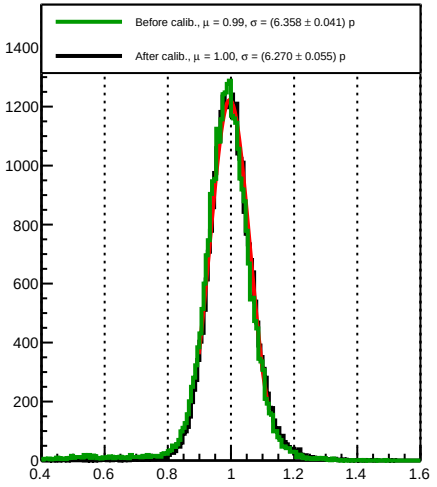
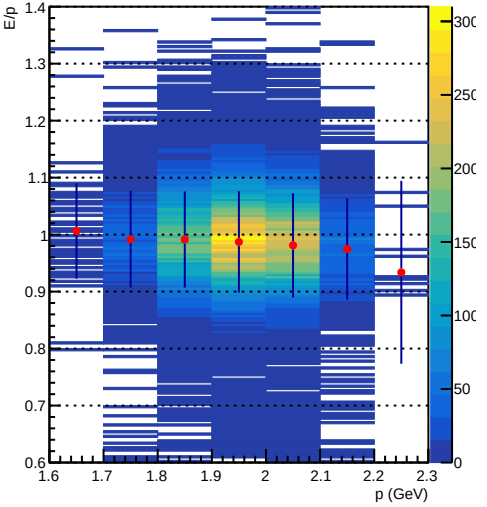
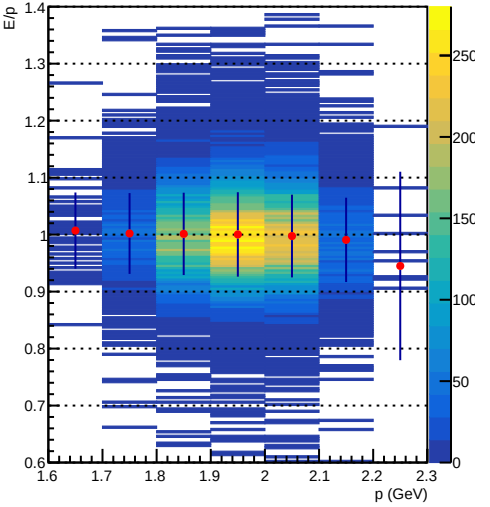
E/p (el. cut)



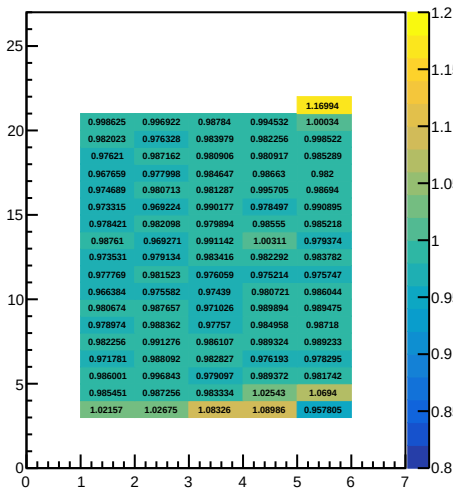
E/p vs p (el. cut)



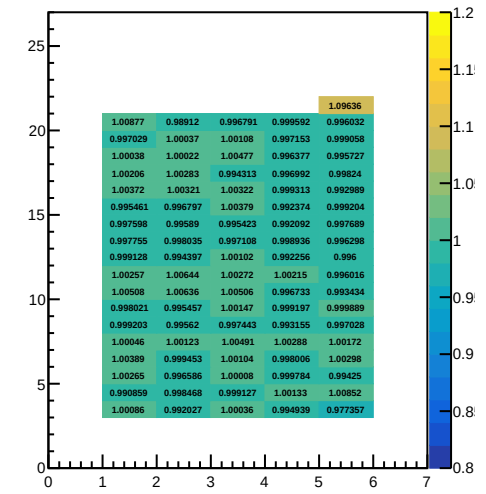
E/p vs p | After Calib. (el. cut)



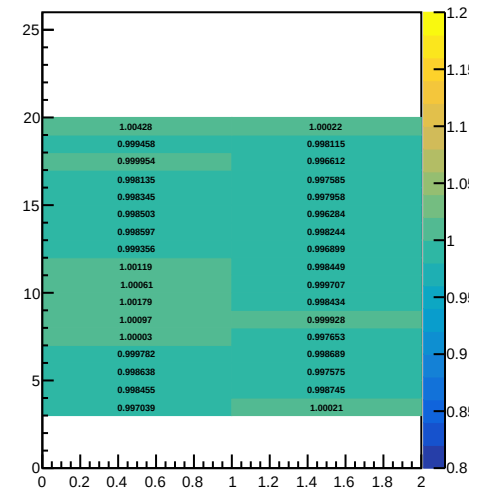
E/p per SH block (el. cut)



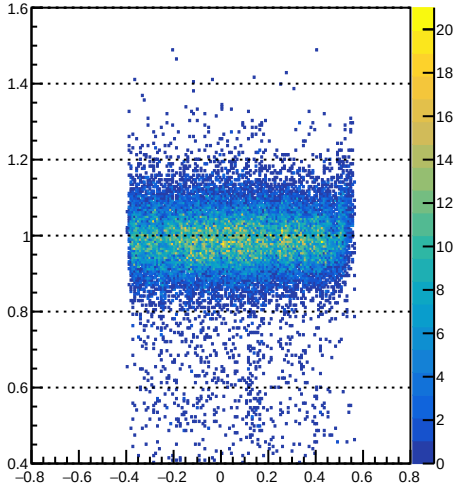
E/p per SH block | After Calib. (el. cut)



