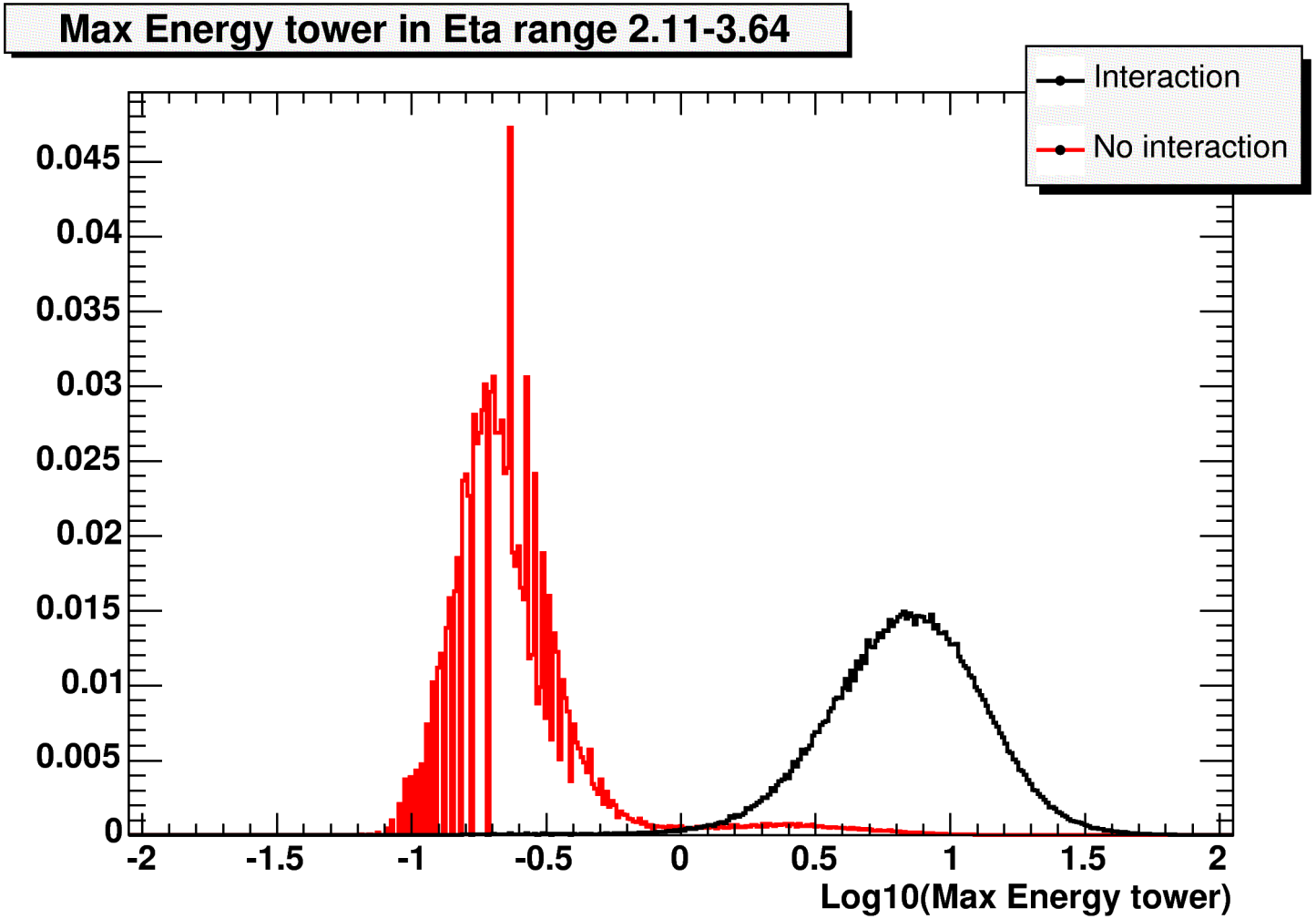
Trigger development

Plus to have something in detector
2EM showers > 0.25 GeV

- Event rate after cuts in 0Bias data(periods 1-4):
- 1150407 - 100% - no cuts
- 573384 - 49.8% - BSC1 sum < 2500
- 410363 - 35.7% - CLC sum < 6300
- 3904 - 0.34% - 2 EM towers > 0.25 GeV

Trigger development

Max calorimeter tower in Eta range 2.11-3.64
with/without tracks in event
Cut suggestion on Log10(-0.1)~0.8 GeV



Trigger development

Plus 2.11-3.64 Eta region to have bigger gap

- Event rate after cuts in 0Bias data:
- 1150407 - 100% - no cuts
- 573384 - 49.8% - BSC1 sum < 2500
- 410363 - 35.7% - CLC sum < 6300
- 3904 - 0.34% - 2 EM towers > 0.25 GeV
- 366 - 0.032% - Max Energy tower in 2.11-3.64 eta range < 0.8 GeV *(optional, wasn't in trigger)*

Data from 277460 test run

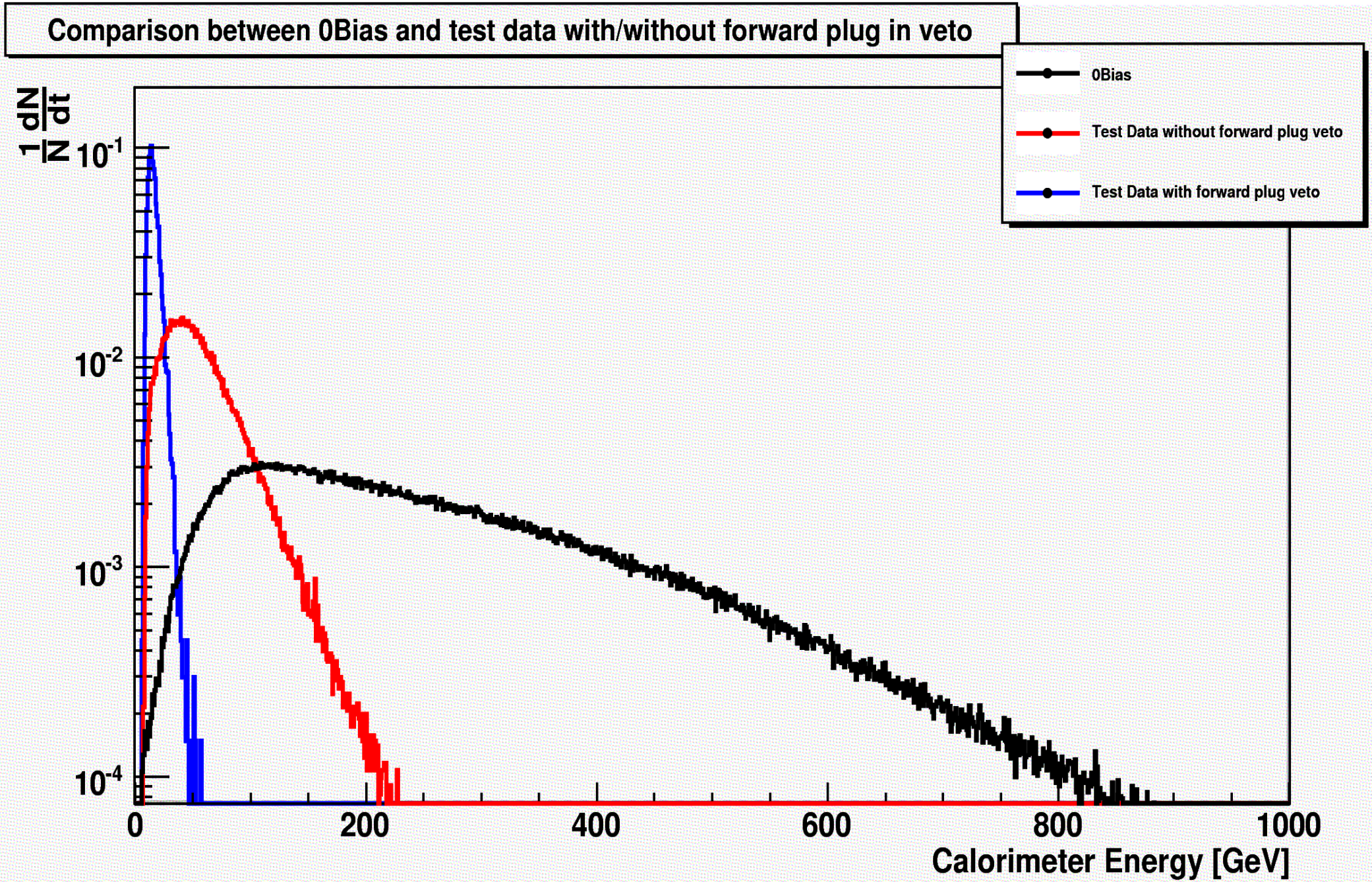
Same cuts to clean after L1 trigger.

