Jet Reconstruction Efficiencies

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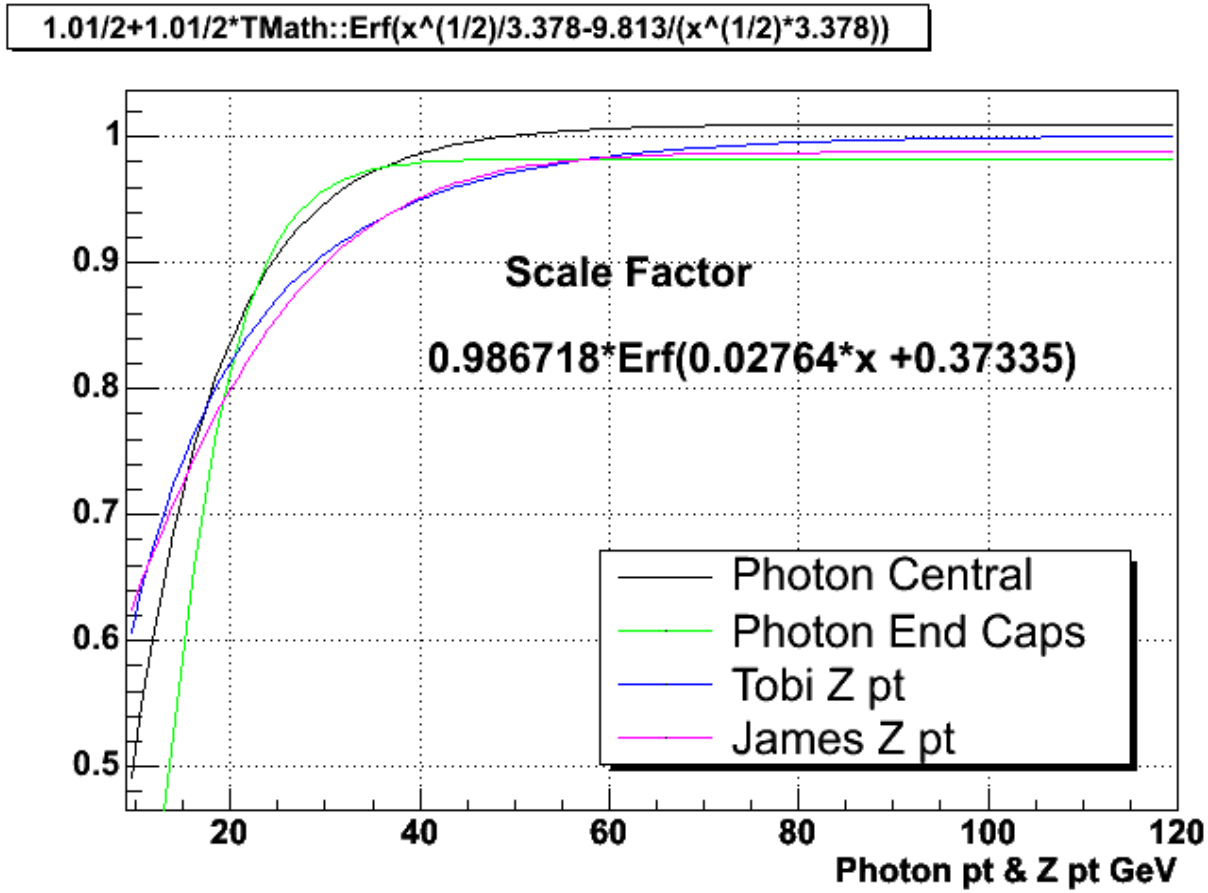
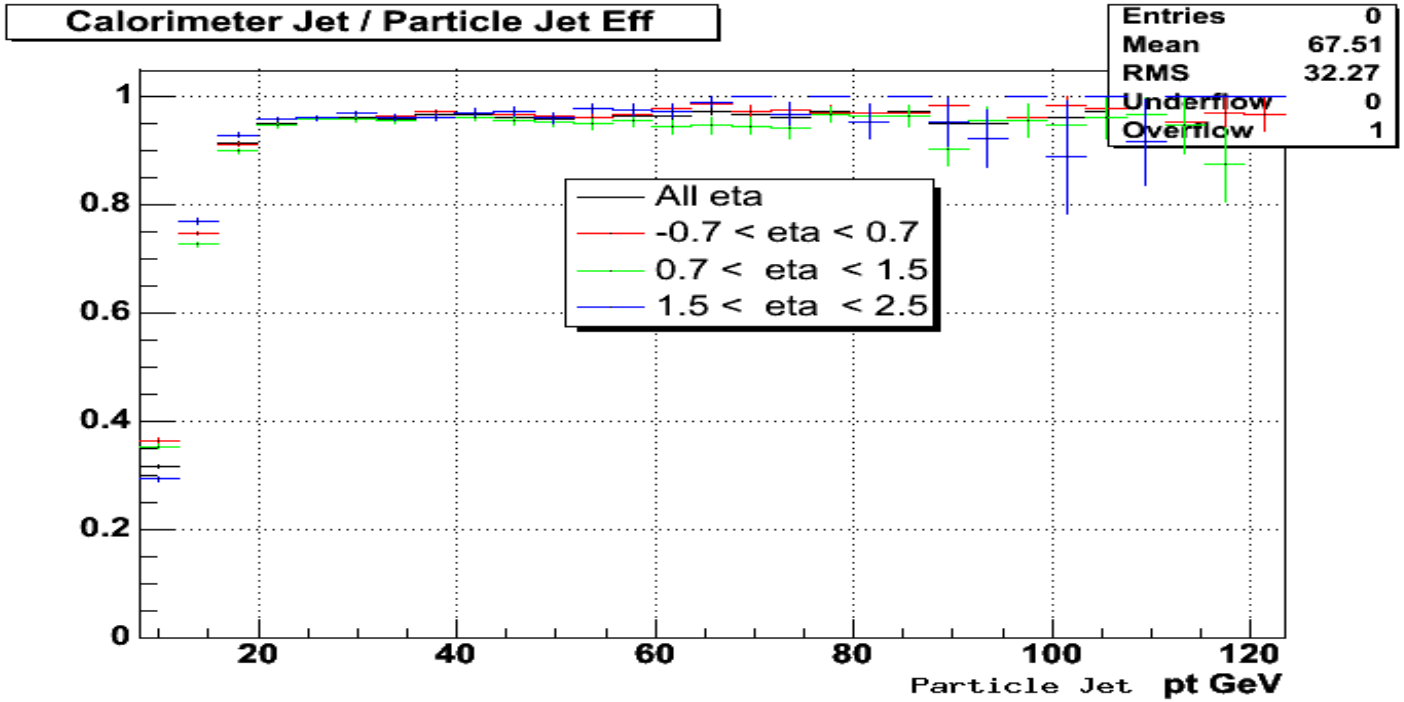
14SEP04
CALGO