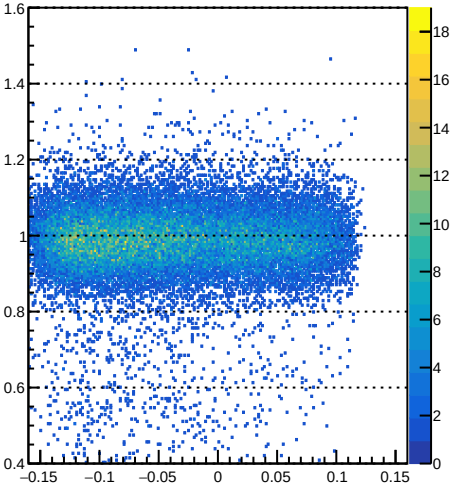
E/p per PS block | After Calib. (el. cut)



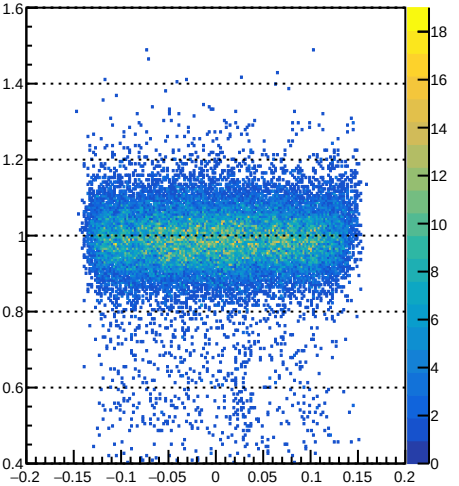
E/p vs Track x (el. cut)



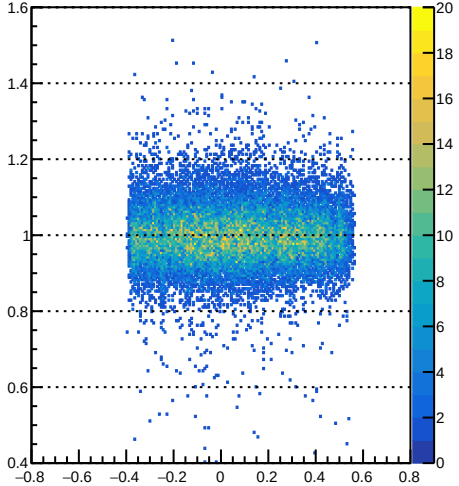
E/p vs Track y (el. cut)



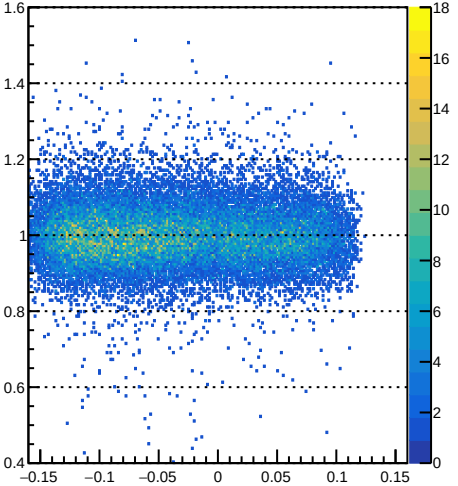
E/p vs Track theta (el. cut)



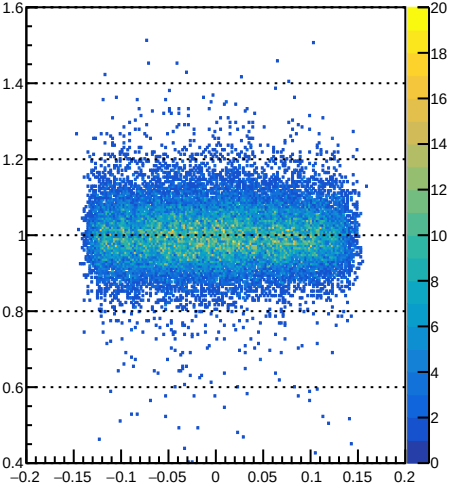
E/p vs Track x | After Calib. (el. cut)



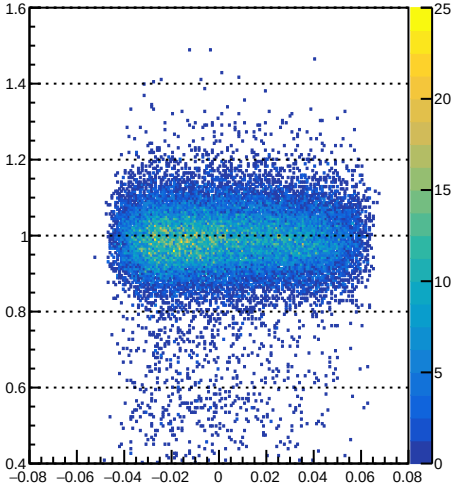
E/p vs Track y | After Calib. (el. cut)



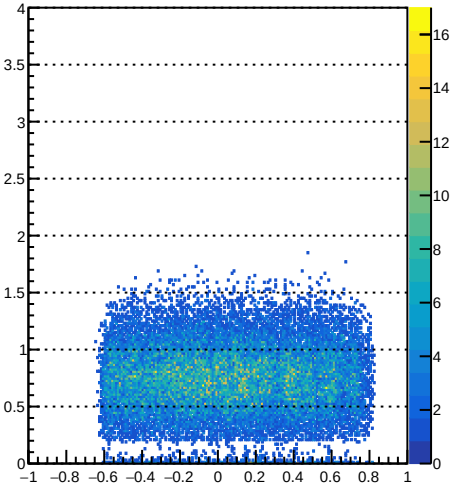
E/p vs Track theta | After Calib. (el. cut)



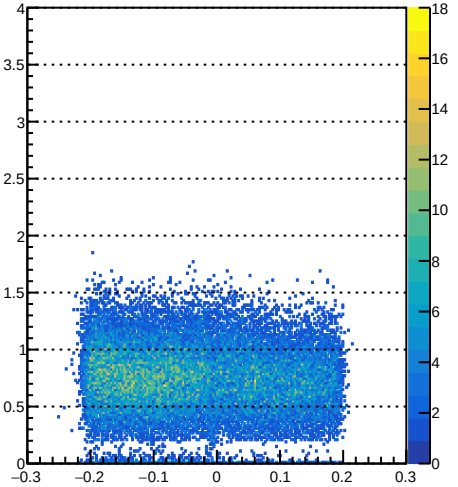
E/p vs Track phi (el. cut)



