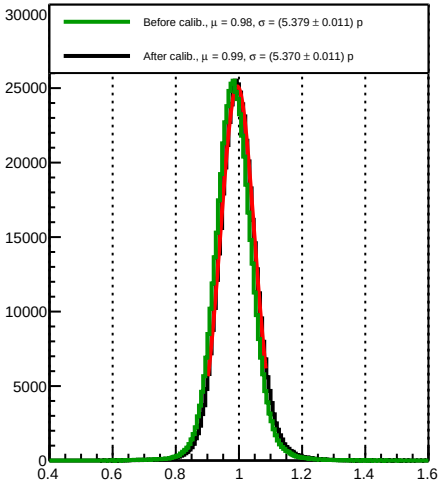
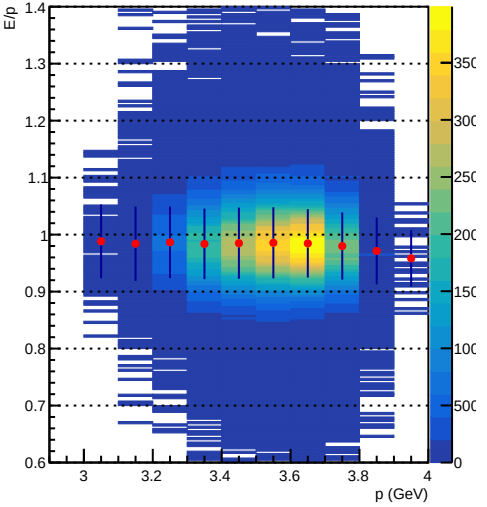
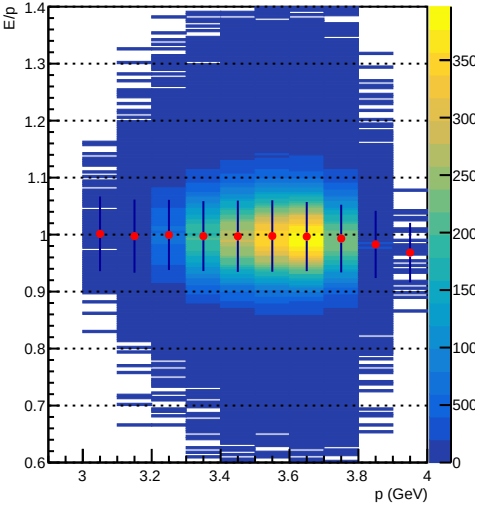
E/p (el. cut)



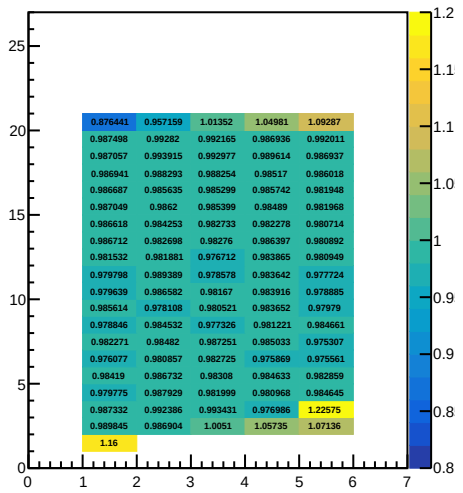
E/p vs p (el. cut)



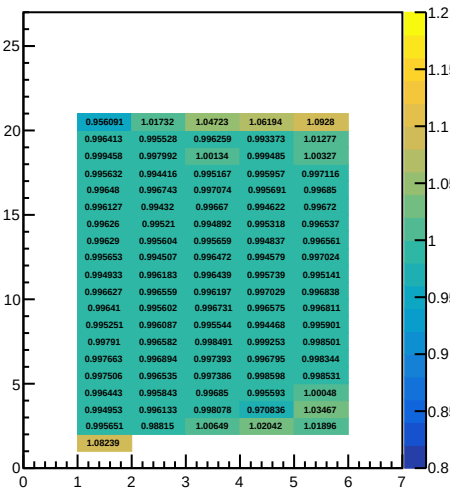
E/p vs p | After Calib. (el. cut)