- Event rate after cuts in 0Bias data:
- 147235 - 100% - no cuts
- 135667 - 92.1% - BSC1 sum < 2500
- 121239 - 82.3% - CLC sum < 6300
- 121092 - 82.2% - 2 EM towers > 0.25 GeV
- 6737 - 4.6% - Max Energy tower in 2.11-3.64 eta range < 0.8 GeV *(optional, wasn't in trigger)*

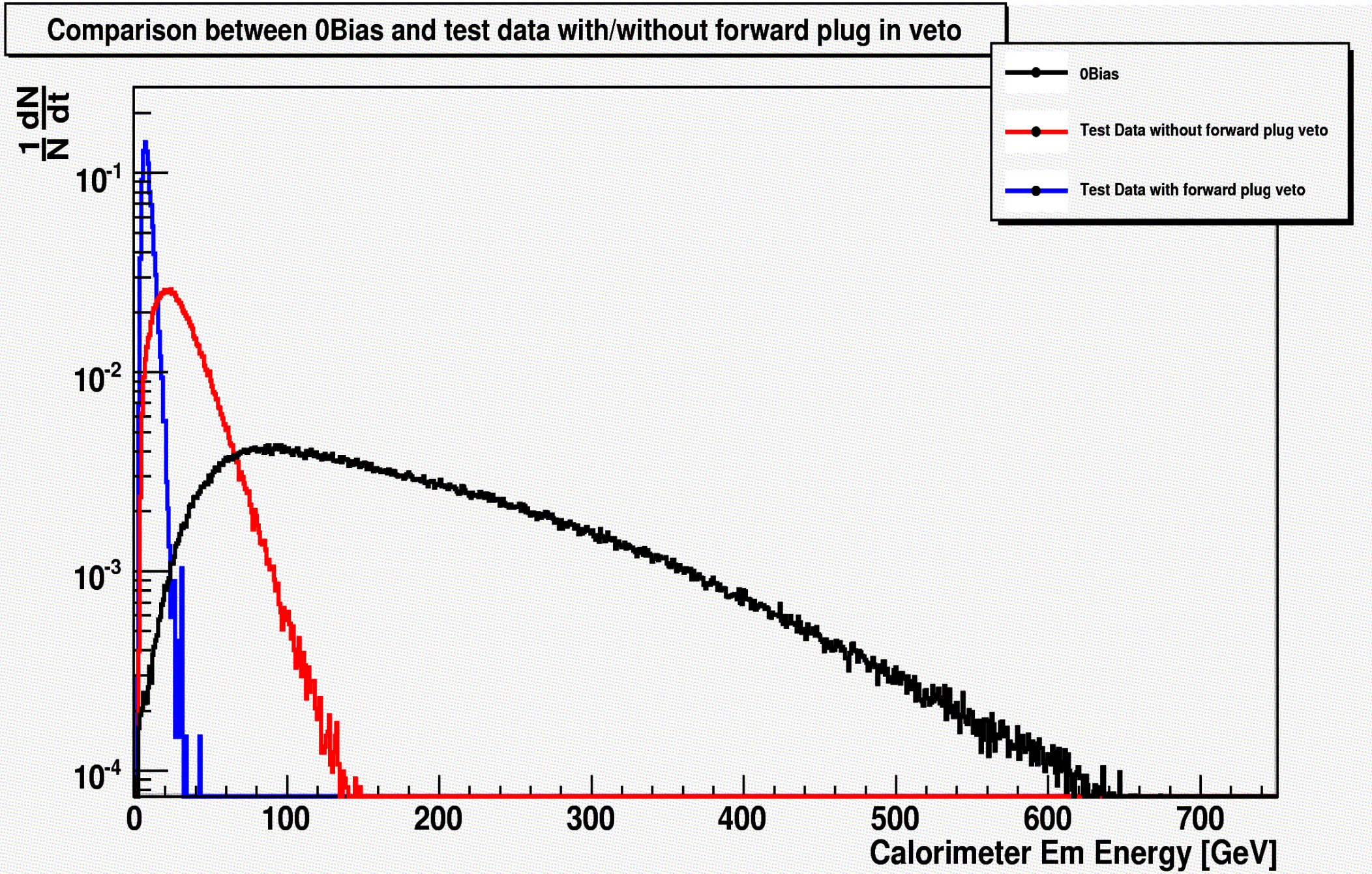
Additional requirment

Number of class 12 vertices <= 1.
Other classes to be investigated.
Forward gap requirment only for test data.
All histograms are normalized to 1.

Data from 277460 test run



Data from 277460 test run



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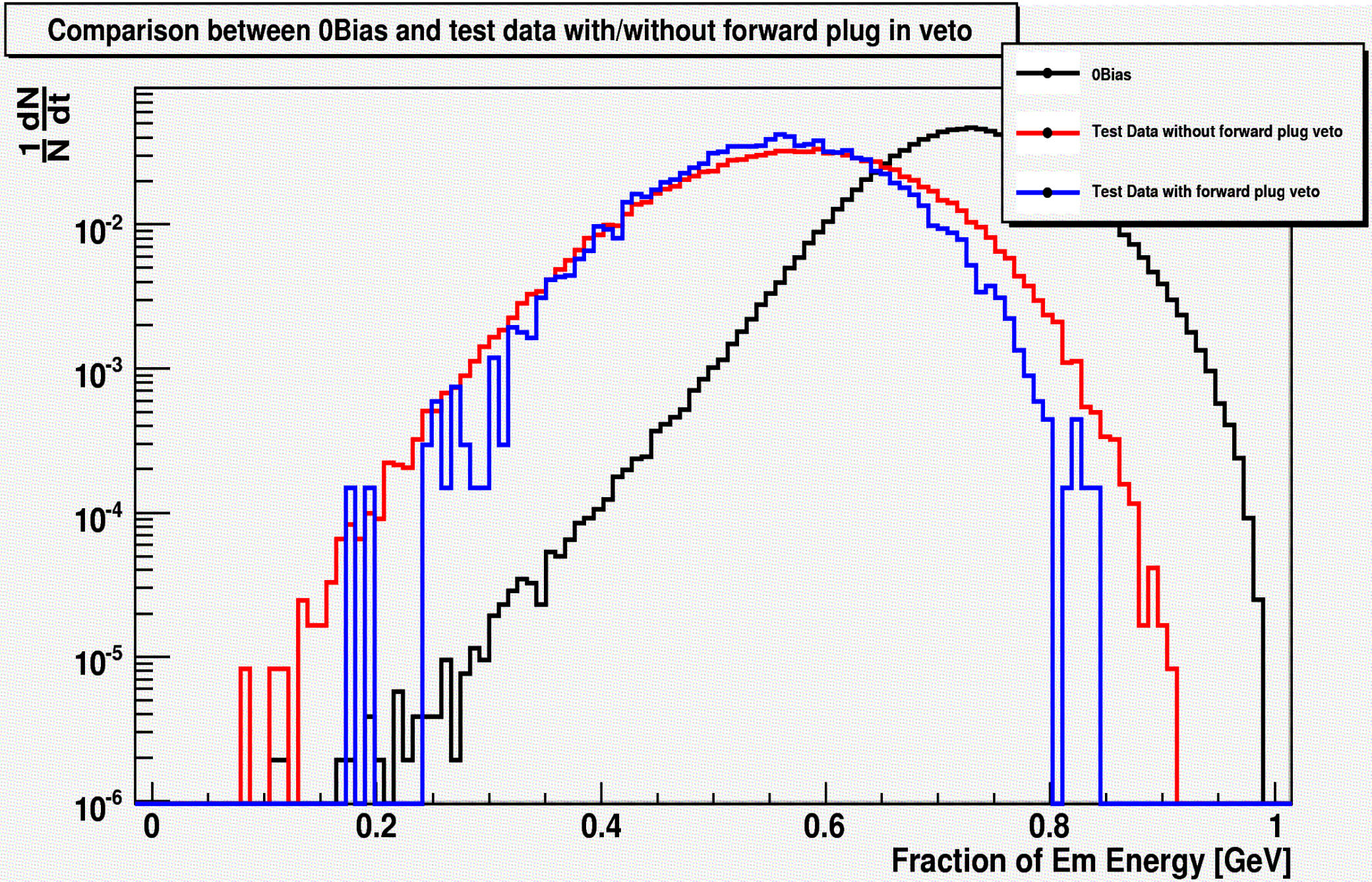

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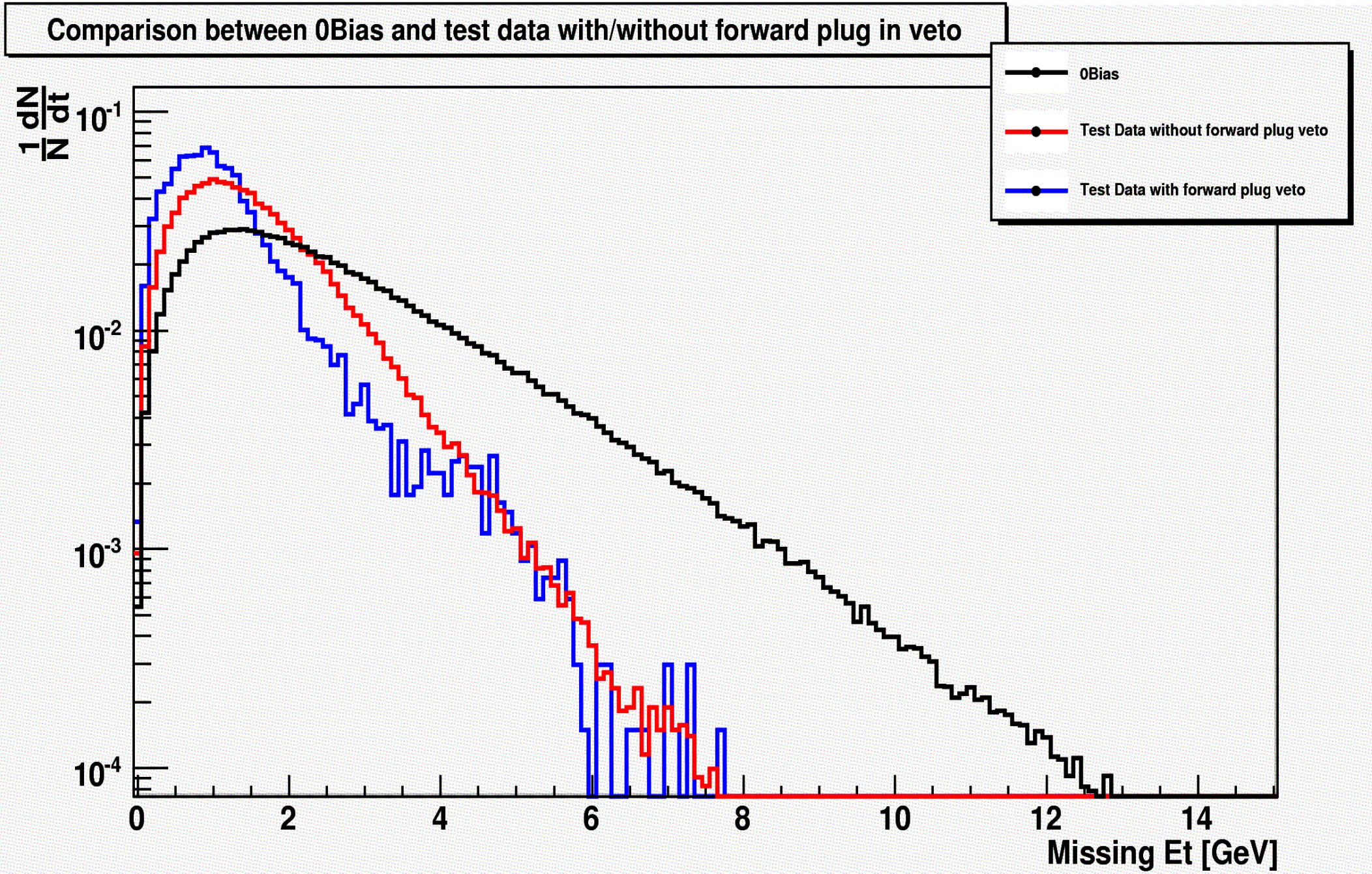