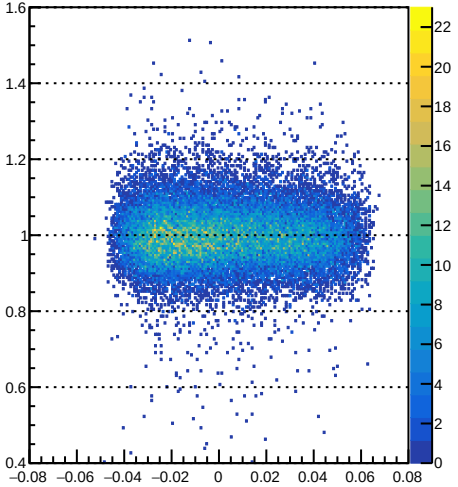
PS energy vs Track x (proj. at PS) (el. cut)



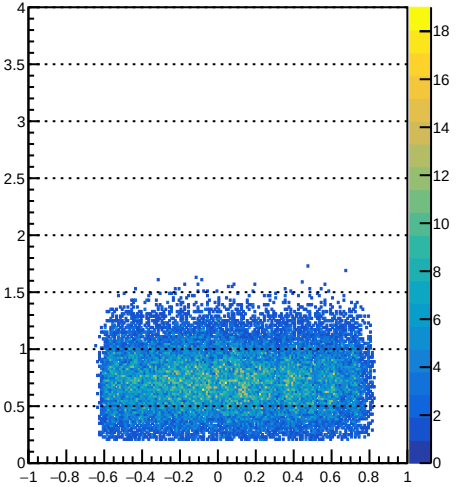
PS energy vs Track y (el. cut) (proj. at PS)



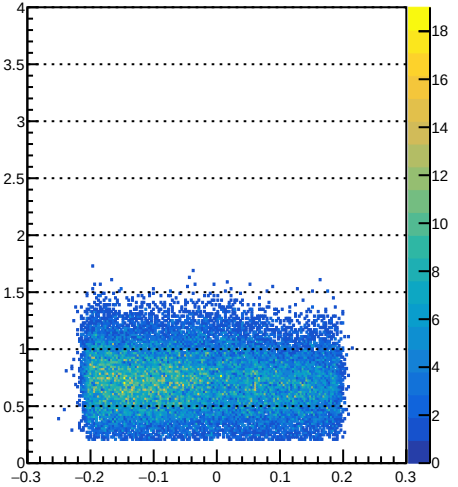
E/p vs Track phi | After Calib. (el. cut)

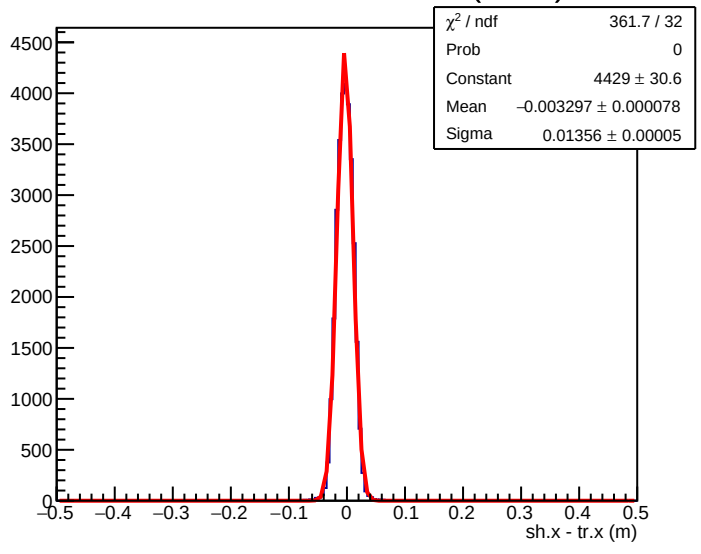


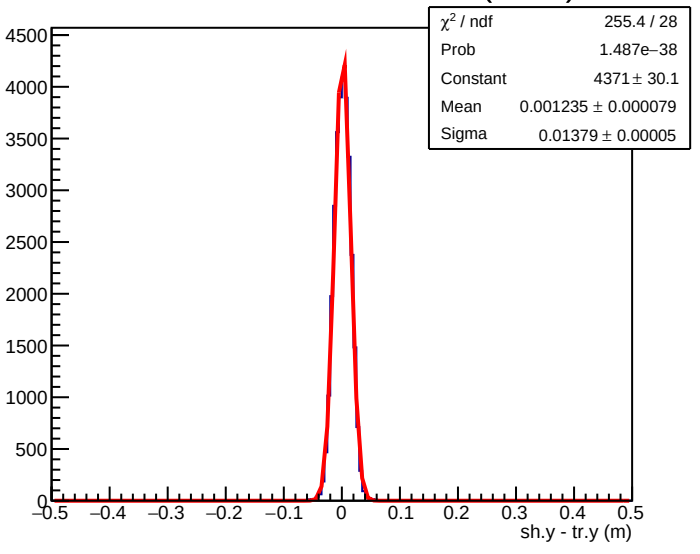
PS energy vs Track x (proj. at PS) | After Calib. (el. cut)