Outline

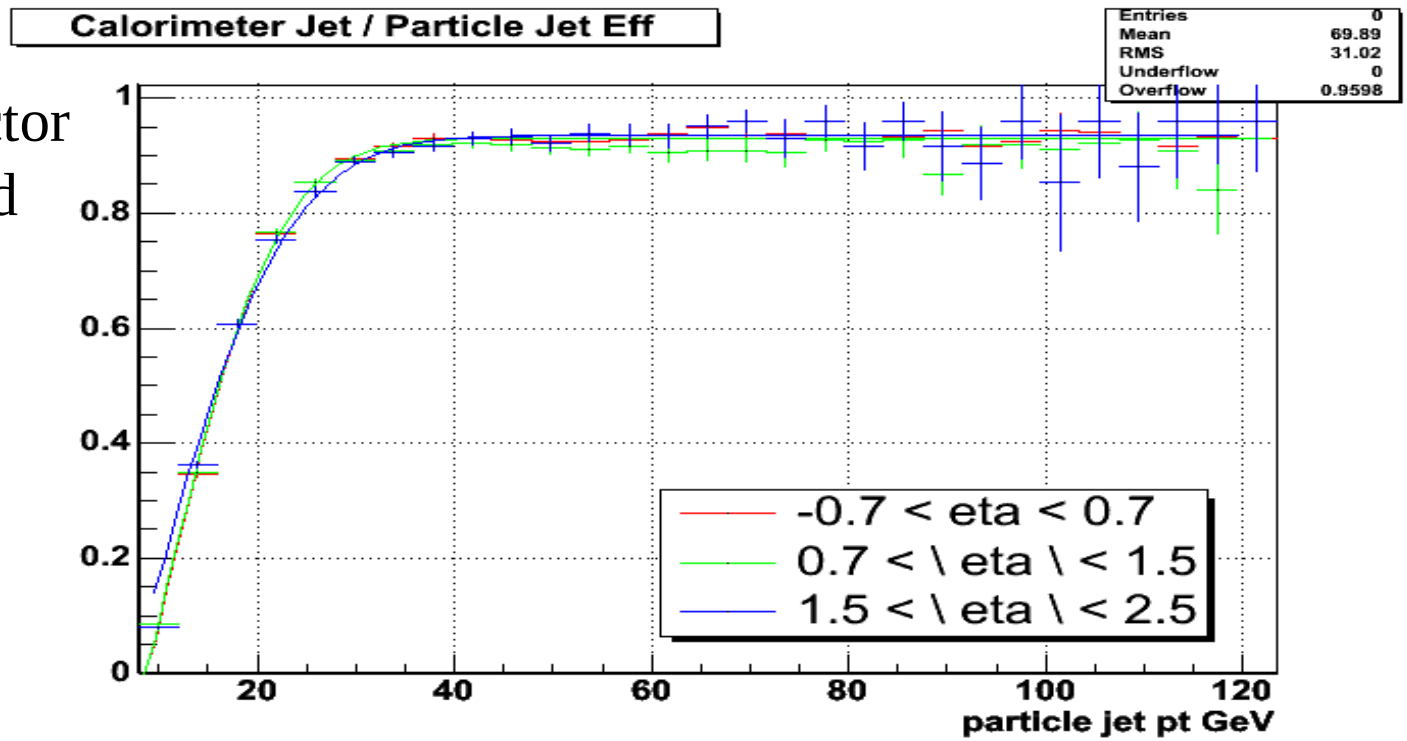
Explain techniques
Overlay of different scale factors
Straight Efficiencies
Straight Efficiencies applying direct photon scale factors
Remove quality cuts from straight efficiencies
Show the differences of with / without quality cuts

