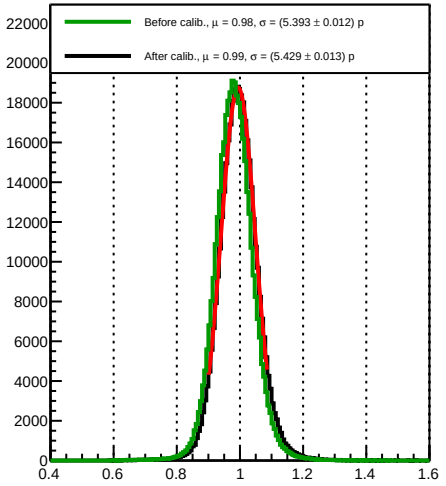
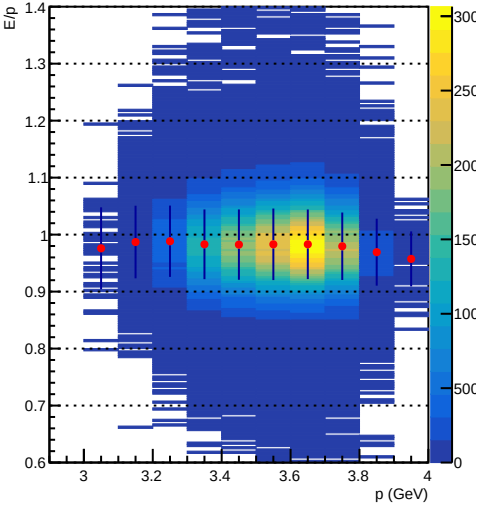
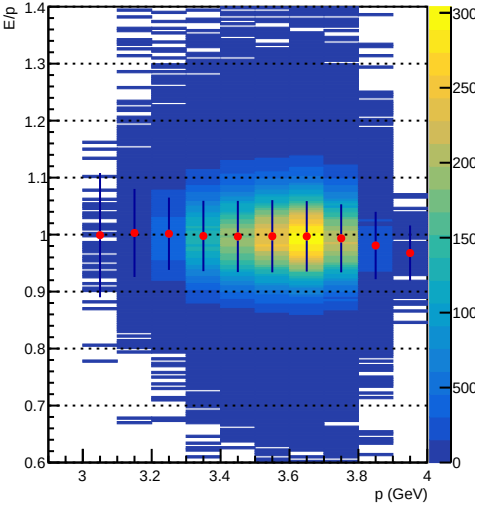
E/p (el. cut)



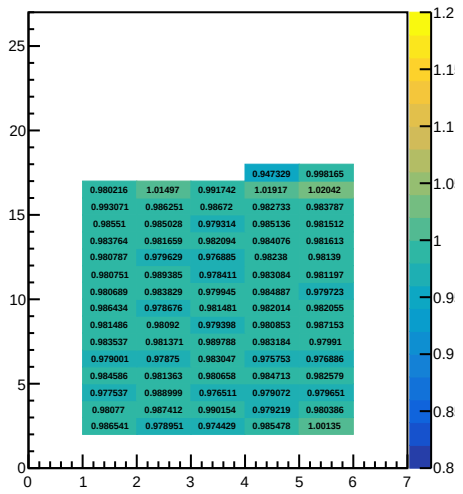
E/p vs p (el. cut)



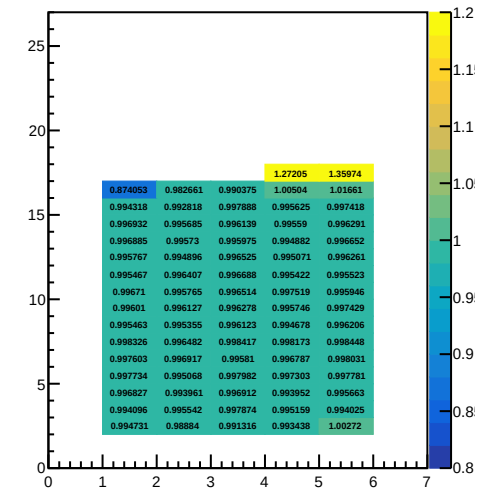
E/p vs p | After Calib. (el. cut)



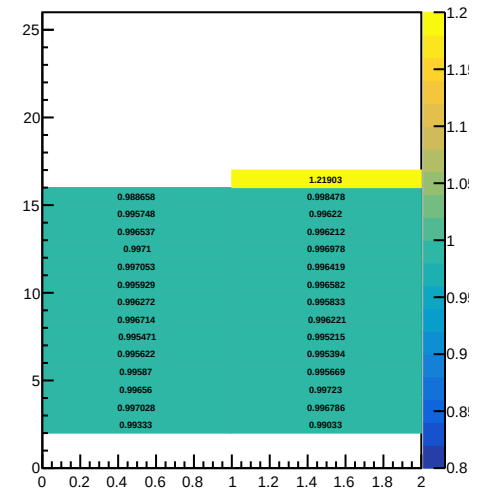
E/p per SH block (el. cut)



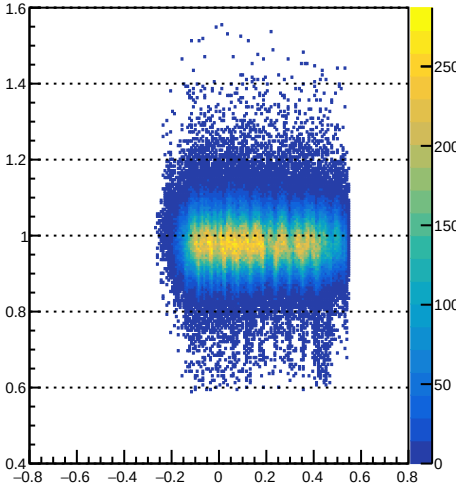
E/p per SH block | After Calib. (el. cut)