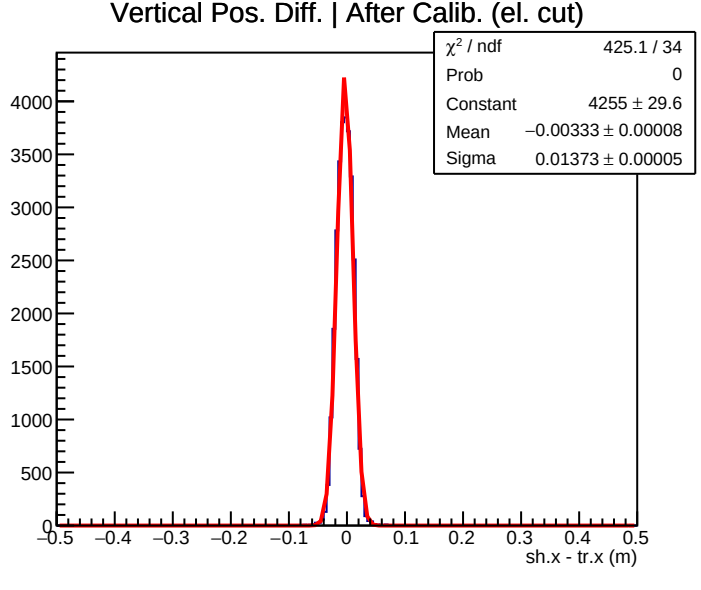


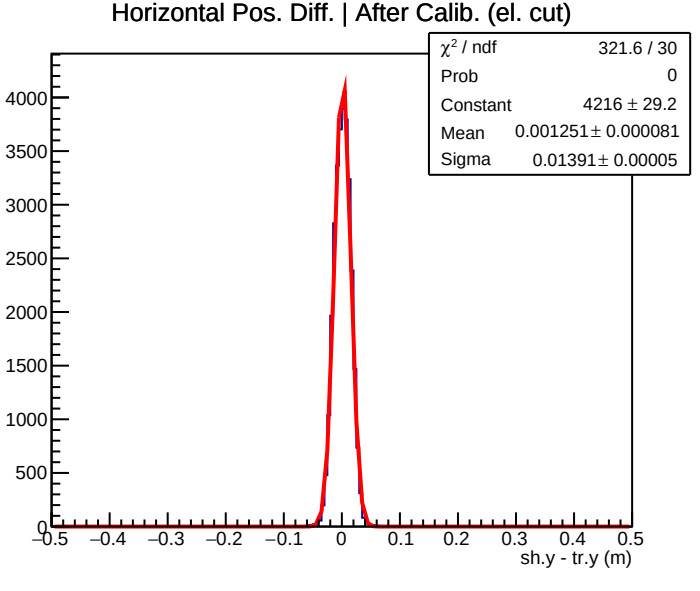
PS energy vs Track y (proj. at PS) | After Calib. (el. cut)

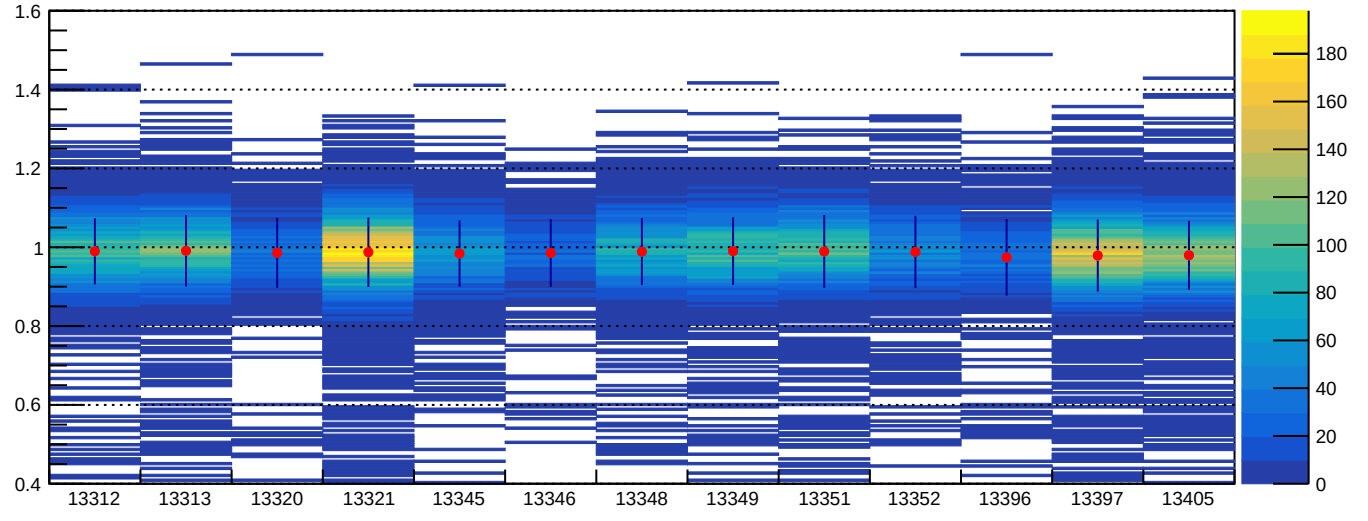


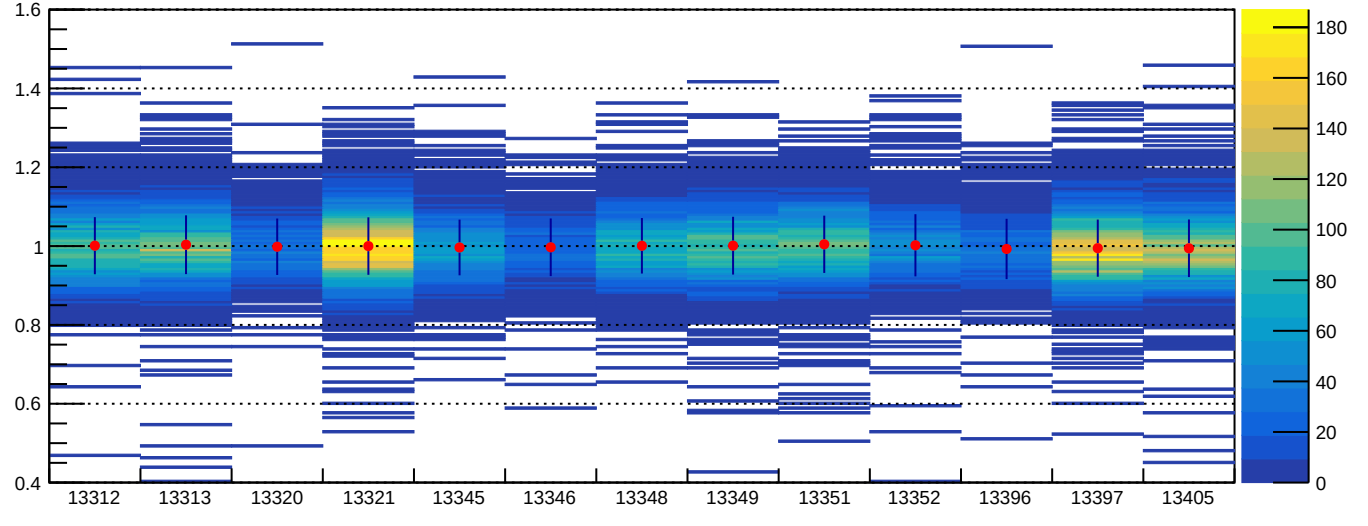

Vertical Position Difference (el. cut)
χ² / ndf 361.7 / 32
Prob 0
Constant 4429 ± 30.6
Mean −0.003297 ± 0.000078
Sigma 0.01356 ± 0.00005
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 255.4 / 28
Prob 1.487e−38
Constant 4371 ± 30.1
Mean 0.001235 ± 0.000079
Sigma 0.01379 ± 0.00005
sh.y - tr.y (m)