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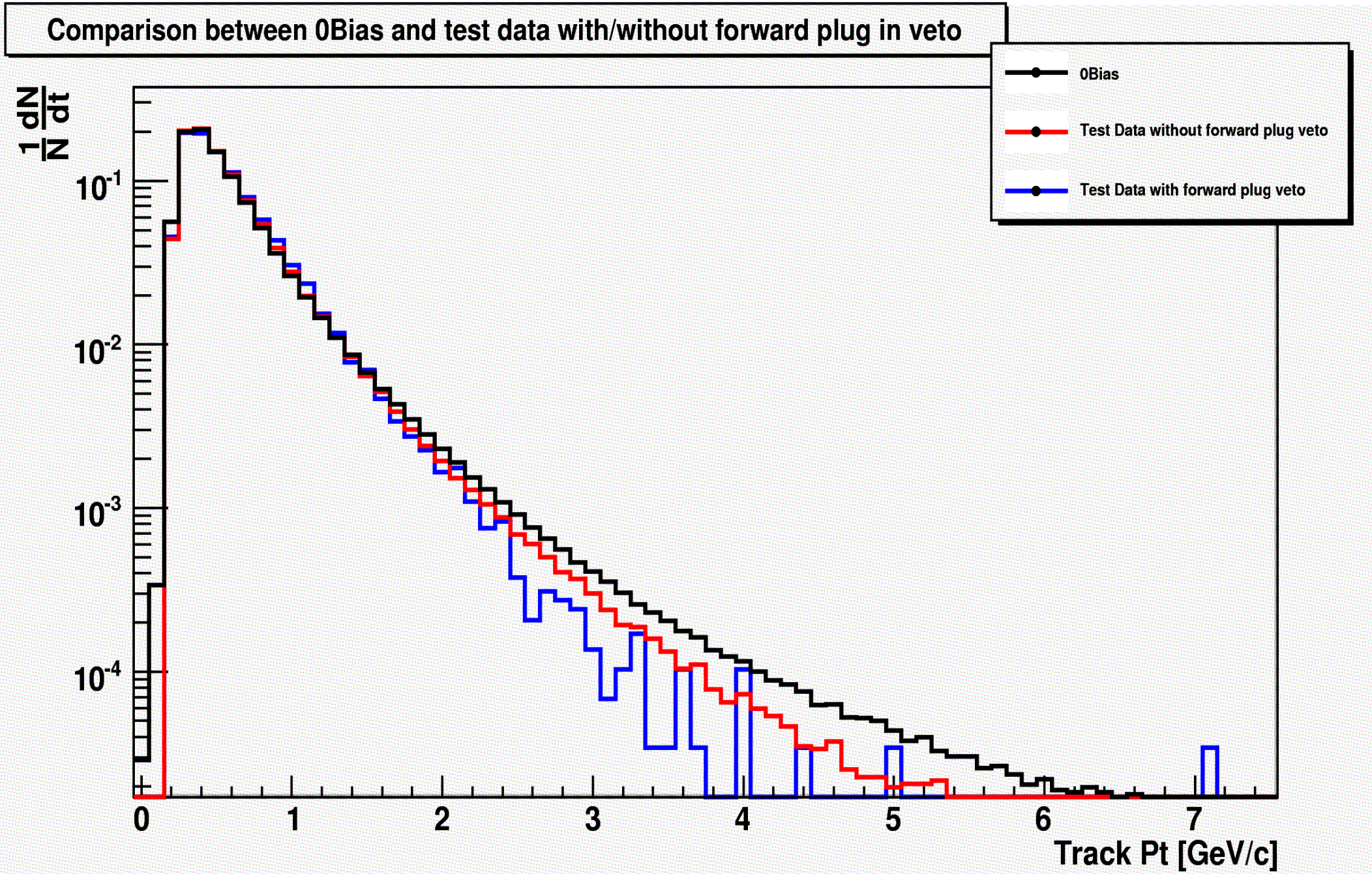
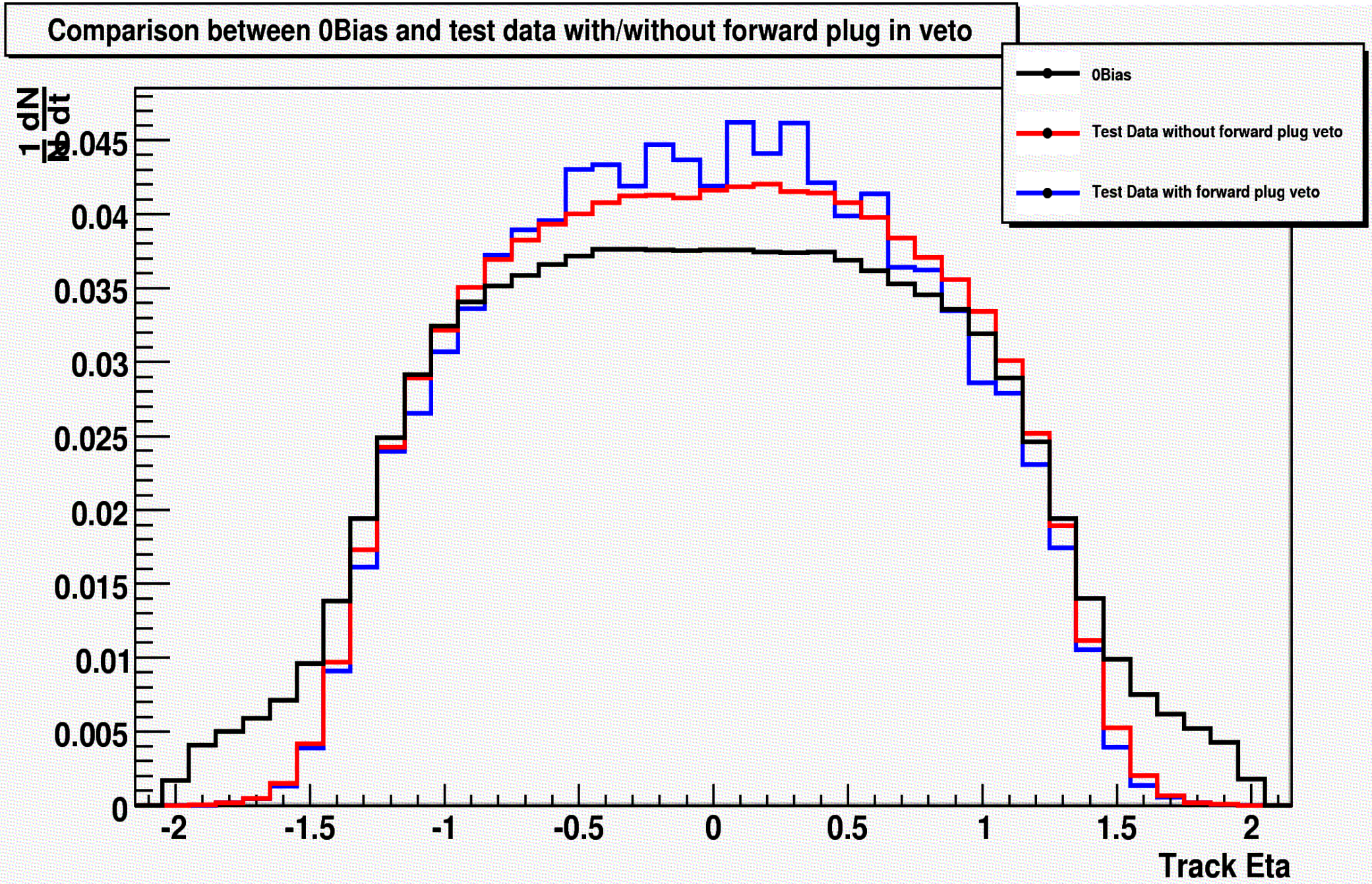