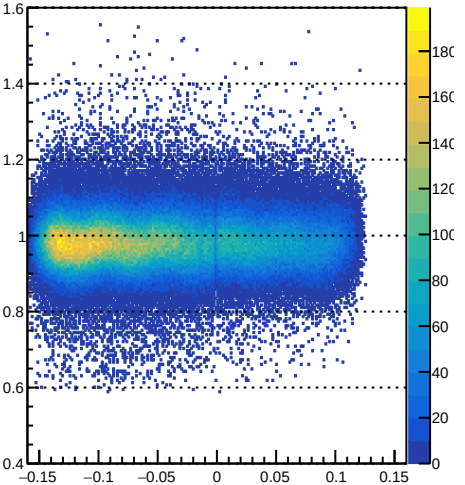
E/p per PS block | After Calib. (el. cut)



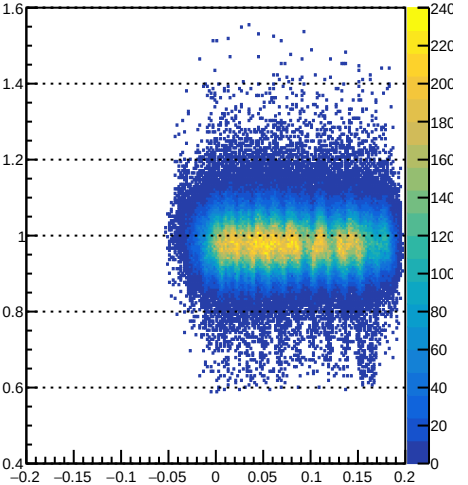
E/p vs Track x (el. cut)



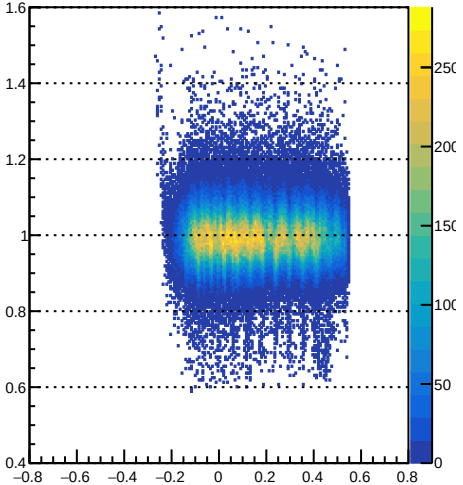
E/p vs Track y (el. cut)



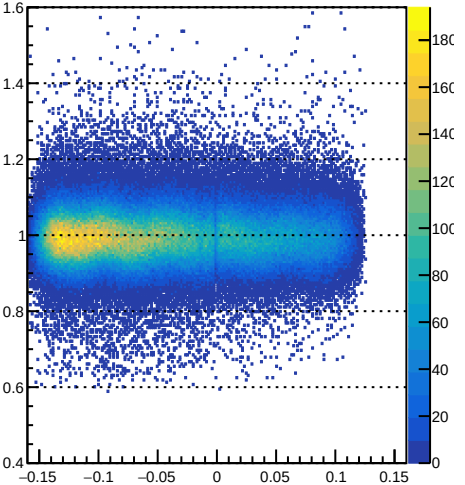
E/p vs Track theta (el. cut)



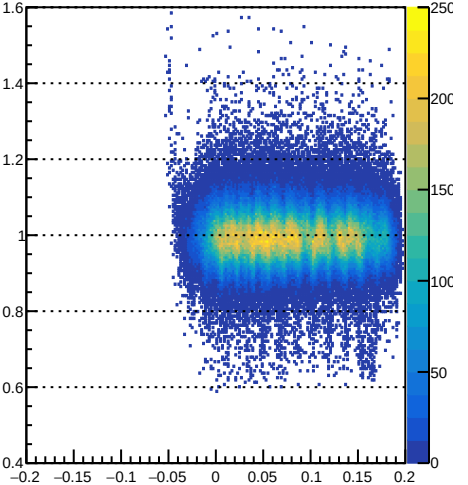
E/p vs Track x | After Calib. (el. cut)



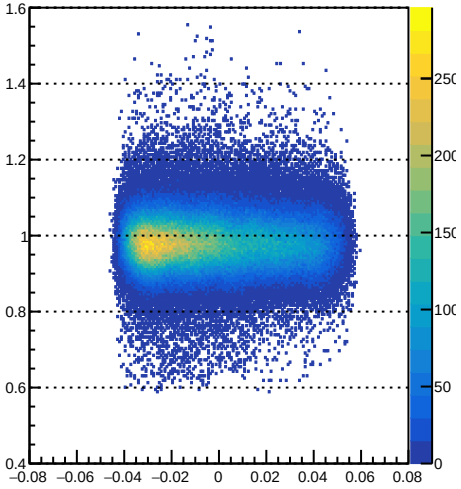
E/p vs Track y | After Calib. (el. cut)



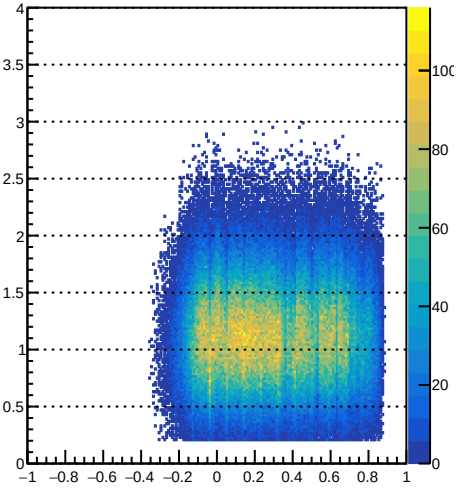
E/p vs Track theta | After Calib. (el. cut)



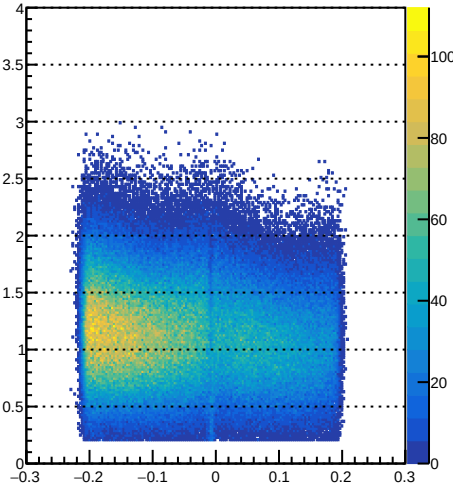
E/p vs Track phi (el. cut)