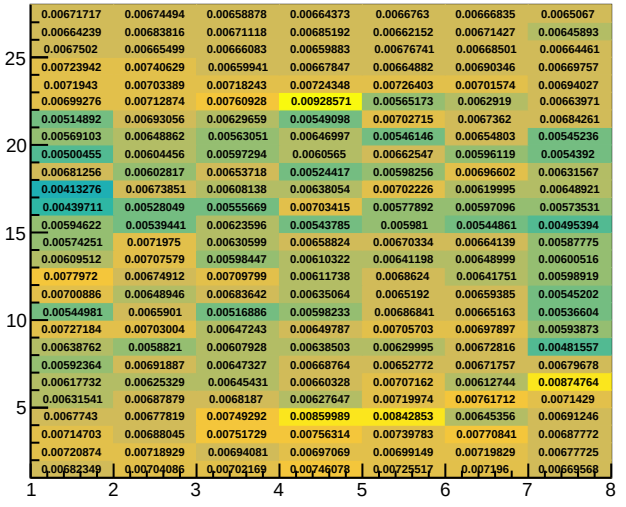

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 425.1 / 34
Prob 0
Constant 4255 ± 29.6
Mean −0.00333 ± 0.00008
Sigma 0.01373 ± 0.00005
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 321.6 / 30
Prob 0
Constant 4216 ± 29.2
Mean 0.001251 ± 0.000081
Sigma 0.01391 ± 0.00005
sh.y - tr.y (m)

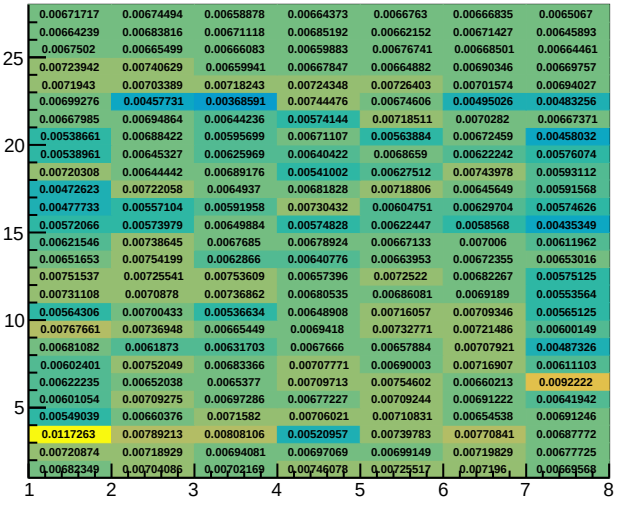

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13312
13313
13320
13321
13345
13346
13348
13349
13351
13352
13396
13397
13405
180
160
140
120
100
80
60
40
20
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13312
13313
13320
13321
13345
13346
13348
13349
13351
13352
13396
13397
13405
180
160
140
120
100
80
60
40
20
0