Data from 277460 test run



Some interesting events
Clean back to back DiJets

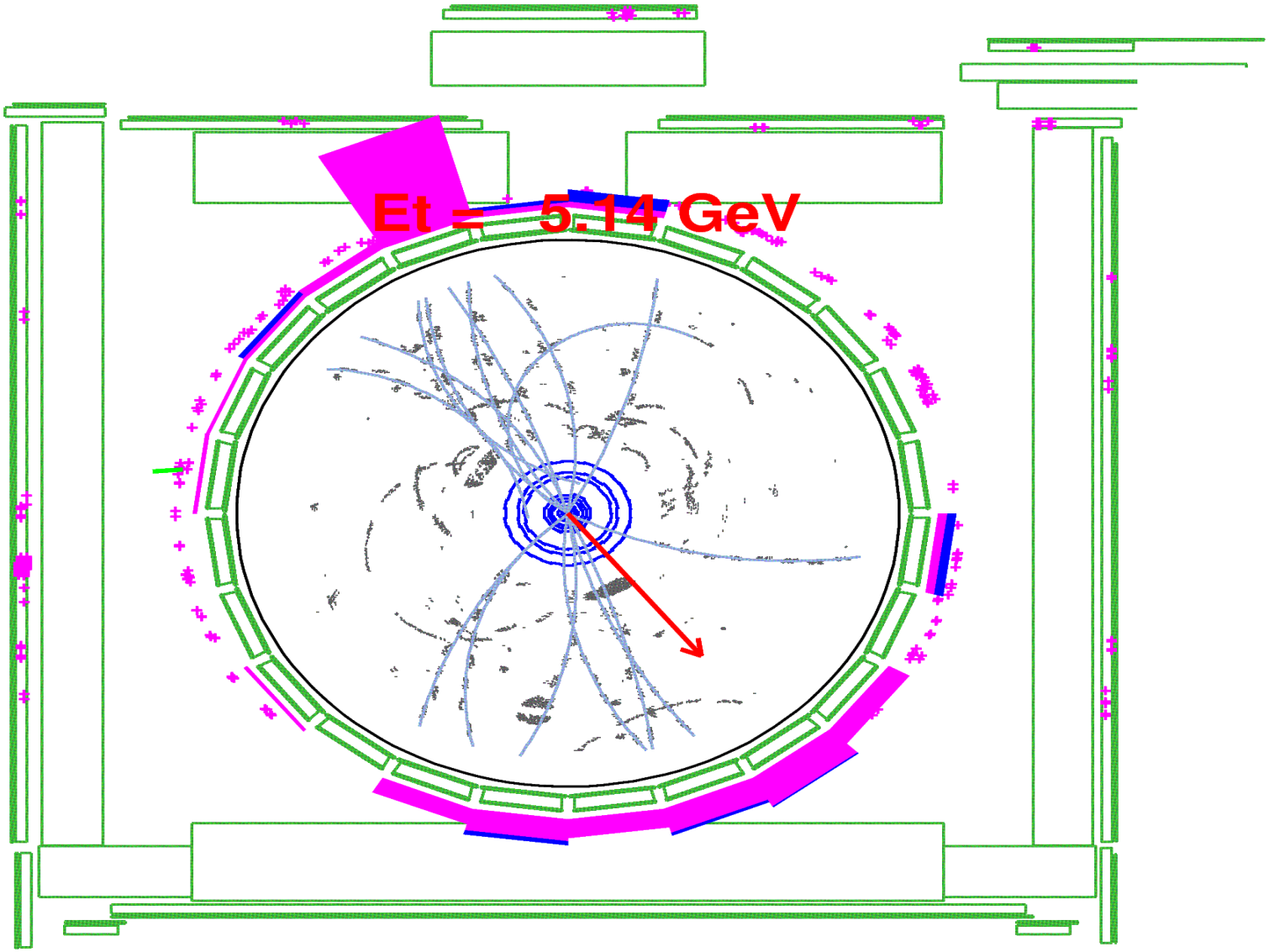
Event : 13434 Run : 277460 EventType : DATA | Unpresc: 5,7,23,55 Presc: 5,7

Missing Et
Et= 0.5 phi=5.4

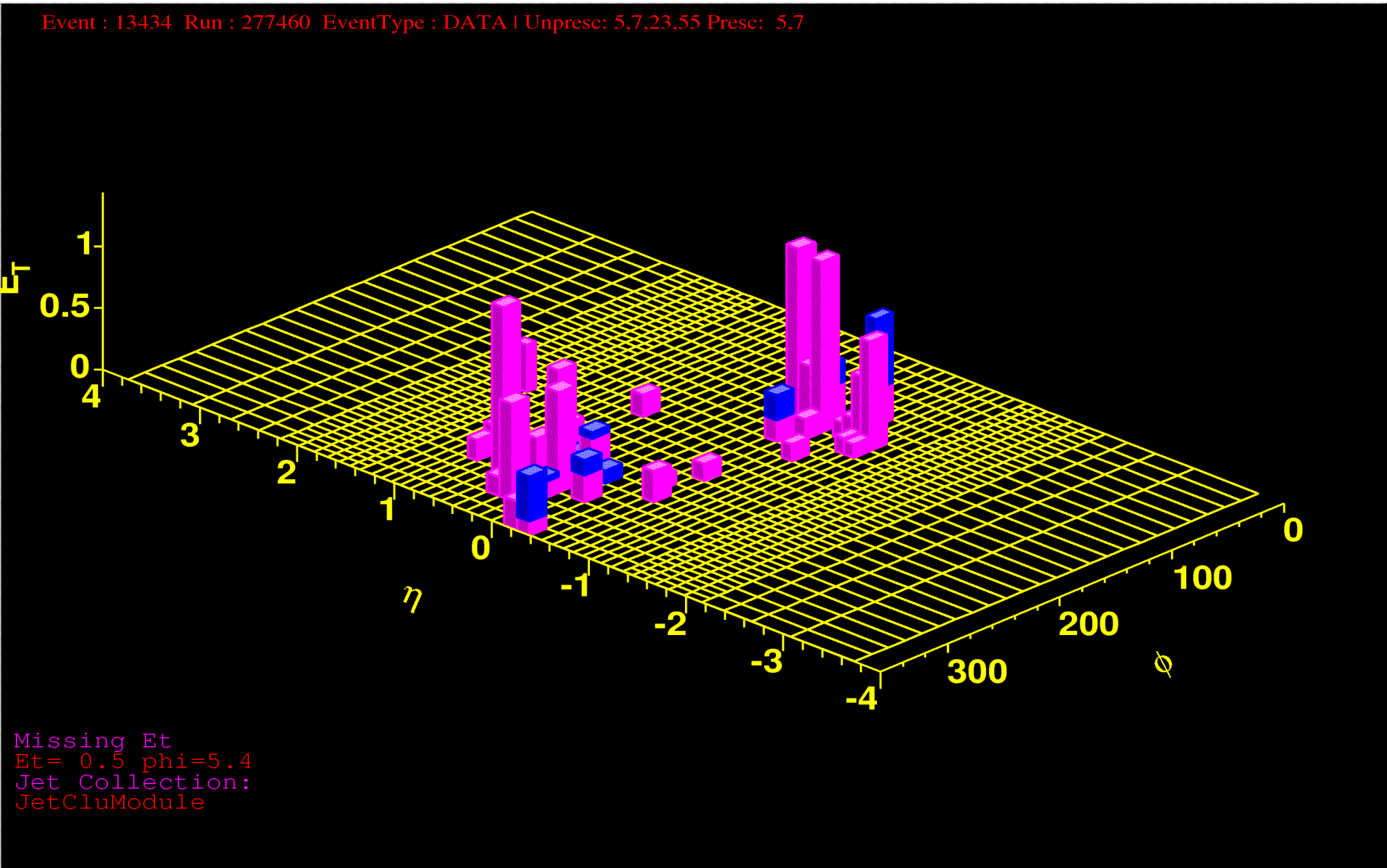
List of Tracks

Id	pt	phi	eta
Cdf Tracks: first 5			
63	-2.1	-1.1	0.8
64	2.1	1.8	-1.0
65	1.5	1.1	-0.7
66	1.2	-1.4	0.1
67	1.0	-2.4	0.6

To select track type
SelectCdfTrack(Id)