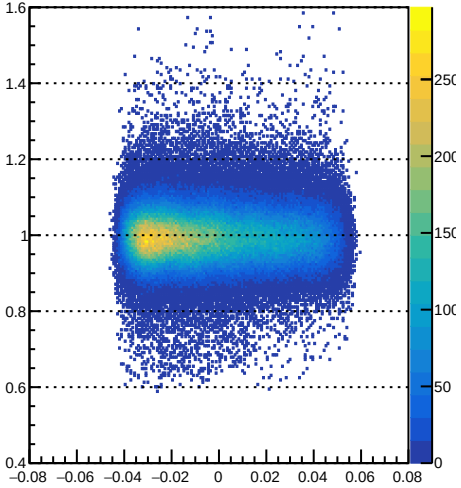
PS energy vs Track x (proj. at PS) (el. cut)



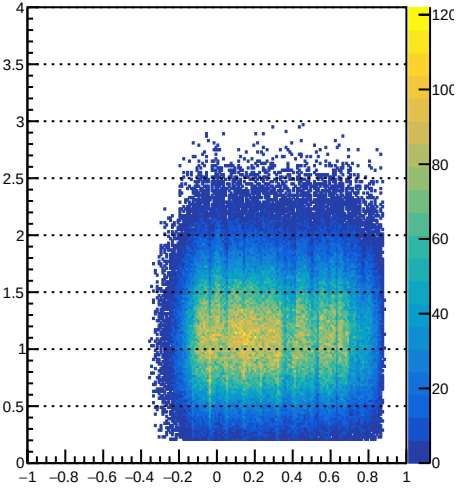
PS energy vs Track y (el. cut) (proj. at PS)



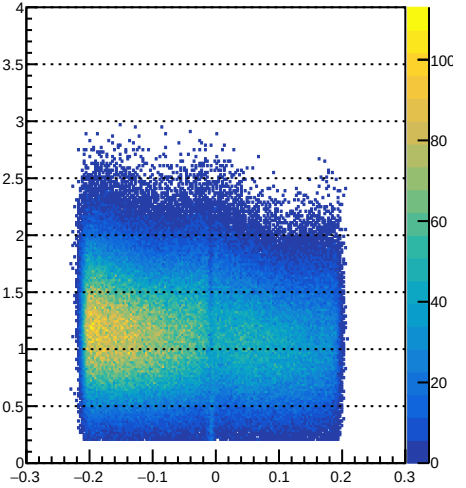
E/p vs Track phi | After Calib. (el. cut)

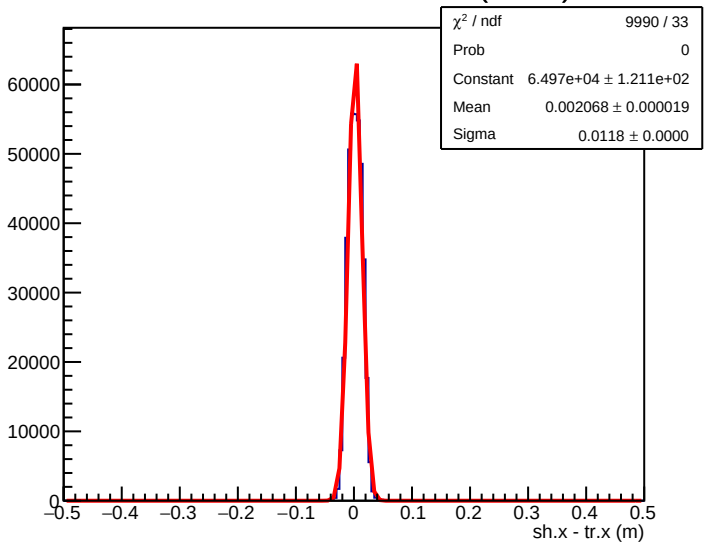


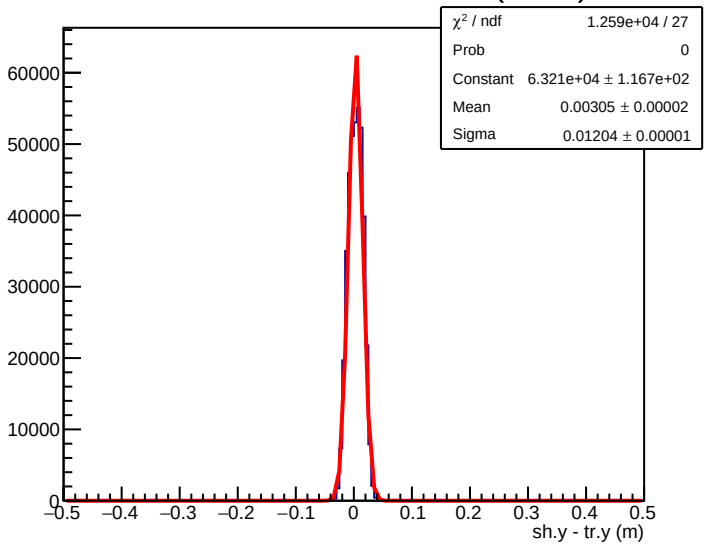
PS energy vs Track x (proj. at PS) | After Calib. (el. cut)