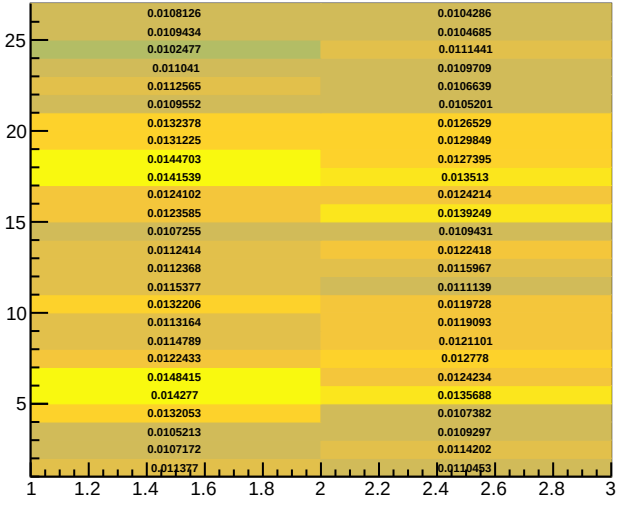
Old ADC Gain Coefficients | SH



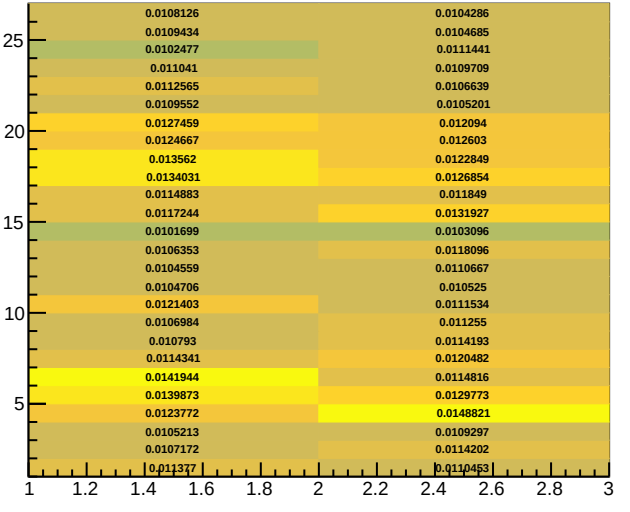
New ADC Gain Coefficients | SH

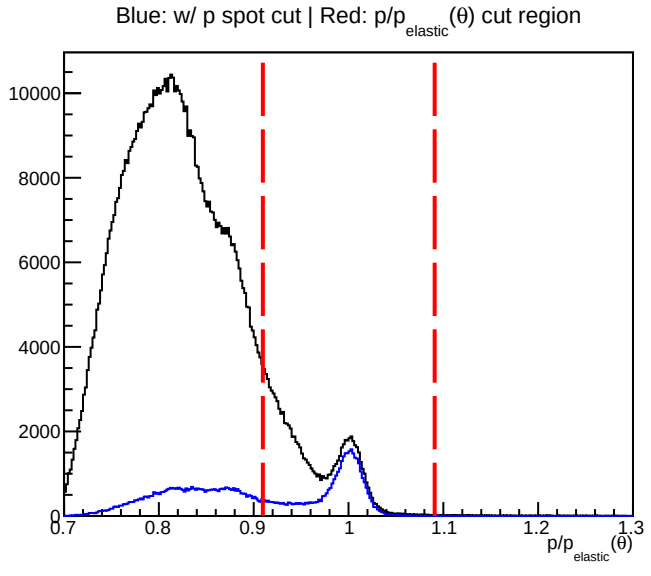


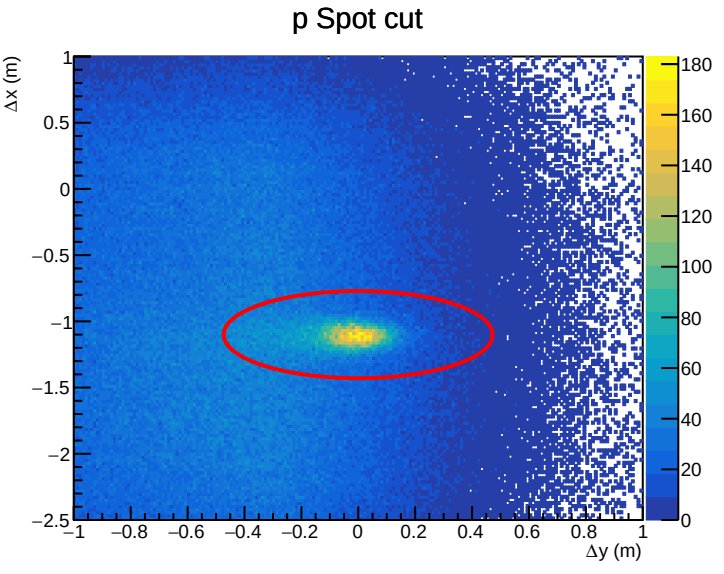
Old ADC Gain Coefficients | PS

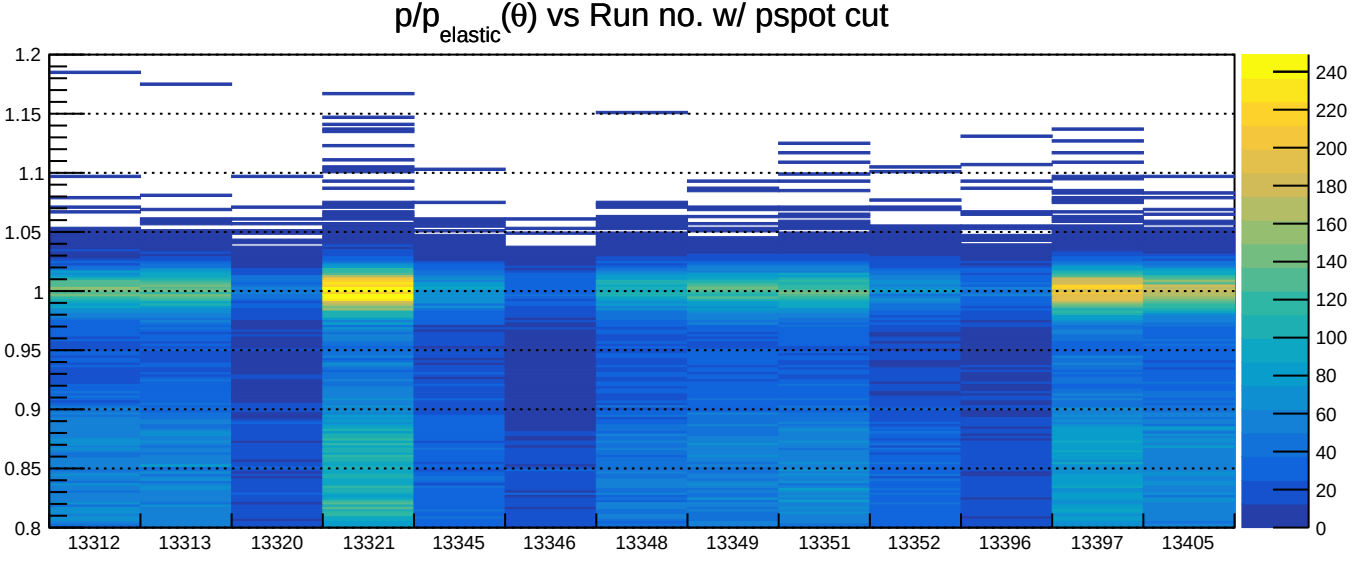


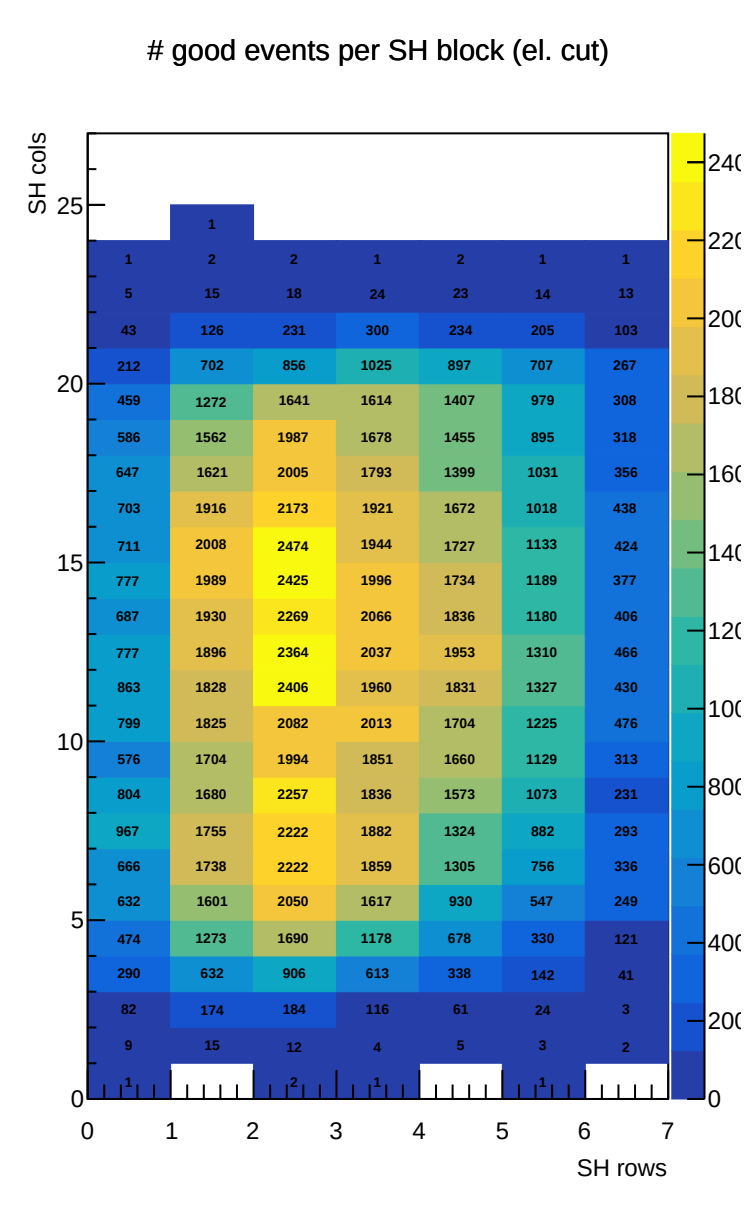
New ADC Gain Coefficients | PS

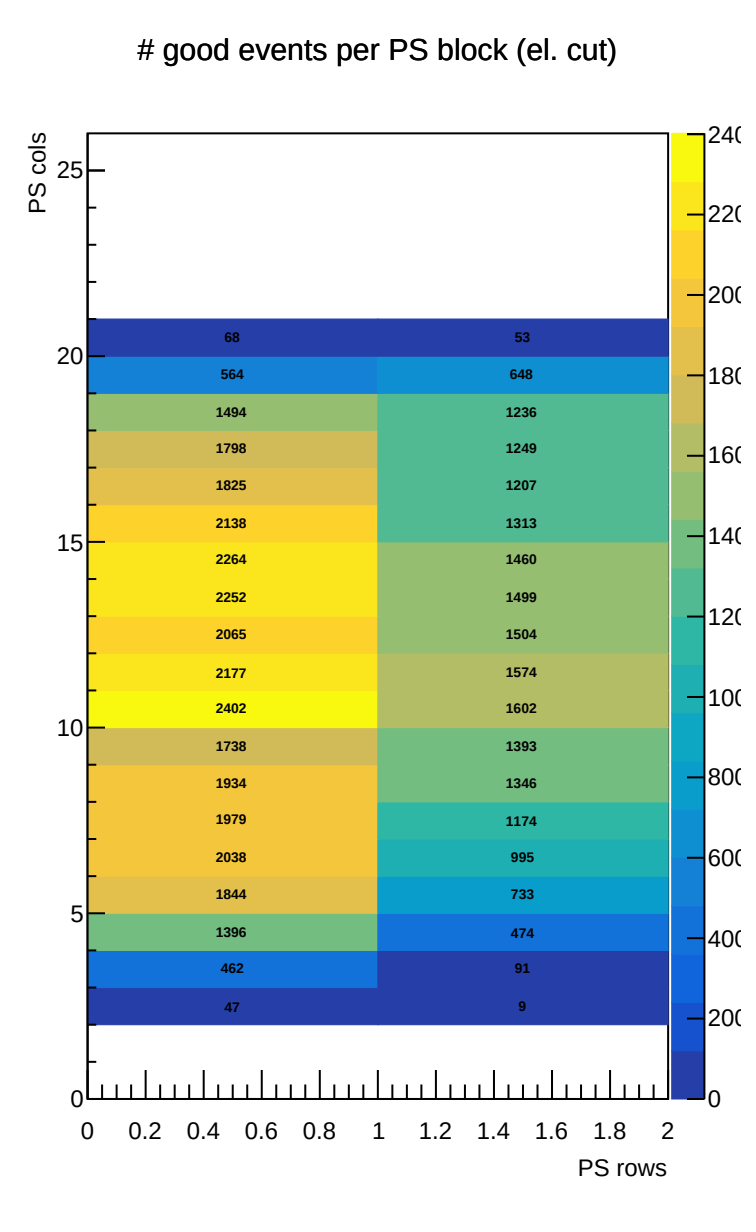