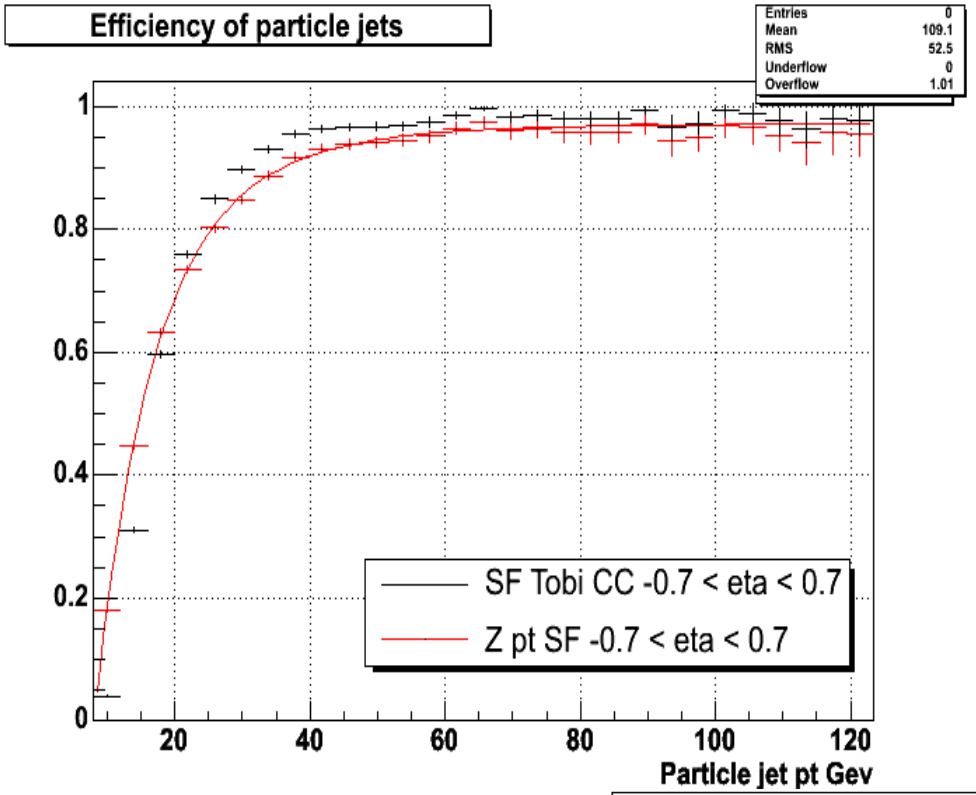
Techniques used to extract jet reconstruction efficiencies