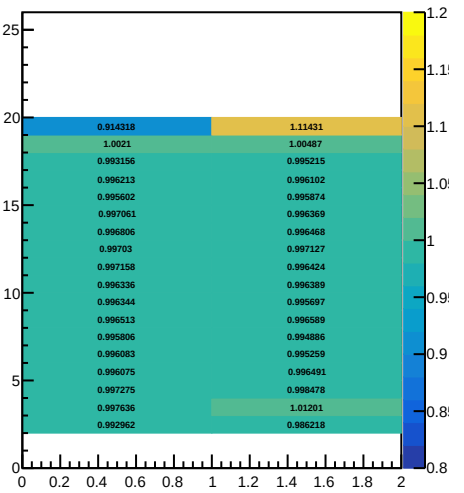
E/p per SH block (el. cut)



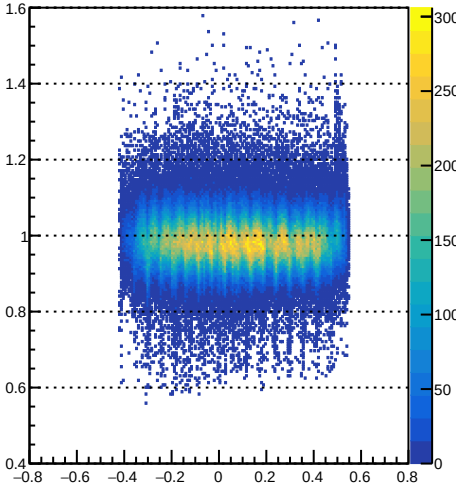
E/p per SH block | After Calib. (el. cut)



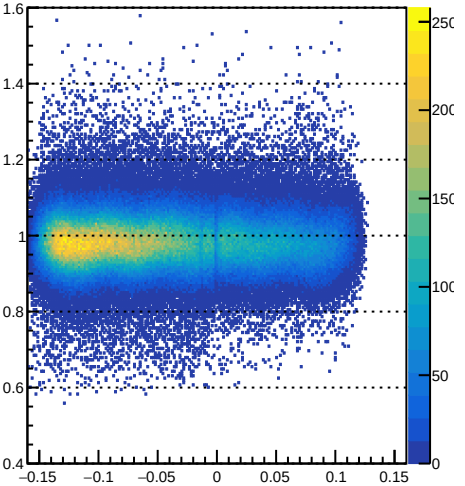
E/p per PS block | After Calib. (el. cut)



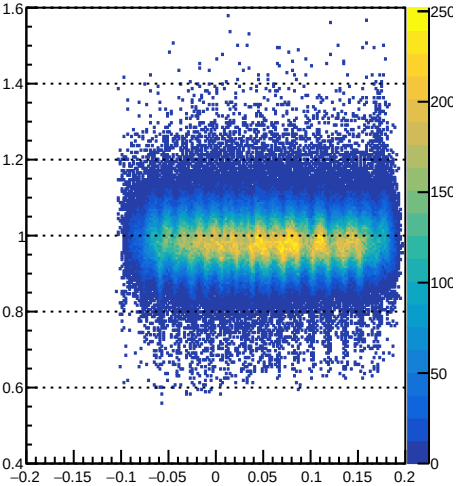
E/p vs Track x (el. cut)



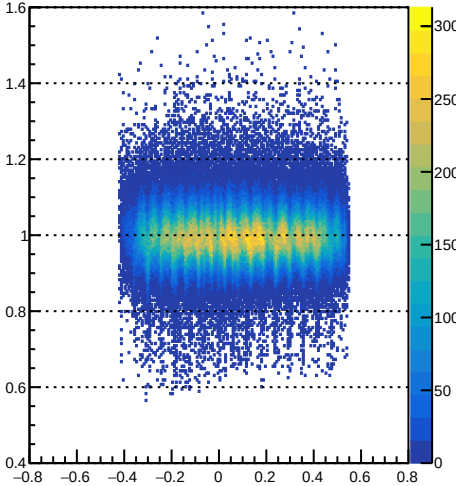
E/p vs Track y (el. cut)