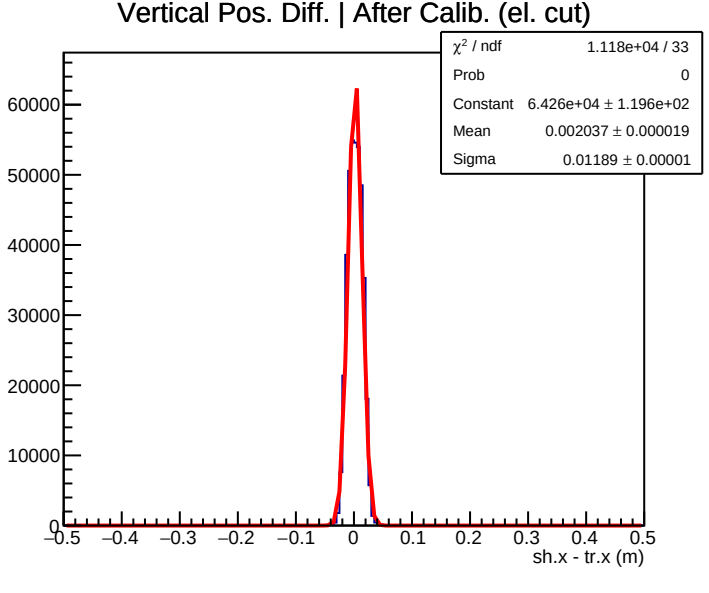


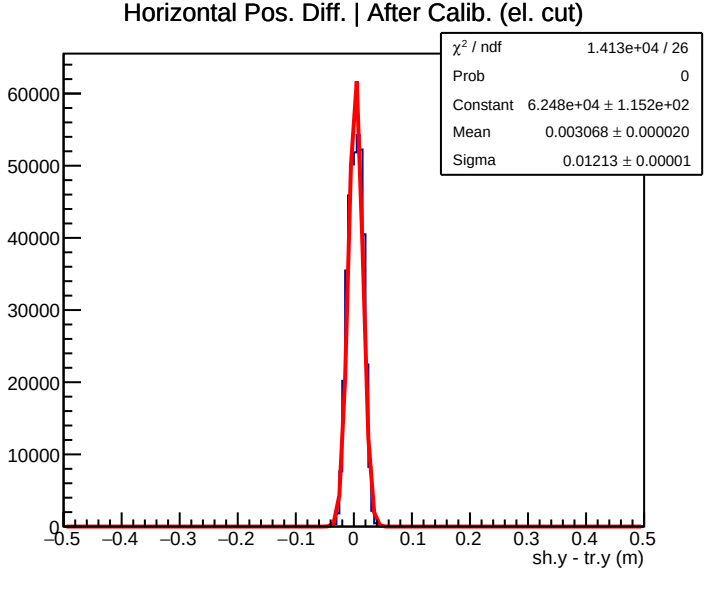
PS energy vs Track y (proj. at PS) | After Calib. (el. cut)