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
10000
8000
6000
4000
2000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

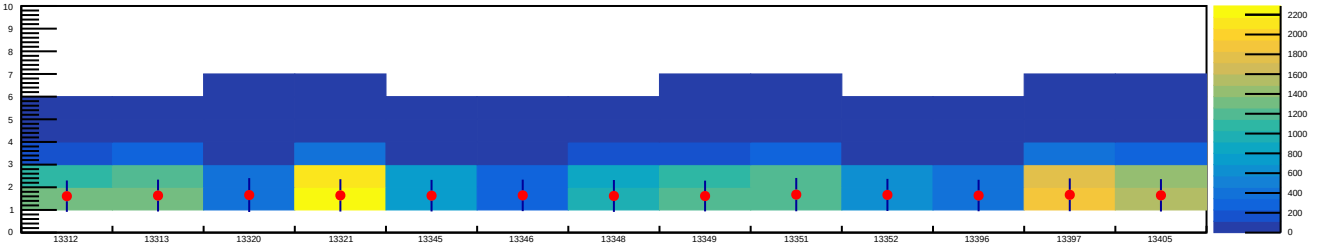

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
180
160
140
120
100
80
60
40
20
0


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
13312
13313
13320
13321
13345
13346
13348
13349
13351
13352
13396
13397
13405
240
220
200
180
160
140
120
100
80
60
40
20
0