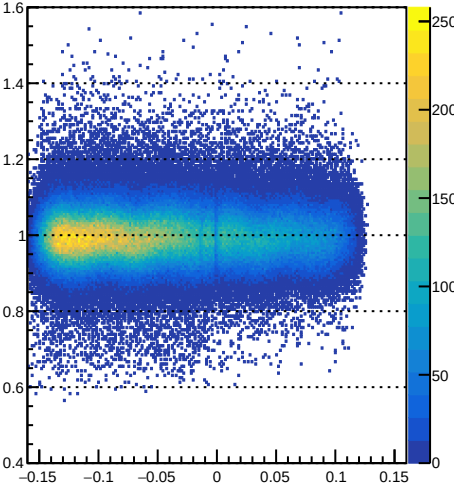
E/p vs Track theta (el. cut)



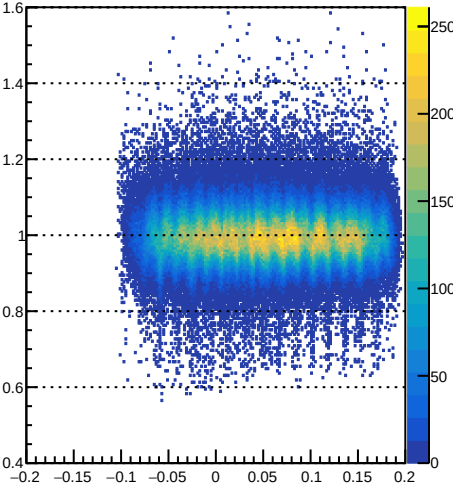
E/p vs Track x | After Calib. (el. cut)



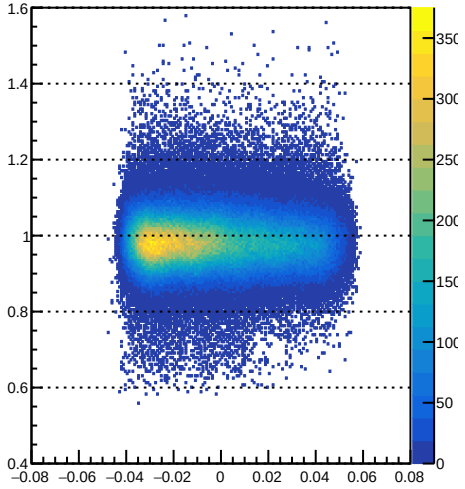
E/p vs Track y | After Calib. (el. cut)



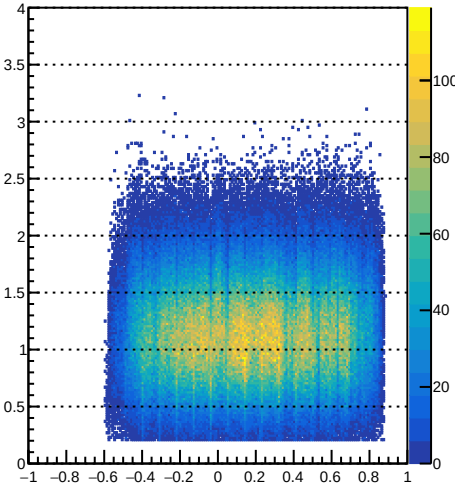
E/p vs Track theta | After Calib. (el. cut)