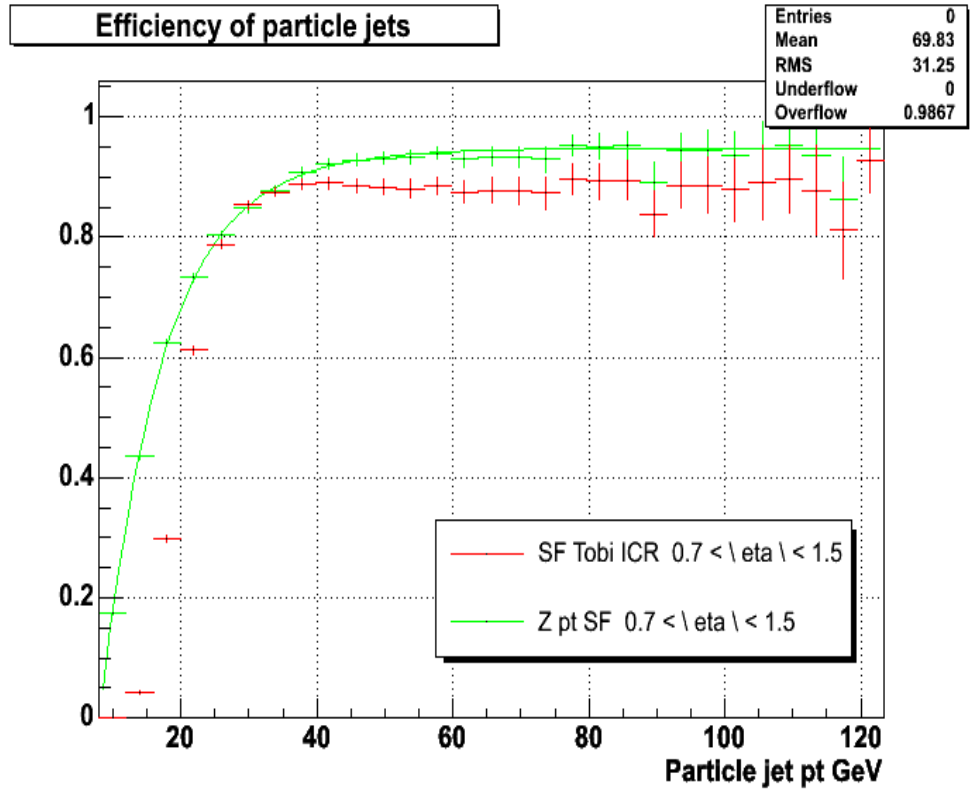

1.01/2+1.01/2*TMath::Erf(x^(1/2)/3.378-9.813/(x^(1/2)*3.378))
Scale Factor
0.986718*Erf(0.02764*x +0.37335)
Photon Central
Photon End Caps
Tobi Z pt
James Z pt
1
0.9
0.8
0.7
0.6
0.5
20
40
60
80
100
120
Photon pt & Z pt GeV