Some interesting events
Clean back to back DiJets



Some interesting events
High Et back to back DiJets

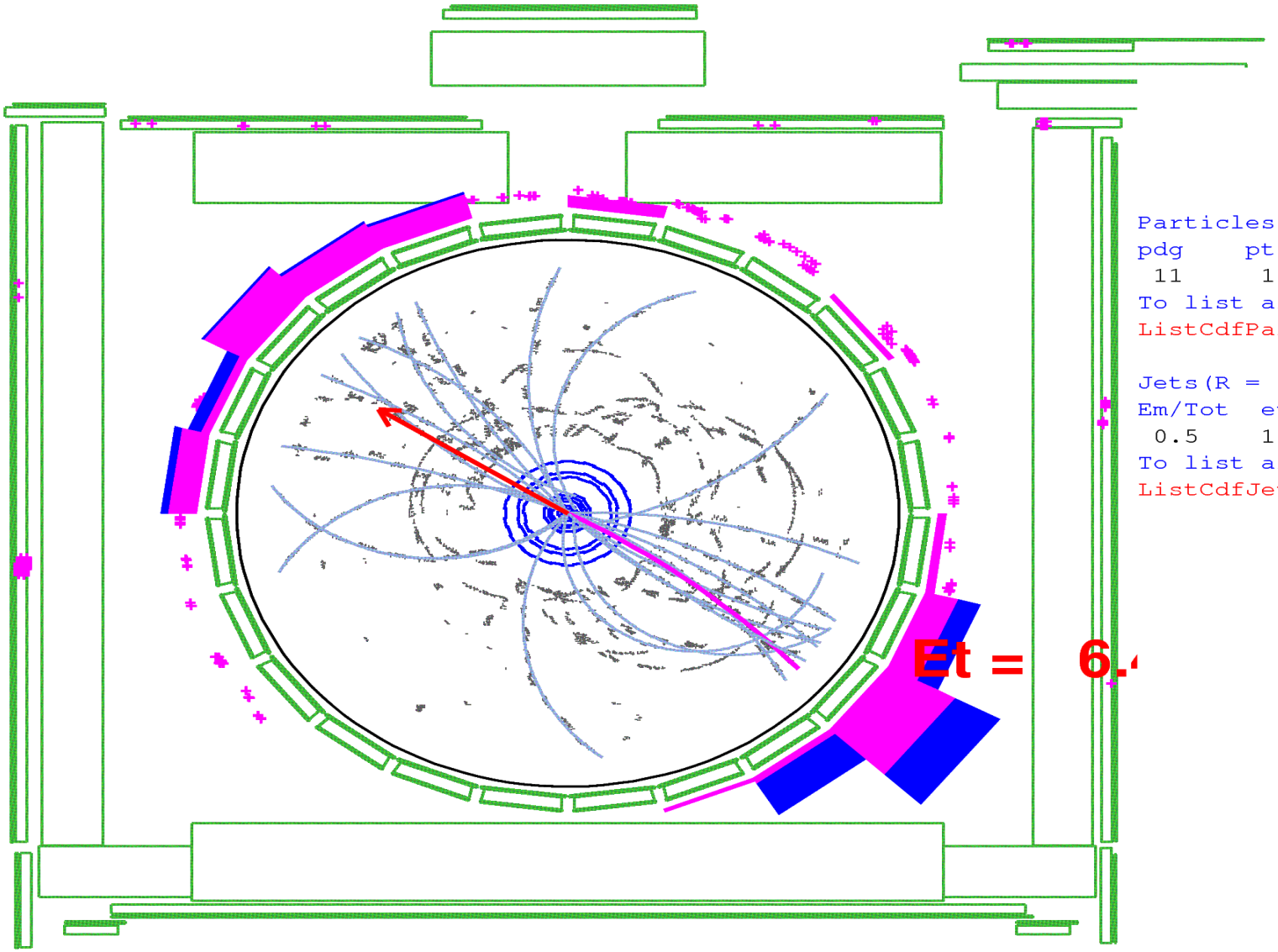
Event : 113578 Run : 277460 EventType : DATA | Unpresc: 5,7,23,55 Presc: 5,7

Missing Et
Et= 4.5 phi=2.6

List of Tracks

Id	pt	phi	eta
Cdf Tracks: first 5			
103	2.5	-0.8	-0.4
104	2.1	2.7	0.7
105	-1.7	-0.5	-0.7
106	-1.7	2.3	0.6
107	1.6	2.4	0.7

To select track type
SelectCdfTrack(Id)



Particles: first 5

pdg	pt	phi	eta
11	1.7	5.8	-0.7

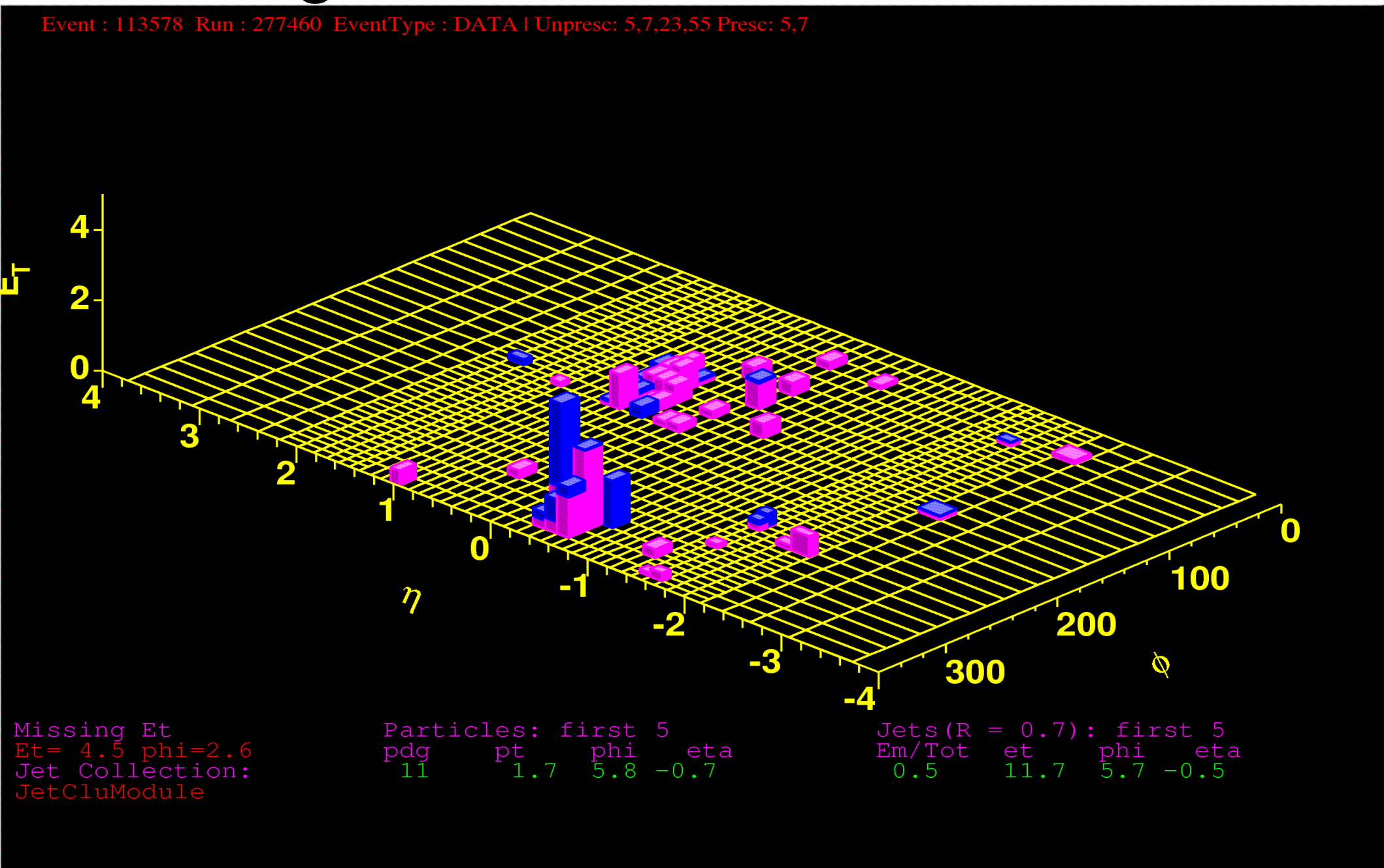
To list all particles
ListCdfParticles()

Jets(R = 0.7): first

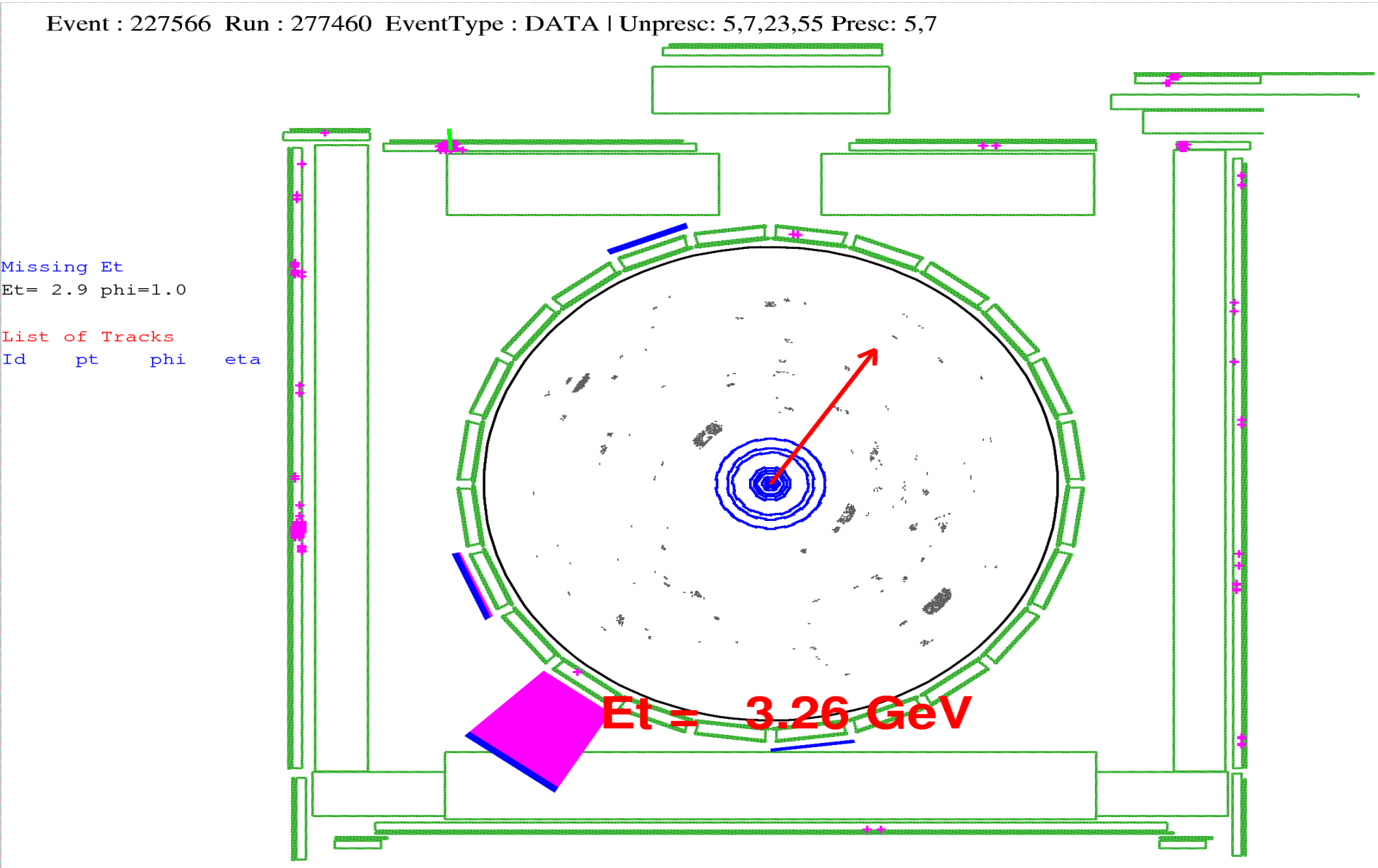
Em/Tot	et	phi	et
0.5	11.7	5.7	-0.