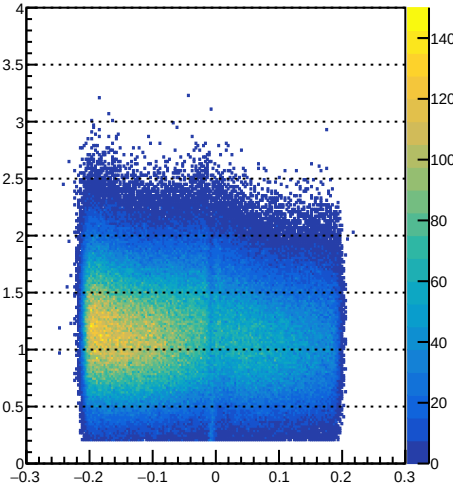
E/p vs Track phi (el. cut)



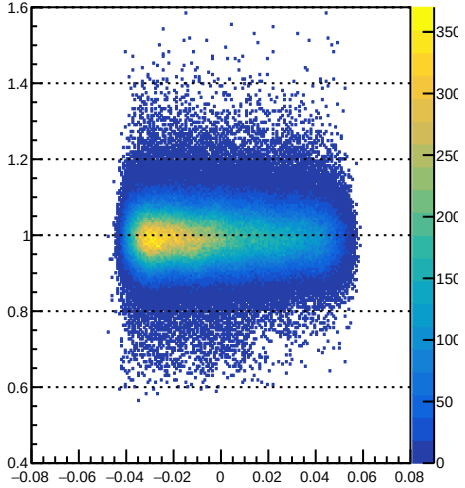
PS energy vs Track x (proj. at PS) (el. cut)



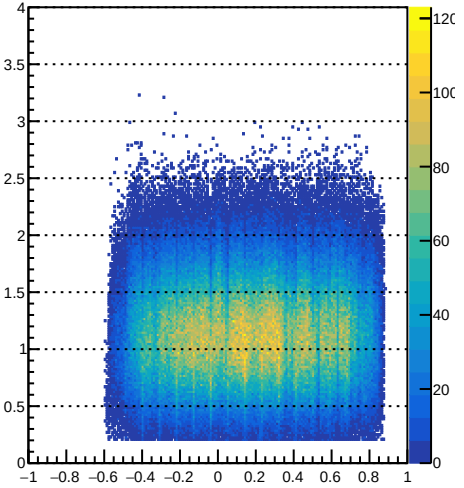
PS energy vs Track y (el. cut) (proj. at PS)



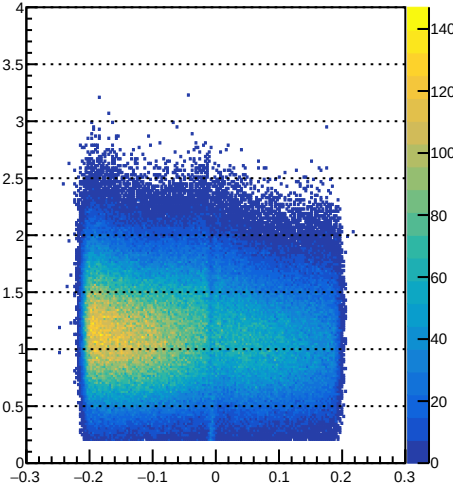
E/p vs Track phi | After Calib. (el. cut)