Scale Factor Applied

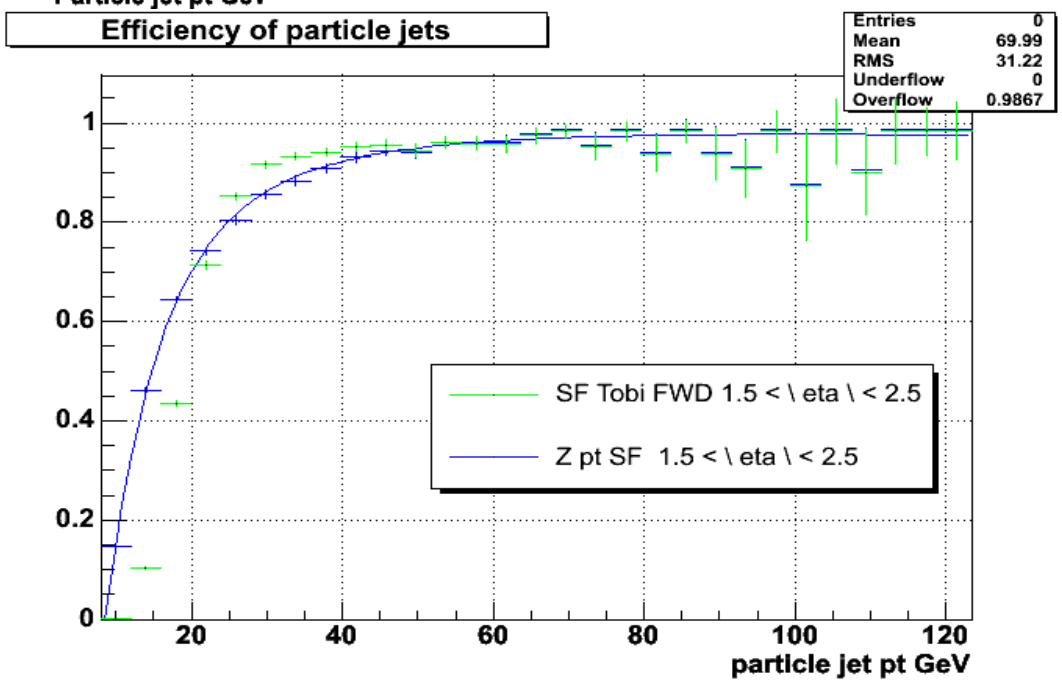




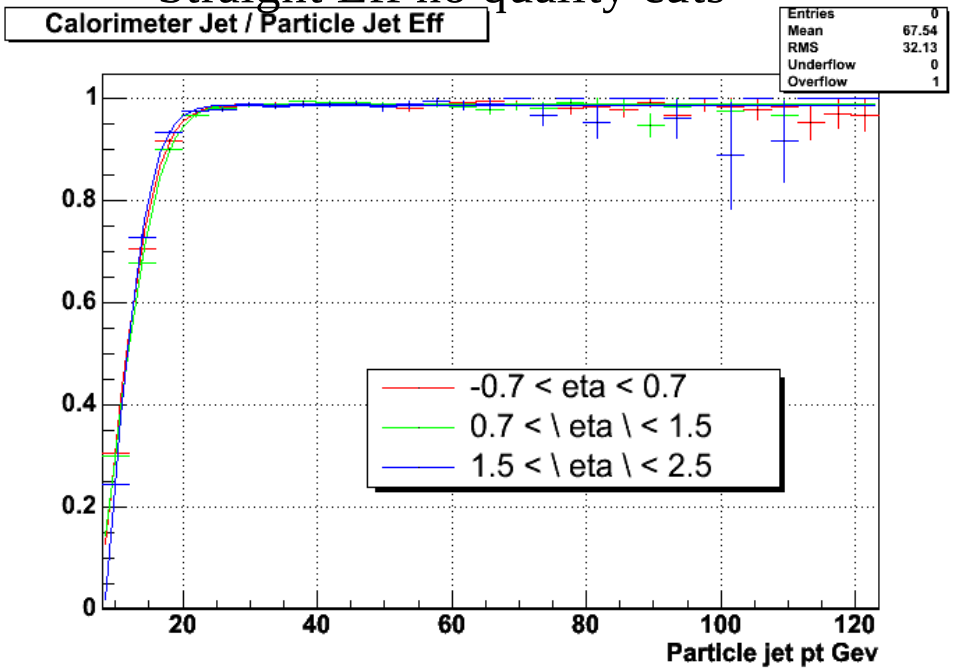


Straight Efficiencies

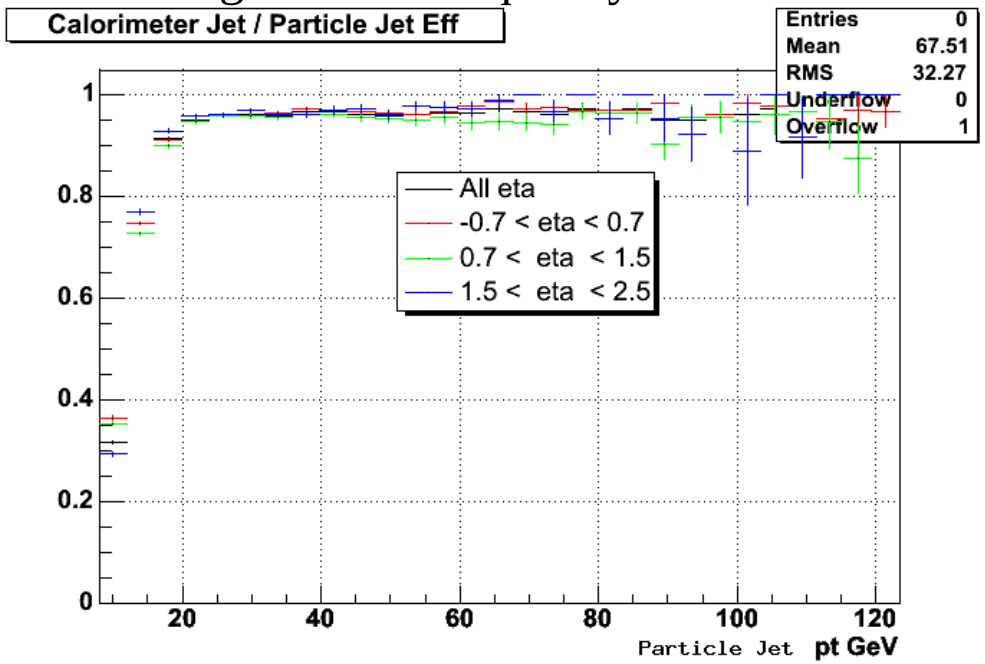