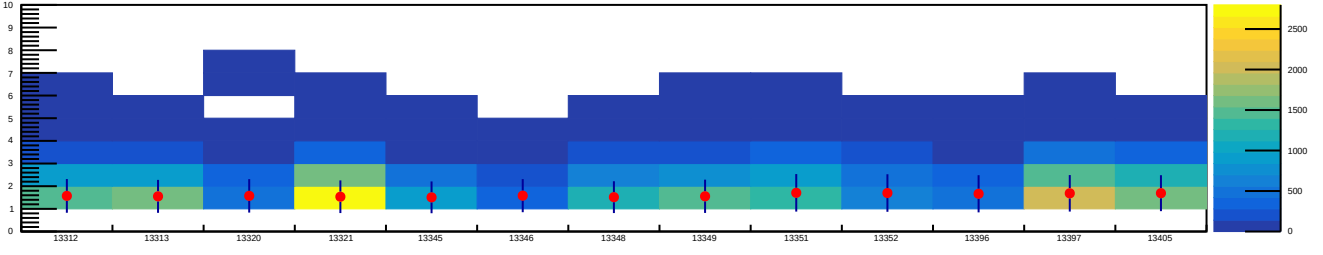

good events per SH block (el. cut)
SH cols
SH rows
0
5
10
15
20
25
0
1
2
3
4
5
6
7
1
1 2 2 1 2 1 1
5 15 18 24 23 14 13
43 126 231 300 234 205 103
212 702 856 1025 897 707 267
459 1272 1641 1614 1407 979 308
586 1562 1987 1678 1455 895 318
647 1621 2005 1793 1399 1031 356
703 1916 2173 1921 1672 1018 438
711 2008 2474 1944 1727 1133 424
777 1989 2425 1996 1734 1189 377
687 1930 2269 2066 1836 1180 406
777 1896 2364 2037 1953 1310 466
863 1828 2406 1960 1831 1327 430
799 1825 2082 2013 1704 1225 476
576 1704 1994 1851 1660 1129 313
804 1680 2257 1836 1573 1073 231
967 1755 2222 1882 1324 882 293
666 1738 2222 1859 1305 756 336
632 1601 2050 1617 930 547 249
474 1273 1690 1178 678 330 121
290 632 906 613 338 142 41
82 174 184 116 61 24 3
9 15 12 4 5 3 2
1 2 1 1
0
200
400
600
800
100
120
140
160
180
200
220
240


good events per PS block (el. cut)
PS cols
PS rows
0
5
10
15
20
25
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
68 53
564 648
1494 1236
1798 1249
1825 1207
2138 1313
2264 1460
2252 1499
2065 1504
2177 1574
2402 1602
1738 1393
1934 1346
1979 1174
2038 995
1844 733
1396 474
462 91
47 9
0
200
400
600
800
100
120
140
160
180
200
220
240

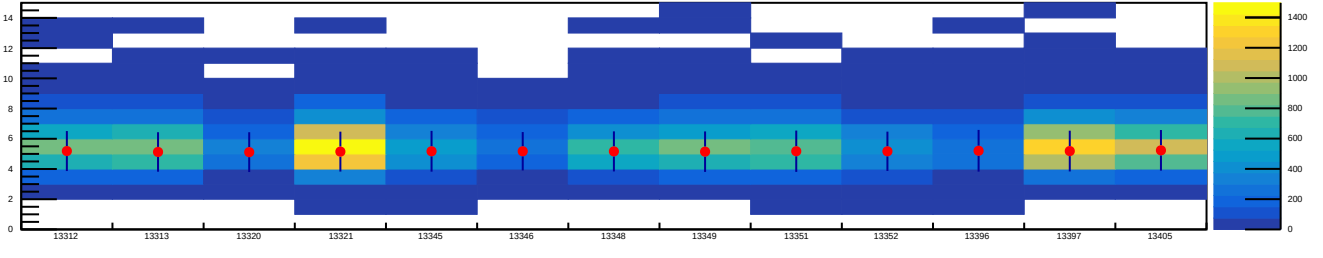
PS (best) cluster size vs Run no. (el. cut)



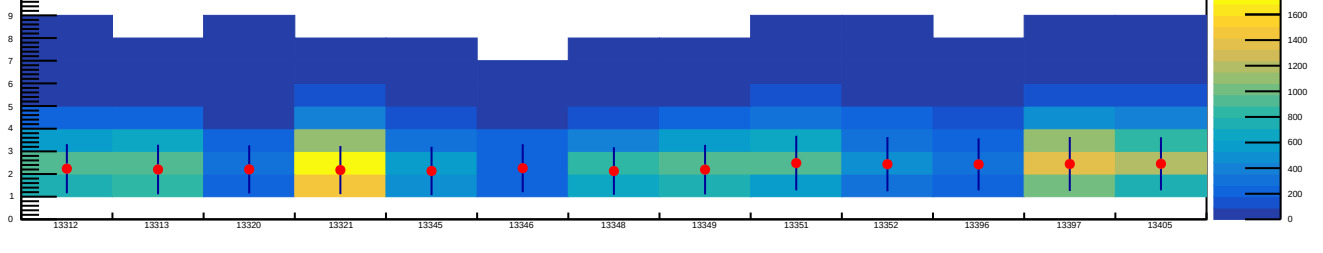
PS cluster multiplicity vs Run no. (el. cut)



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/sbs14-sbs70p-set2.cfg

Total # events analyzed: 5855980, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.99, σ = (6.358 $\pm$ 0.041) p

E/p (after calib.) | μ = 1.00, σ = (6.270 $\pm$ 0.055) 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)<0.335,
PS cluster energy > 0.2 GeV
p_recon > 1.5 GeV/c

events passed global cuts: 818770

Elastic cuts:

$|p/p_{el}(\theta) - 1.000| \leq 6.0*0.015$

proton spot cut ranges:

Δx (m): Mean = -1.1000, 4.0σ = 0.0823

Δy (m): Mean = -0.0006, 5.0σ = 0.0946

events passed global & elastic cuts: 37506

Other cuts:

Minimum # events per block: 80 | 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 589.5s | Real 1818.2s