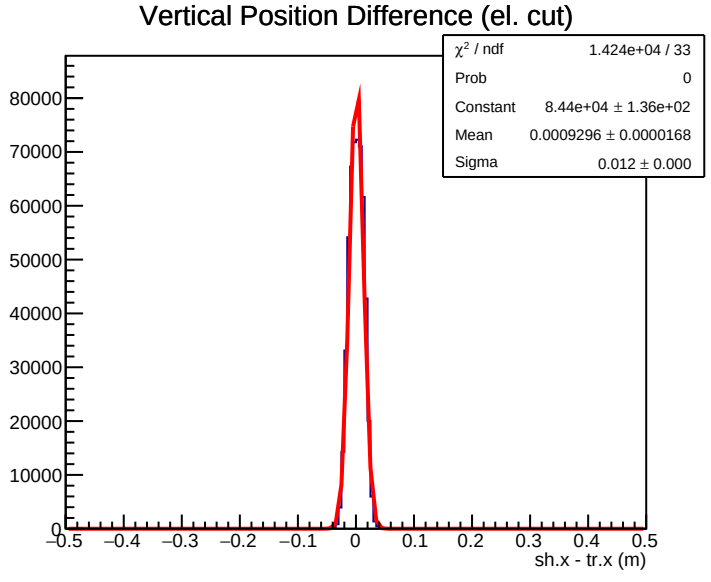


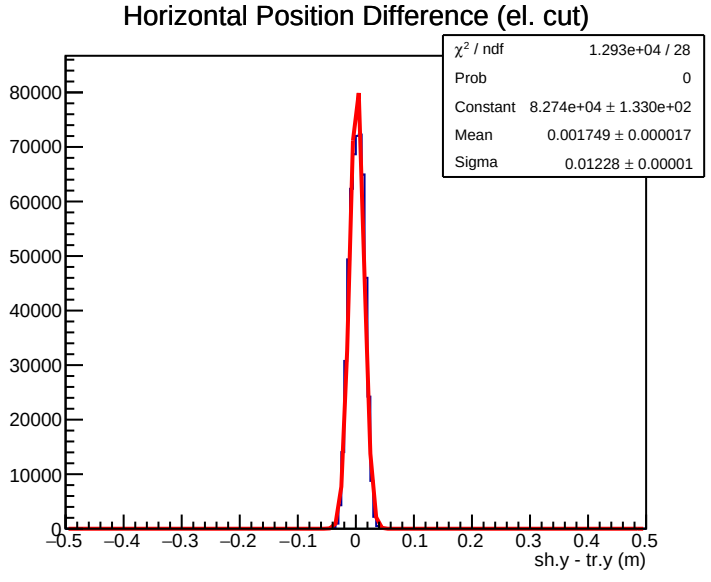
PS energy vs Track x (proj. at PS) | After Calib. (el. cut)