direct photon scale factors



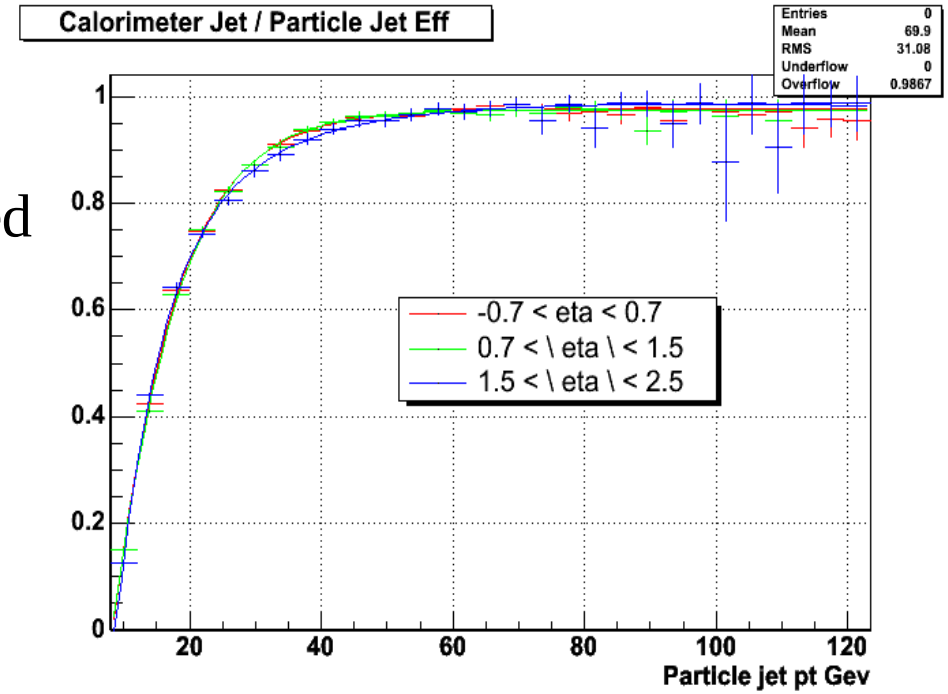
Straight Eff no quality cuts

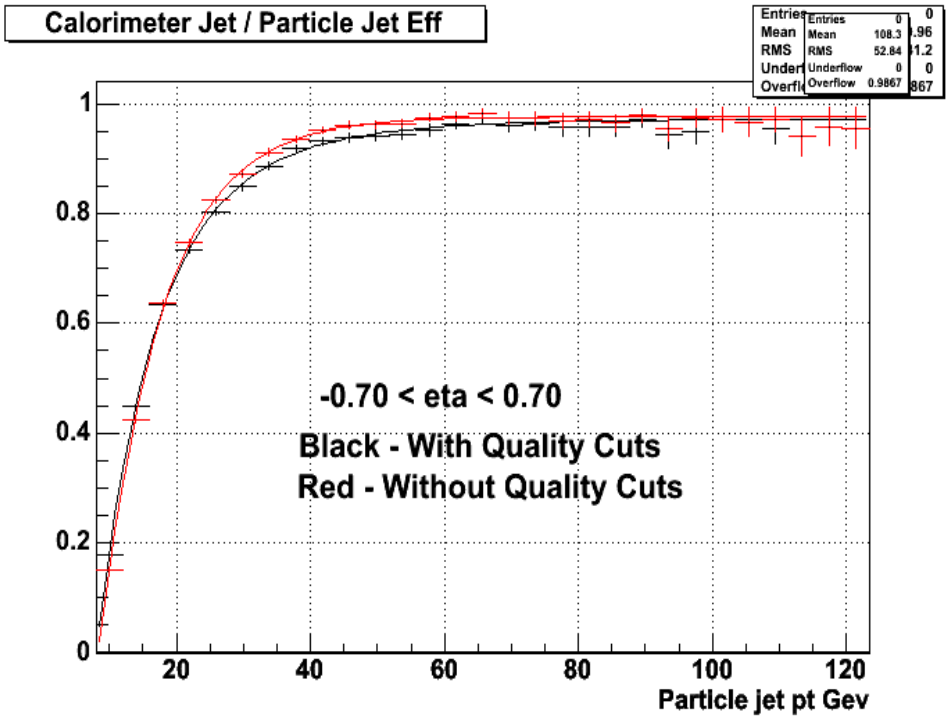