To list all jets
ListCdfJets()

Some interesting events
High Et back to back DiJets



Some interesting events
No tracks, 17 Pi0's – beam halo



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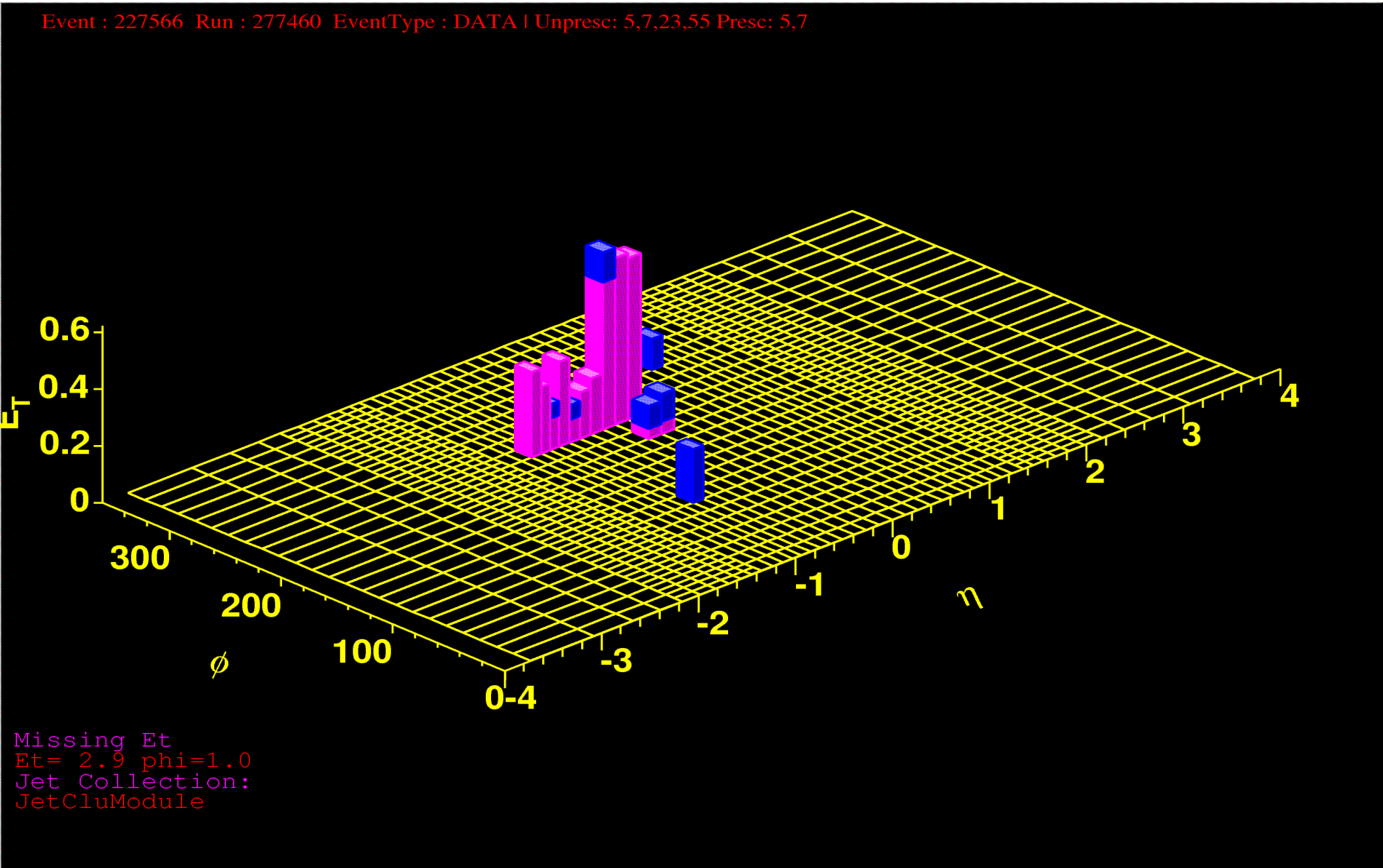
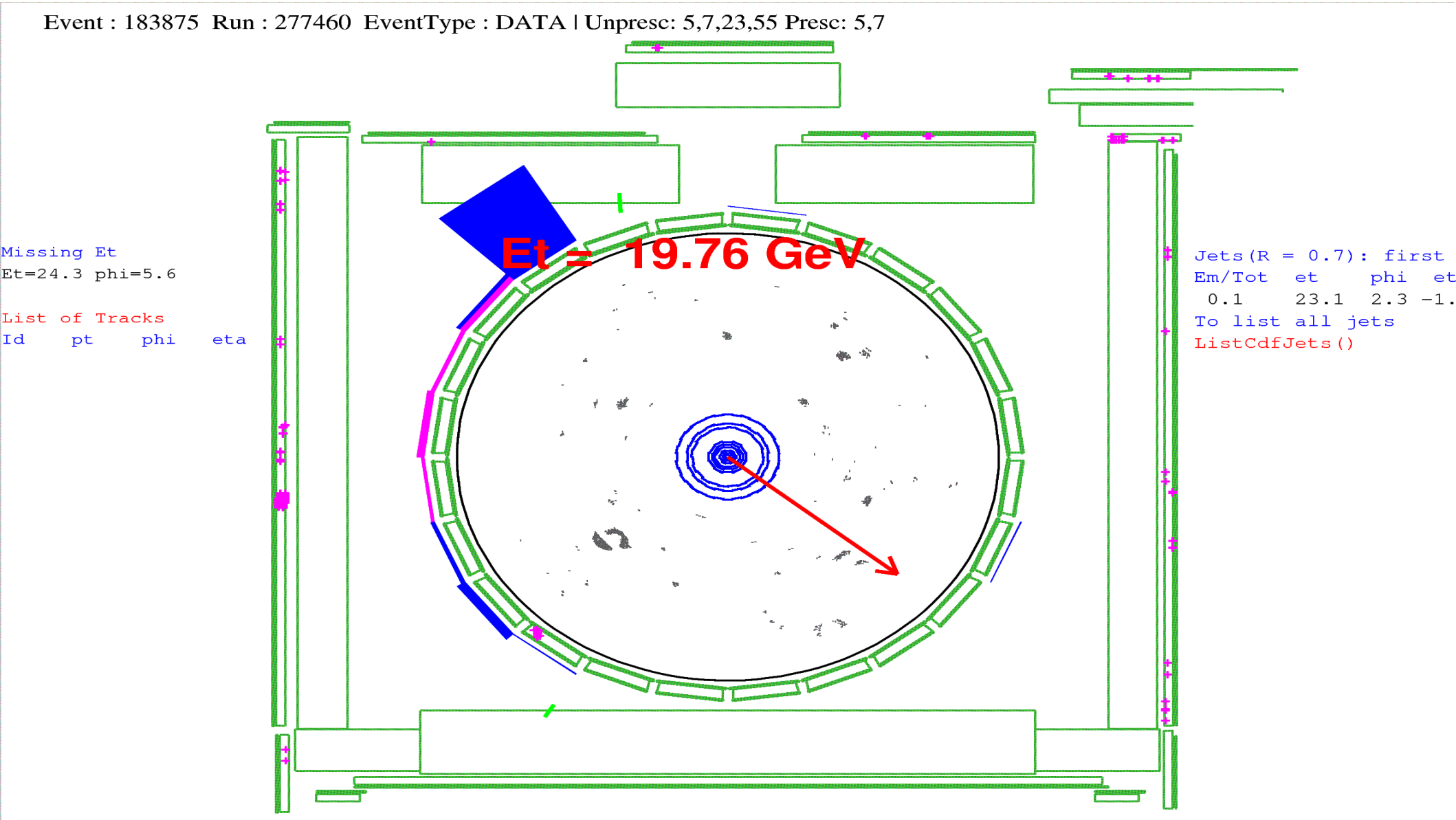