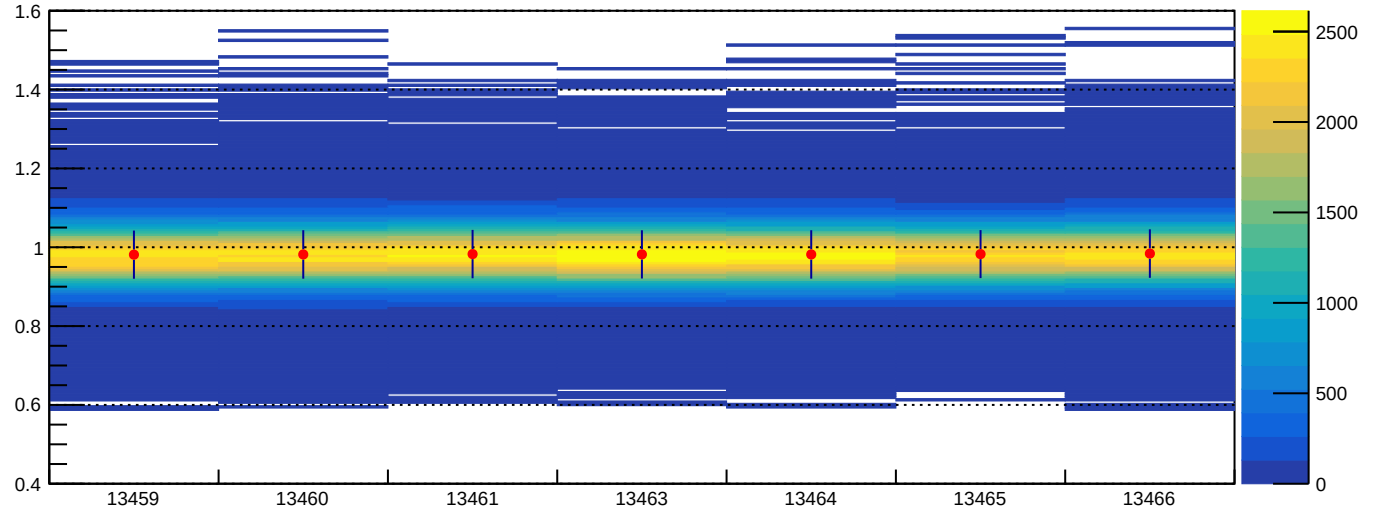


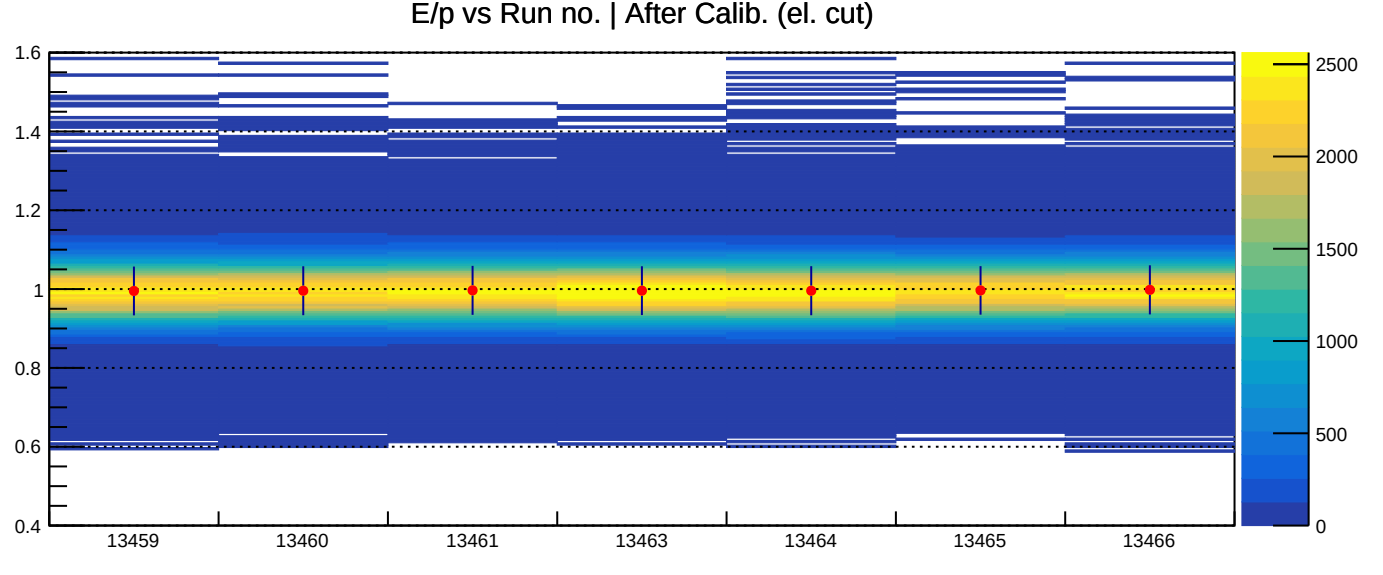

Vertical Position Difference (el. cut)
χ² / ndf 9990 / 33
Prob 0
Constant 6.497e+04 ± 1.211e+02
Mean 0.002068 ± 0.000019
Sigma 0.0118 ± 0.0000
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 1.259e+04 / 27
Prob 0
Constant 6.321e+04 ± 1.167e+02
Mean 0.00305 ± 0.00002
Sigma 0.01204 ± 0.00001
sh.y - tr.y (m)

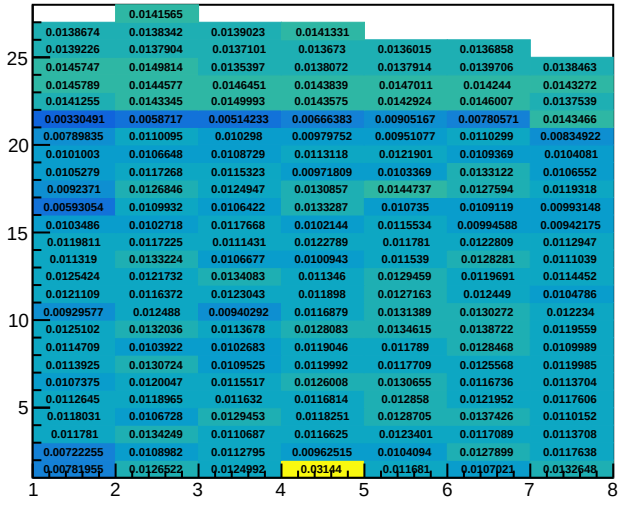

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.118e+04 / 33
Prob 0
Constant 6.426e+04 ± 1.196e+02
Mean 0.002037 ± 0.000019
Sigma 0.01189 ± 0.00001
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.413e+04 / 26
Prob 0
Constant 6.248e+04 ± 1.152e+02
Mean 0.003068 ± 0.000020
Sigma 0.01213 ± 0.00001
sh.y - tr.y (m)

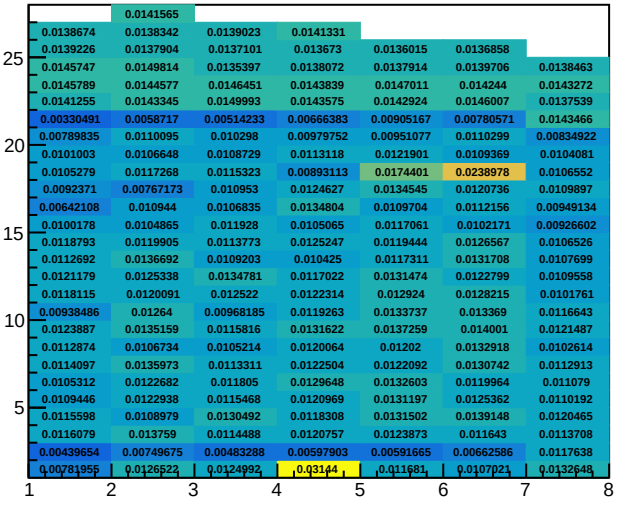

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13459
13460
13461
13463
13464
13465
13466
2500
2000
1500
1000
500
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13459
13460
13461
13463
13464
13465
13466
2500
2000
1500
1000
500
0