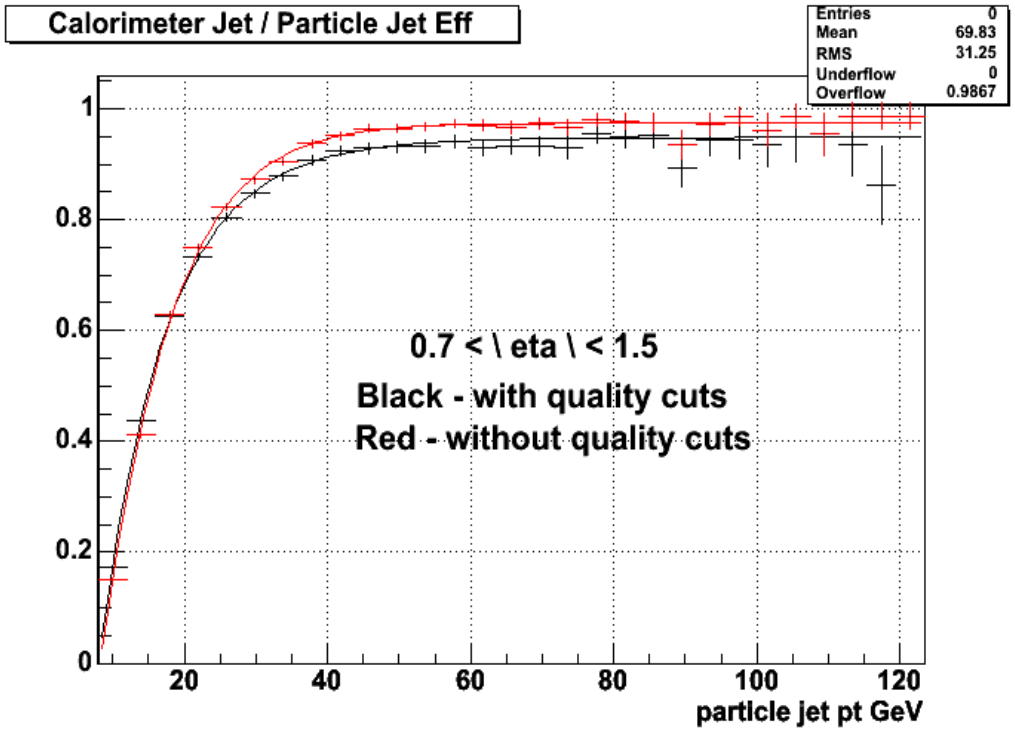
Straight Eff with quality cuts



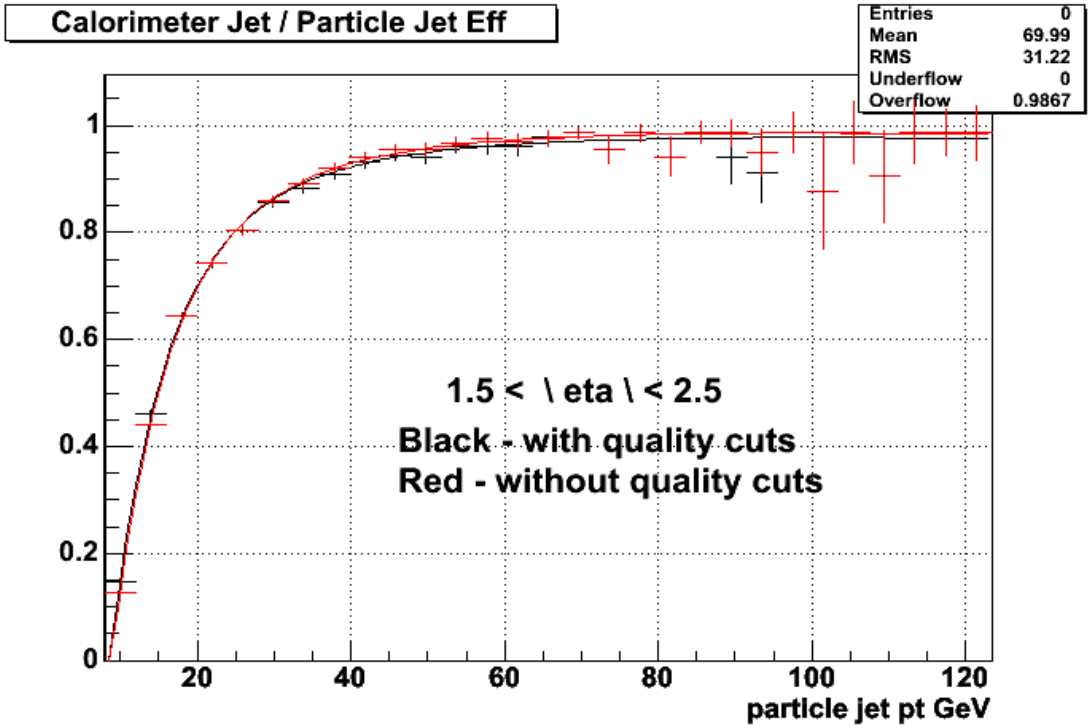
Straight Eff, no quality cuts, and scale factor applied