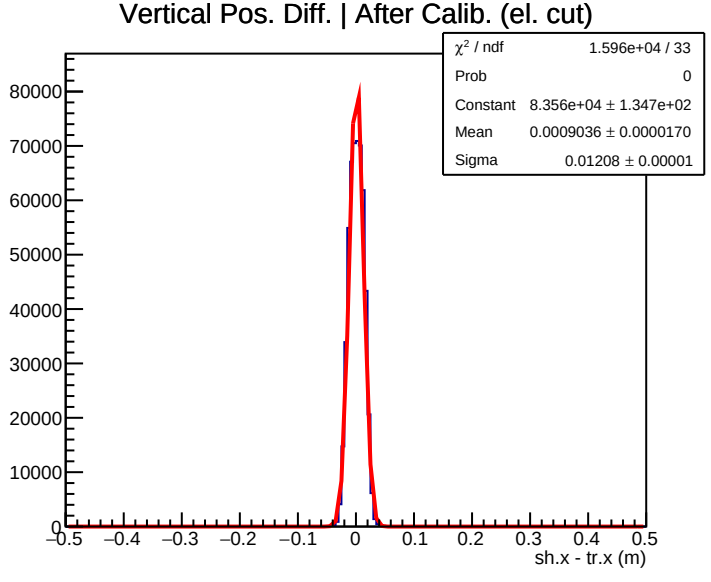


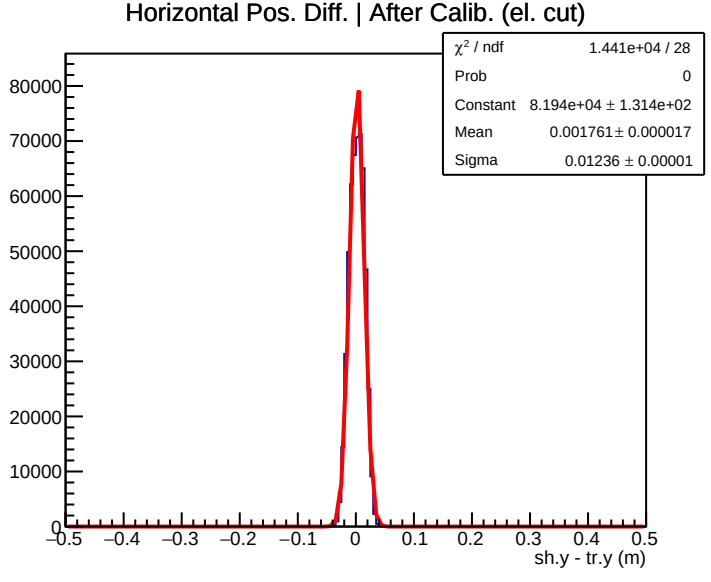
PS energy vs Track y (proj. at PS) | After Calib. (el. cut)