Some interesting events
Most energetic Jet after cuts – cosmic ray



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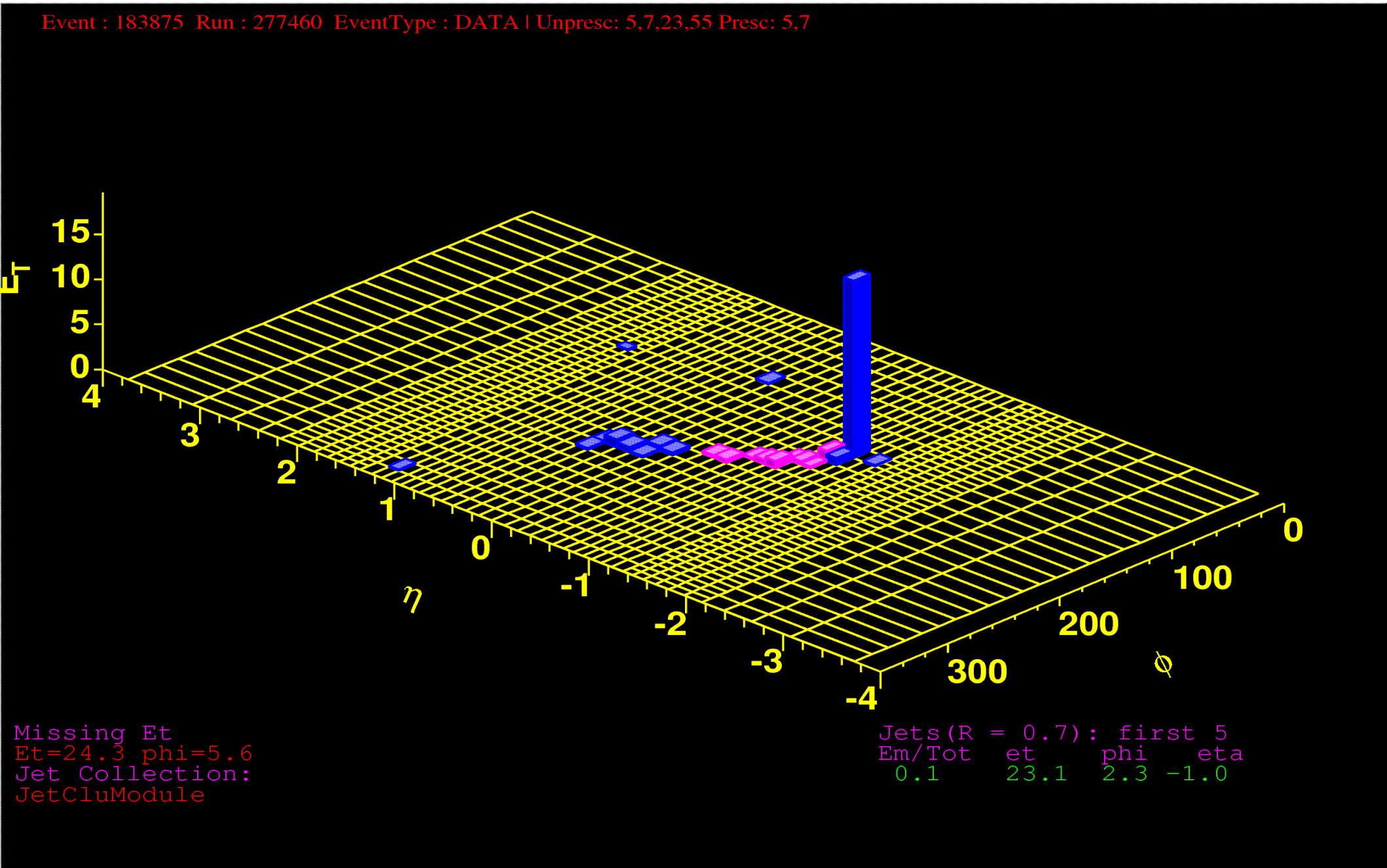
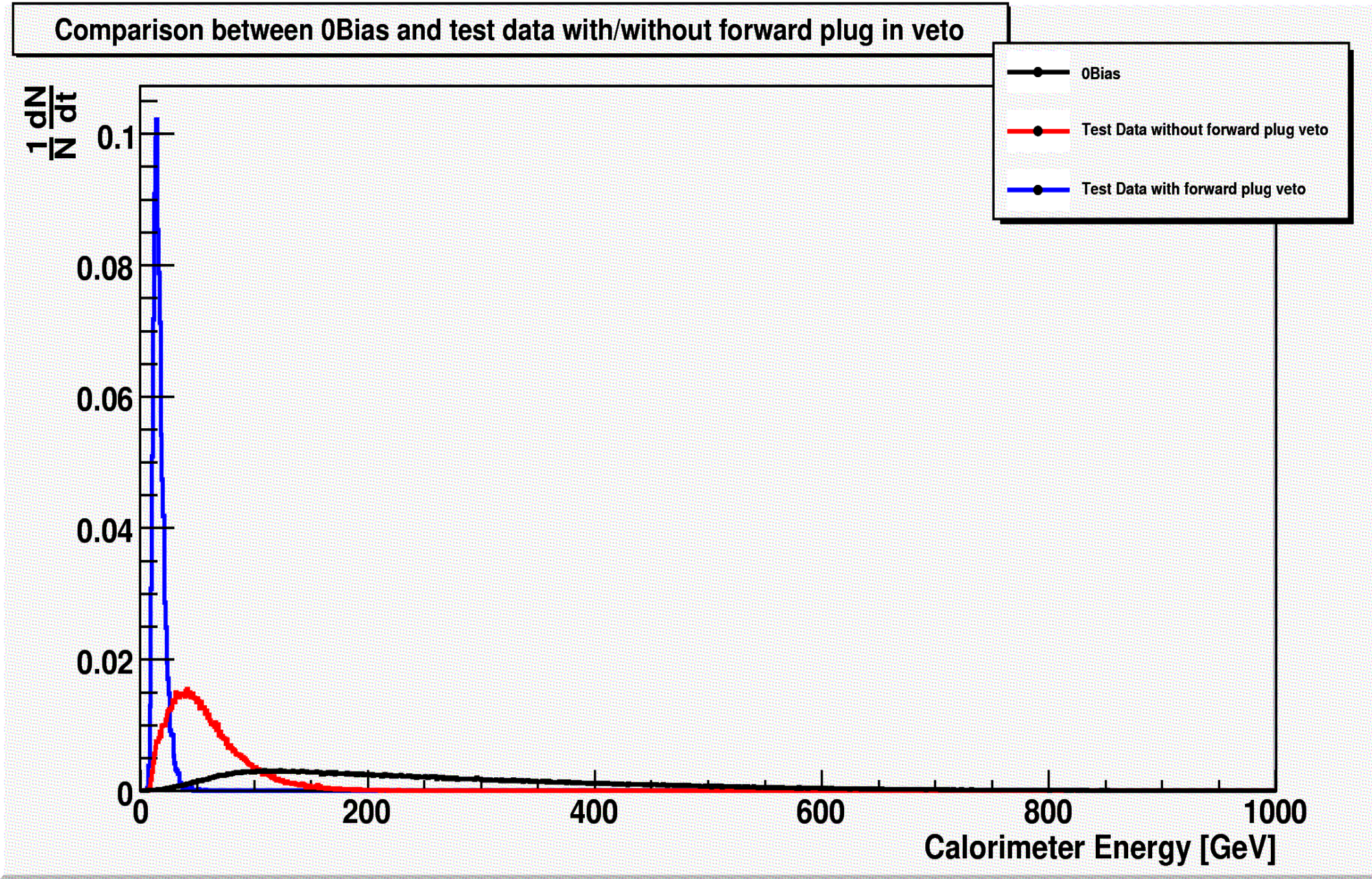
Most energetic Jet after cuts – cosmic ray



The end (of presentation)