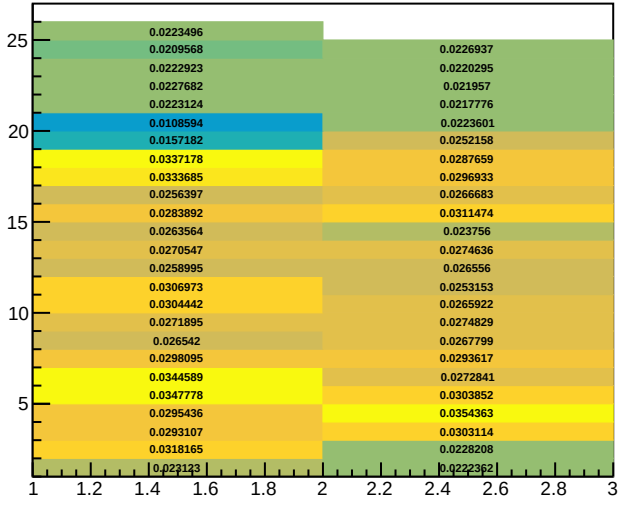
Old ADC Gain Coefficients | SH



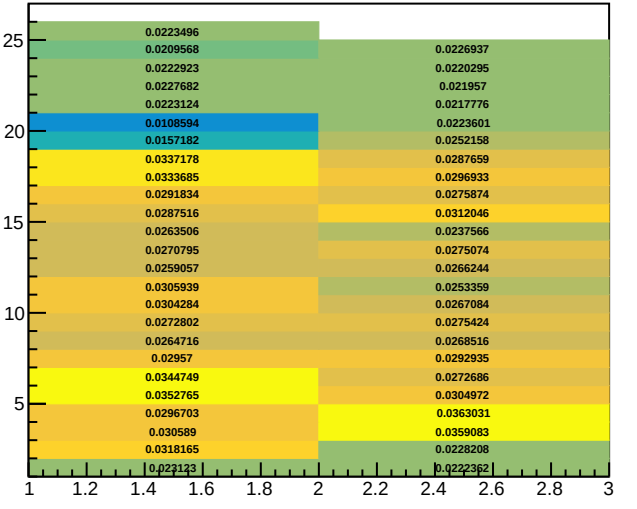
New ADC Gain Coefficients | SH

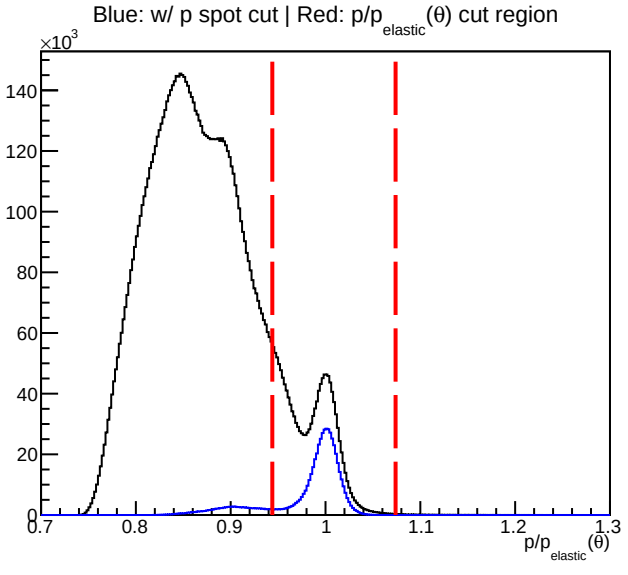


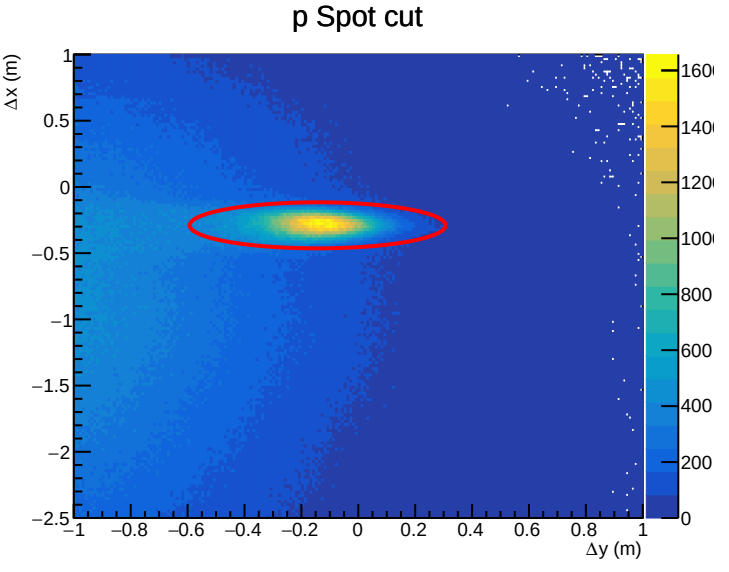
Old ADC Gain Coefficients | PS

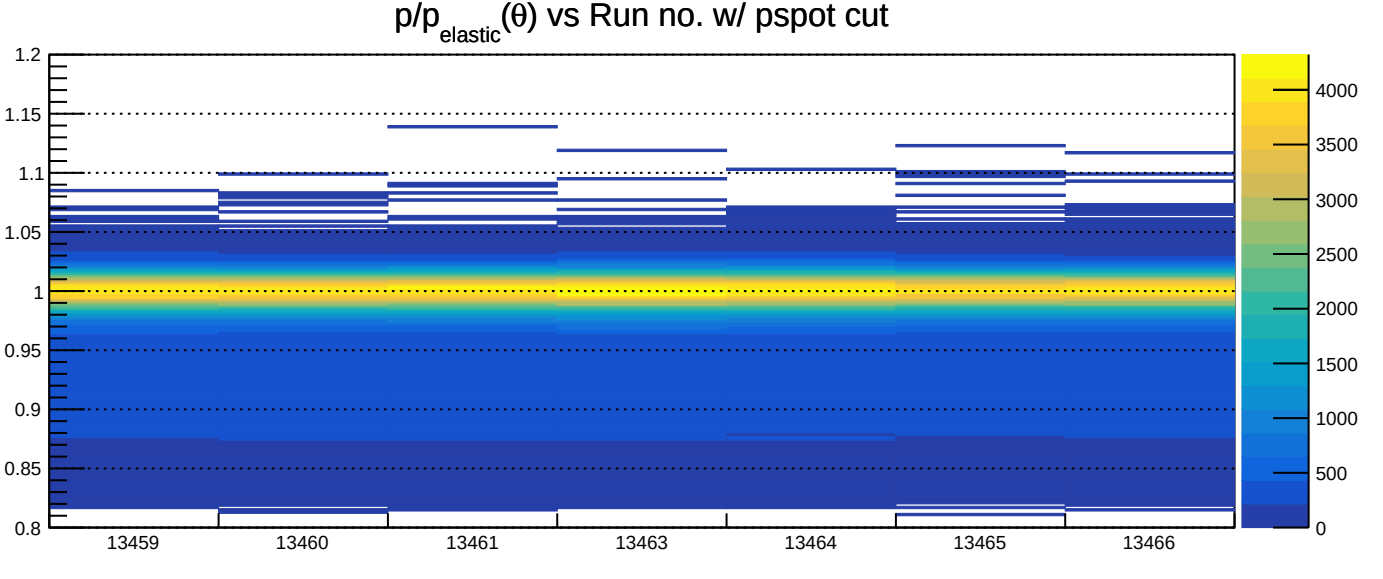


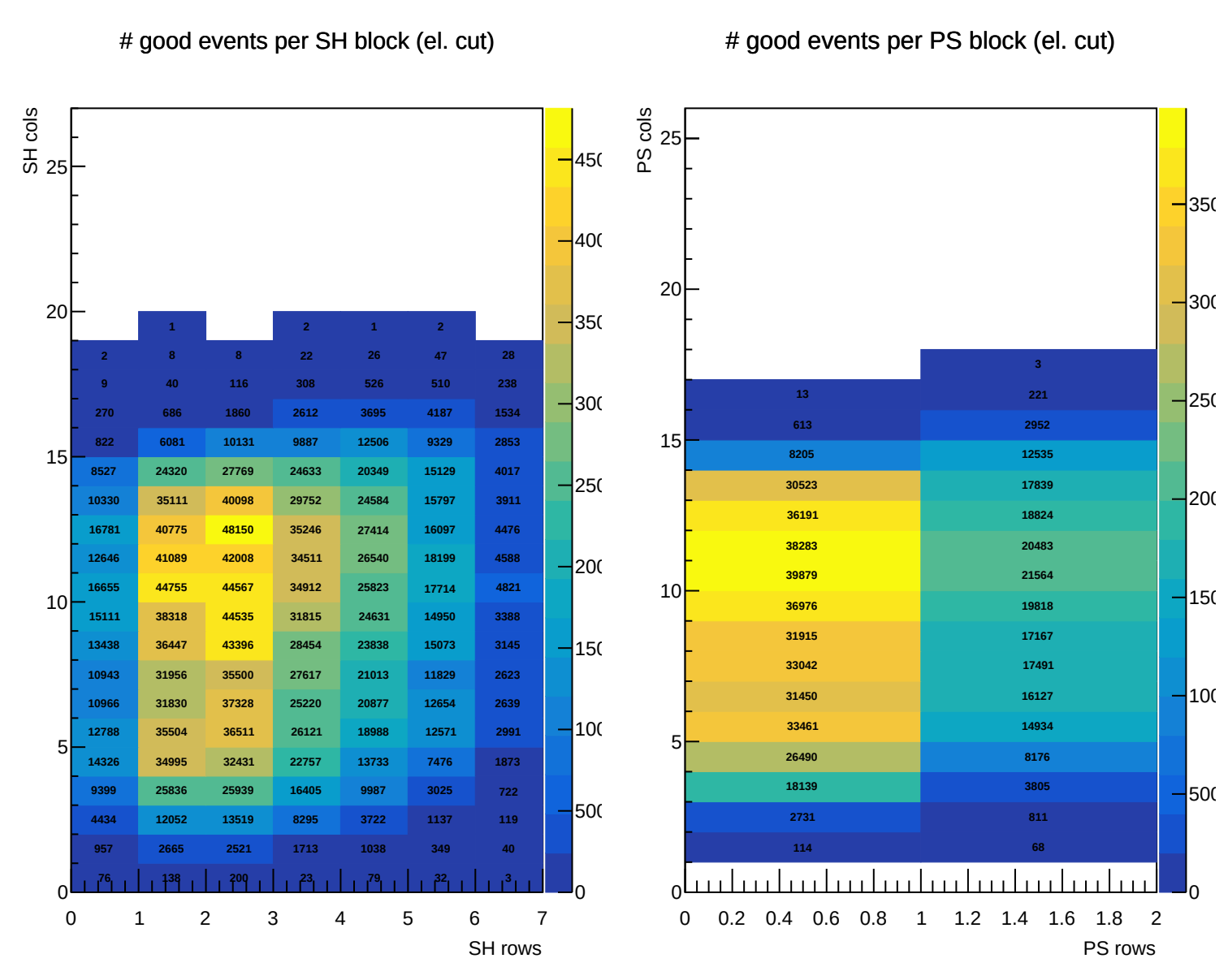
New ADC Gain Coefficients | PS



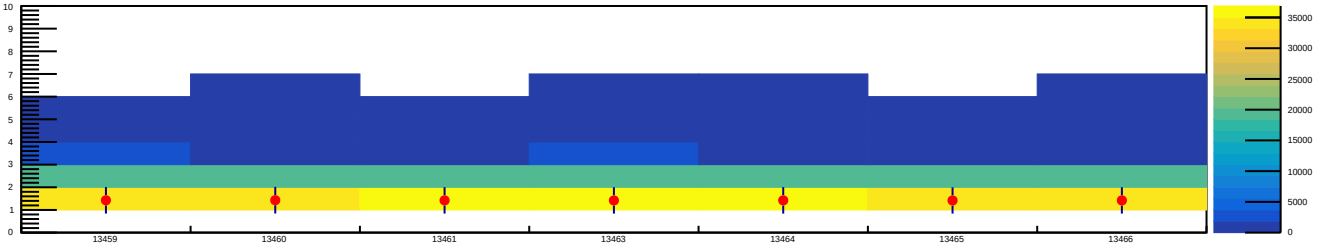

Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
×10^3
140
120
100
80
60
40
20
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)


p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
1600
1400
1200
1000
800
600
400
200
0