Straight Eff with scale factor applied, with and without quality cuts



5 Events with Z pt > 50.0 GeV

No Quality cuts applied to the jets

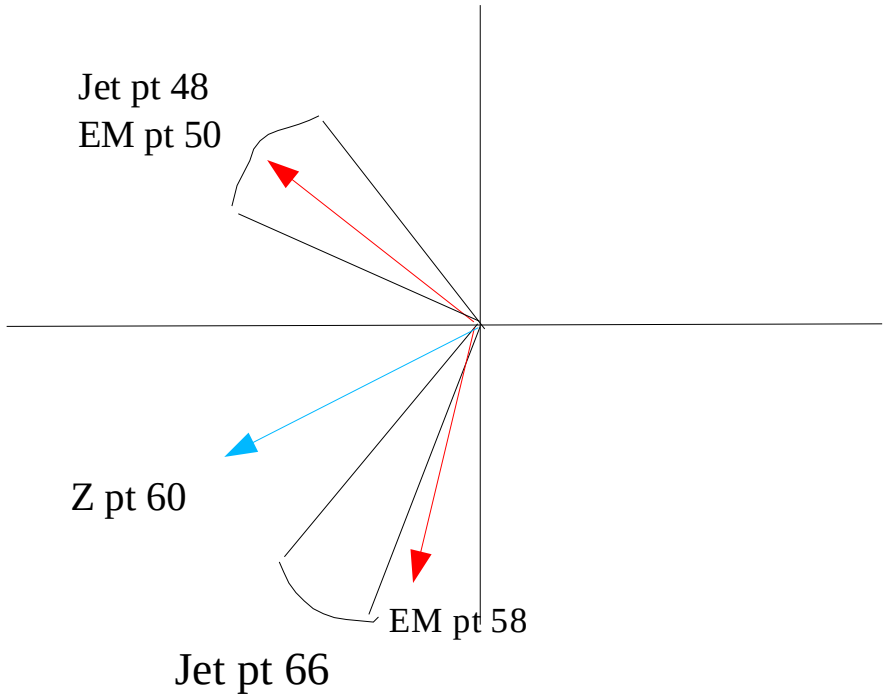
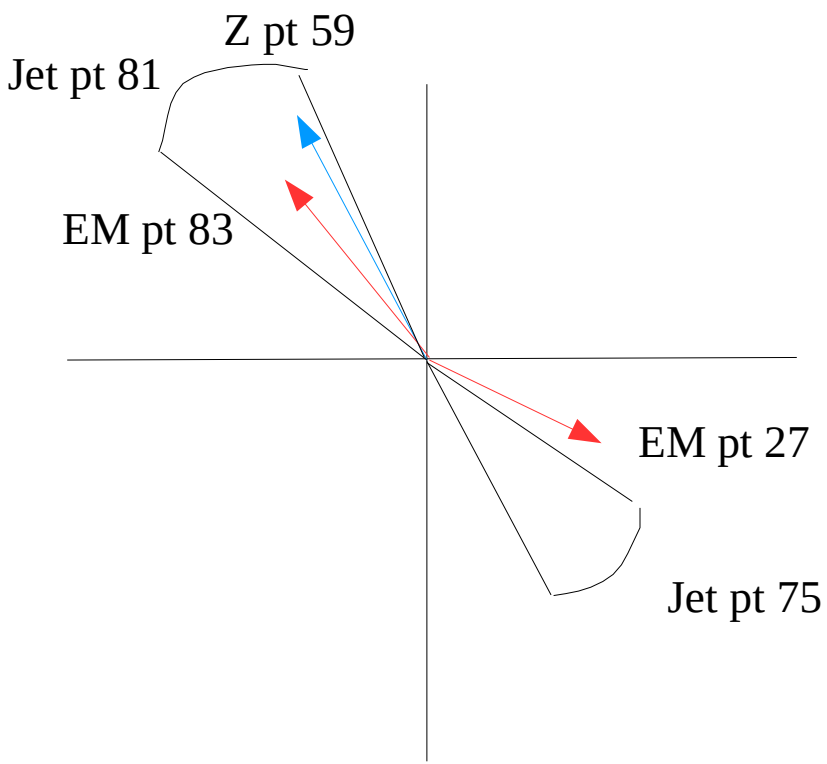
No reconstructed Jet found

Run # 177312 Event # 18478447
Z Eta -0.00968235 phi -153.709 Z pt 60.2038
Em 1 Eta 0.0299827 Phi -103.86 pt 58.8116
Em 2 Eta -0.0467528 Phi 142.658 pt 50.1716
Jet 0 Eta 0.0703132 Phi 257.543 pt 66.3509
Jet 1 Eta -0.0466528 Phi 142.921 pt 48.389

Run # 178156 Event # 3167482
Z Eta -1.02288 phi 118.092 Z pt 59.3293
Em 1 Eta -0.709961 Phi 129.369 pt 82.7744
Em 2 Eta -0.290405 Phi -25.3736 pt 27.1899
Jet 0 Eta -0.708275 Phi 128.86 pt 81.9098
Jet 1 Eta -0.20064 Phi 312.735 pt 74.7872

Run # 179883 Event # 5654939
Z Eta 1.00588 phi 103.743 Z pt 76.0277
Em 1 Eta 0.620117 Phi 95.3494 pt 96.5266
Em 2 Eta 0.945801 Phi -112.157 pt 24.0295
Jet 0 Eta 0.602184 Phi 94.1938 pt 96.8168
Jet 1 Eta 0.757739 Phi 266.994 pt 58.1856

No Jet Quality cuts nor JES corrections



No Jet quality cuts nor JES corrections