Backup slides

Data from 277460 test run



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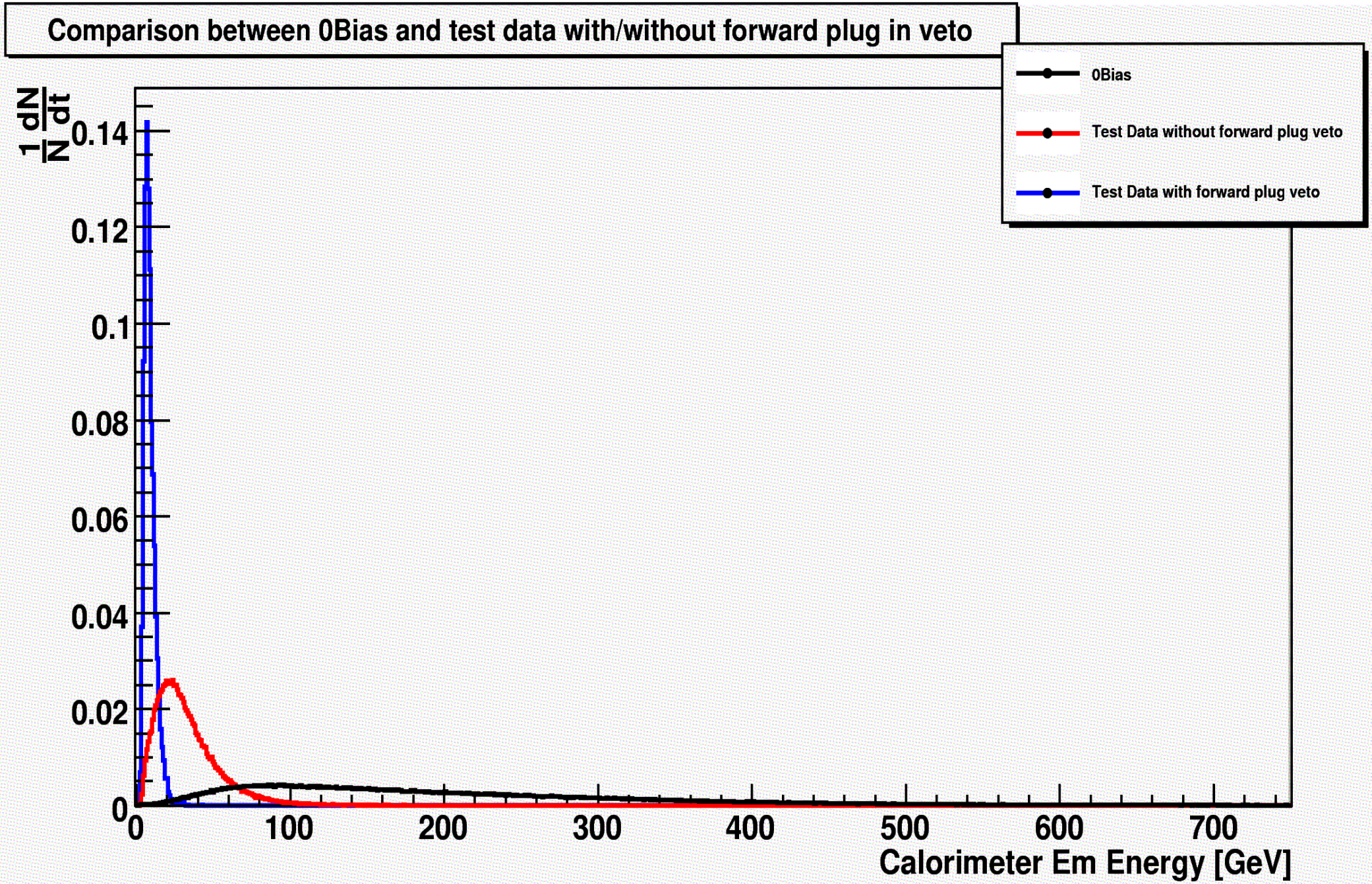
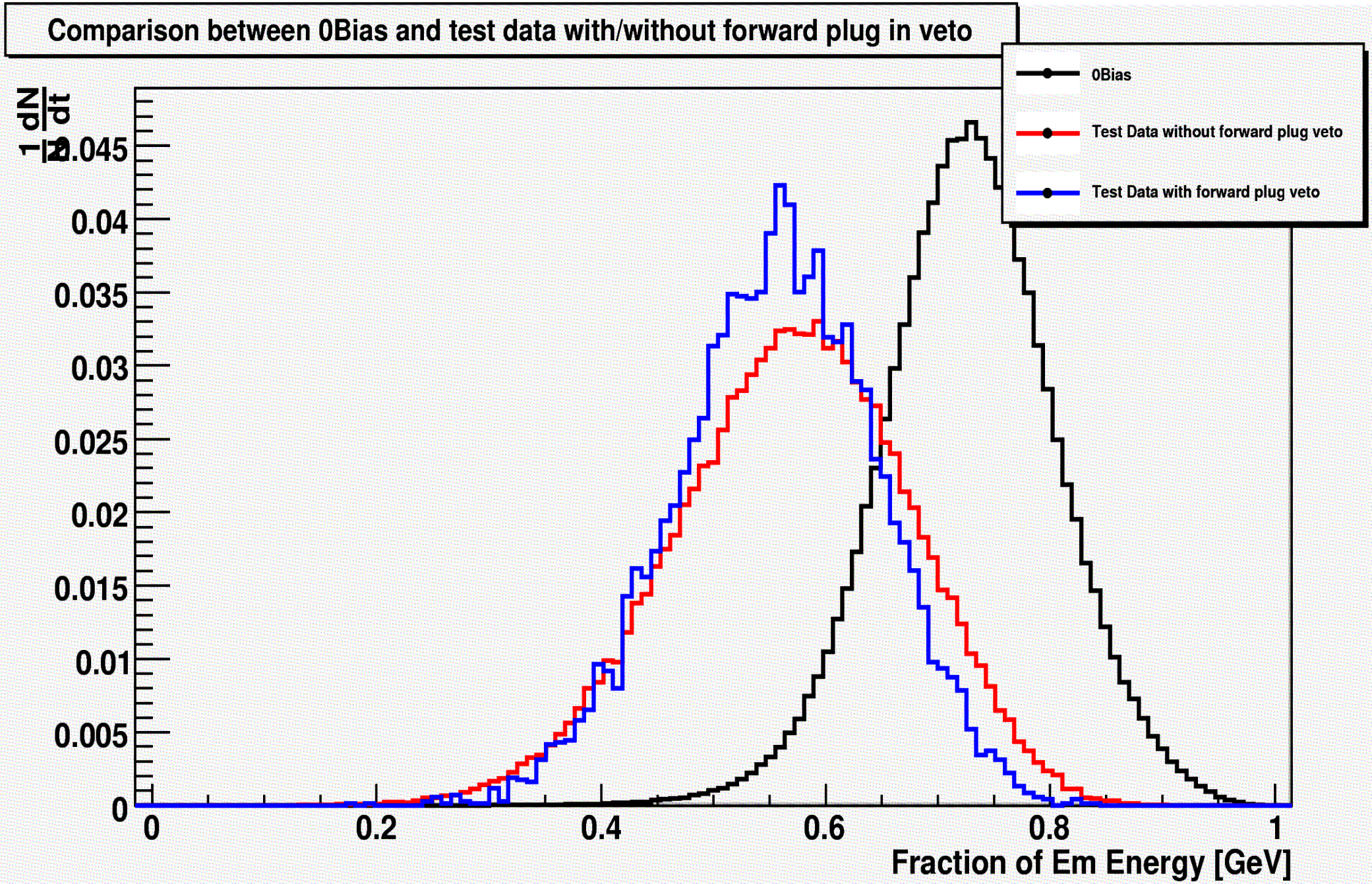
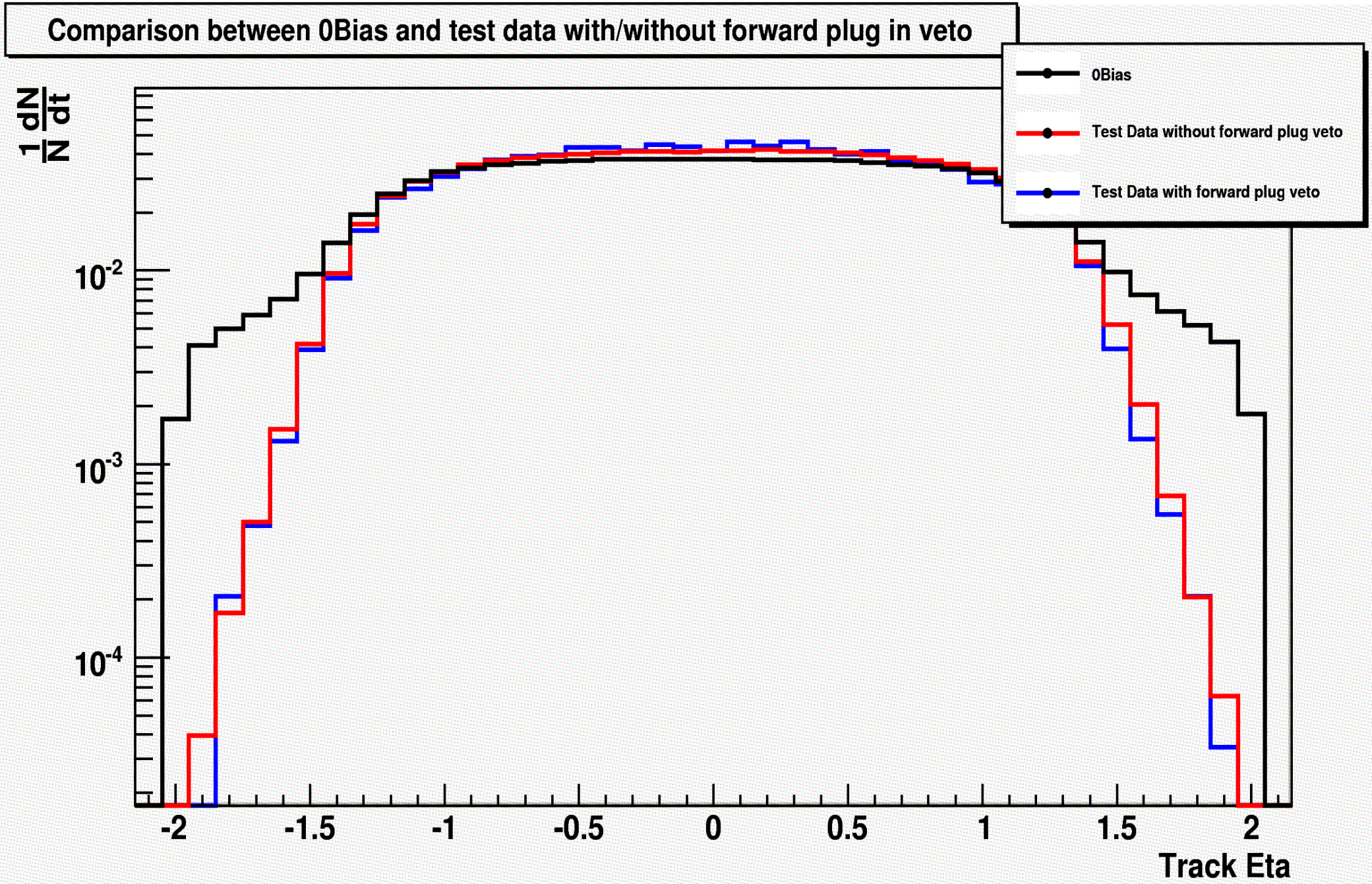


Data from 277460 test run



Data from 277460 test run