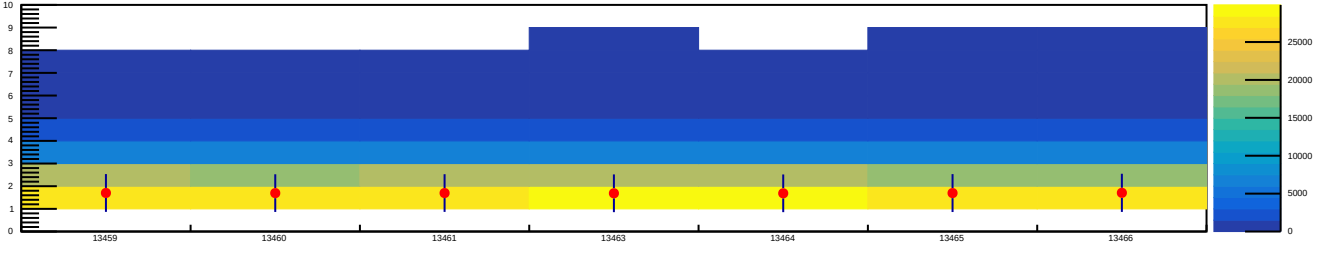

p/p_elastic(θ) vs Run no. w/ pspot cut
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
13459
13460
13461
13463
13464
13465
13466
4000
3500
3000
2500
2000
1500
1000
500
0


good events per SH block (el. cut)
SH cols
SH rows
1 2 1 2
2 8 8 22 26 47 28
9 40 116 308 526 510 238
270 686 1860 2612 3695 4187 1534
822 6081 10131 9887 12506 9329 2853
8527 24320 27769 24633 20349 15129 4017
10330 35111 40098 29752 24584 15797 3911
16781 40775 48150 35246 27414 16097 4476
12646 41089 42008 34511 26540 18199 4588
16655 44755 44567 34912 25823 17714 4821
15111 38318 44535 31815 24631 14950 3388
13438 36447 43396 28454 23838 15073 3145
10943 31956 35500 27617 21013 11829 2623
10966 31830 37328 25220 20877 12654 2639
12788 35504 36511 26121 18988 12571 2991
14326 34995 32431 22757 13733 7476 1873
9399 25836 25939 16405 9987 3025 722
4434 12052 13519 8295 3722 1137 119
957 2665 2521 1713 1038 349 40
76 138 200 23 79 32 3
good events per PS block (el. cut)
PS cols
PS rows
3
13 221
613 2952
8205 12535
30523 17839
36191 18824
38283 20483
39879 21564
36976 19818
31915 17167
33042 17491
31450 16127
33461 14934
26490 8176
18139 3805
2731 811
114 68

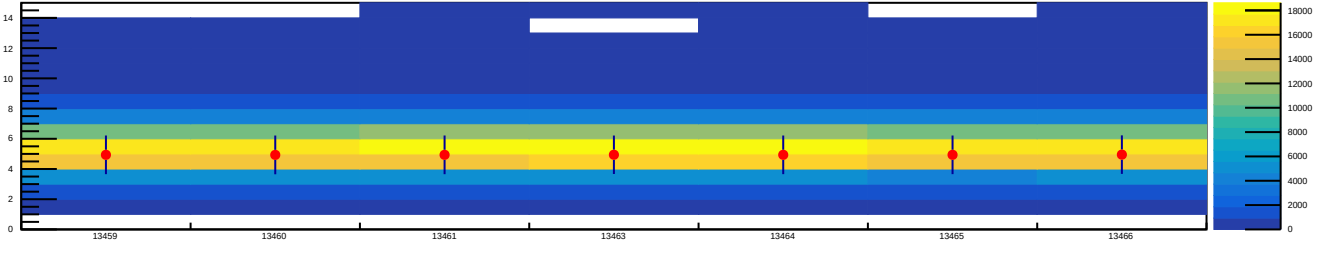
PS (best) cluster size vs Run no. (el. cut)



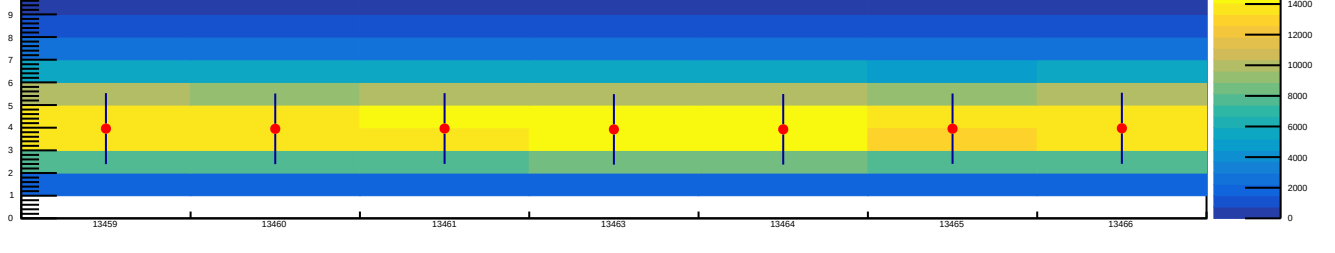
PS cluster multiplicity vs Run no. (el. cut)



SH (best) cluster size vs Run no. (el. cut)



SH cluster multiplicity vs Run no. (el. cut)



Date of creation: 12/12/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs8-sbs0p.cfg

Total # events analyzed: 26915327, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.98, σ = (5.393 $\pm$ 0.012) p

E/p (after calib.) | μ = 0.99, σ = (5.429 $\pm$ 0.013) p

Global cuts:

bb.tr.n==1, abs(bb.tr.vz[0])<0.08, bb.gem.track.nhits>3,
abs(bb.tr.r_x[0]-0.9*bb.tr.r_th[0]+0.035)<0.345,
PS cluster energy > 0.2 GeV
p_recon > 2.9 GeV/c

events passed global cuts: 10649643

Elastic cuts:

$|p/p_{el}(\theta) - 1.009| \leq 5.0*0.013$

proton spot cut ranges:

Δx (m): Mean = -0.2900, 2.0σ = 0.0870
Δy (m): Mean = -0.1430, 2.5σ = 0.1800

events passed global & elastic cuts: 487911

Other cuts:

Minimum # events per block: 300 | Cluster hit threshold: 0.02 GeV (SH), 0.01 GeV (PS)
Cluster tmax cut: 10.0 ns (SH), 10.0 ns (PS) | Cluster energy fraction cut: 0.0 GeV (SH), 0.0 GeV (PS)

Various offsets:

Momentum fudge factor: 1.00, BBCAL cluster energy scale factor: 1.00

Macro processing time: CPU 2209.3s | Real 4842.1s