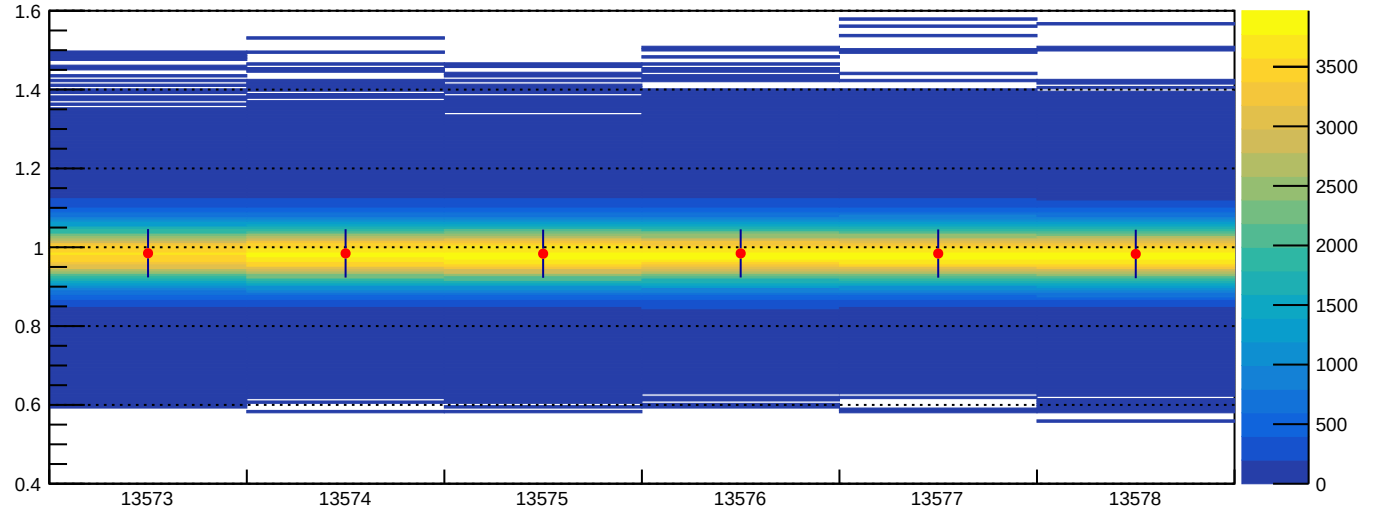


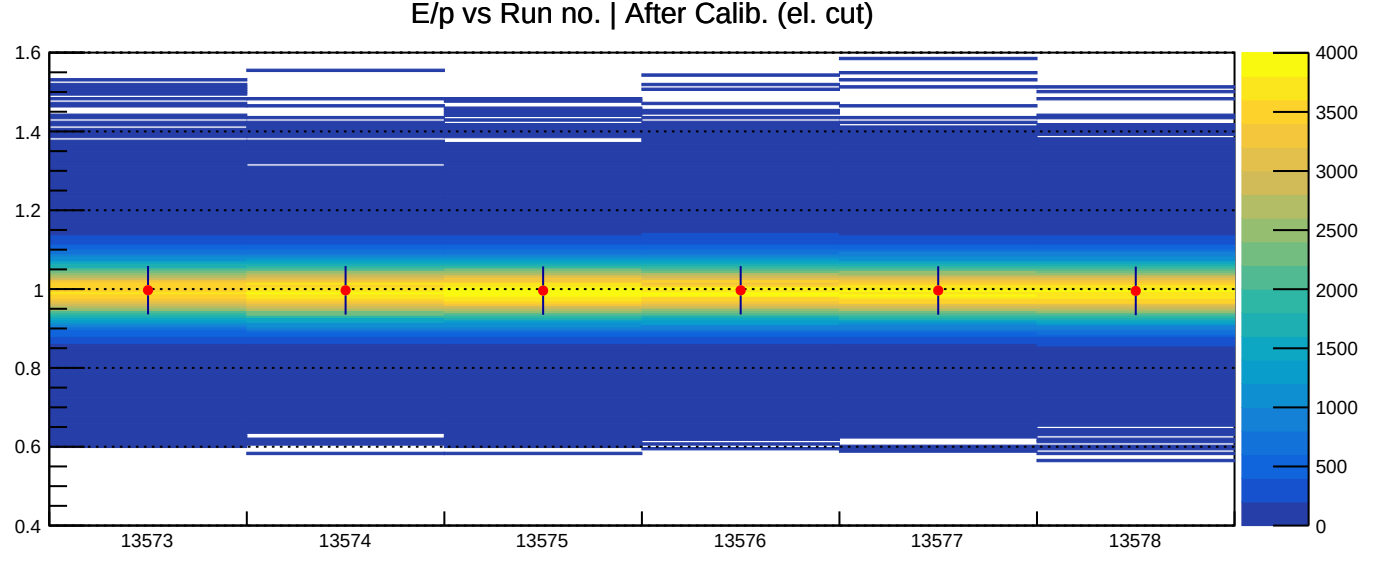

Vertical Position Difference (el. cut)
χ² / ndf 1.424e+04 / 33
Prob 0
Constant 8.44e+04 ± 1.36e+02
Mean 0.0009296 ± 0.0000168
Sigma 0.012 ± 0.000
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 1.293e+04 / 28
Prob 0
Constant 8.274e+04 ± 1.330e+02
Mean 0.001749 ± 0.000017
Sigma 0.01228 ± 0.00001
sh.y - tr.y (m)

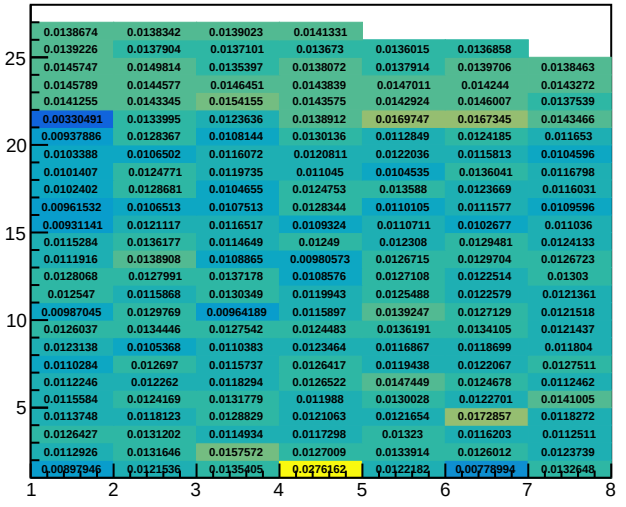

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.596e+04 / 33
Prob 0
Constant 8.356e+04 ± 1.347e+02
Mean 0.0009036 ± 0.0000170
Sigma 0.01208 ± 0.00001
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.441e+04 / 28
Prob 0
Constant 8.194e+04 ± 1.314e+02
Mean 0.001761 ± 0.000017
Sigma 0.01236 ± 0.00001
sh.y - tr.y (m)

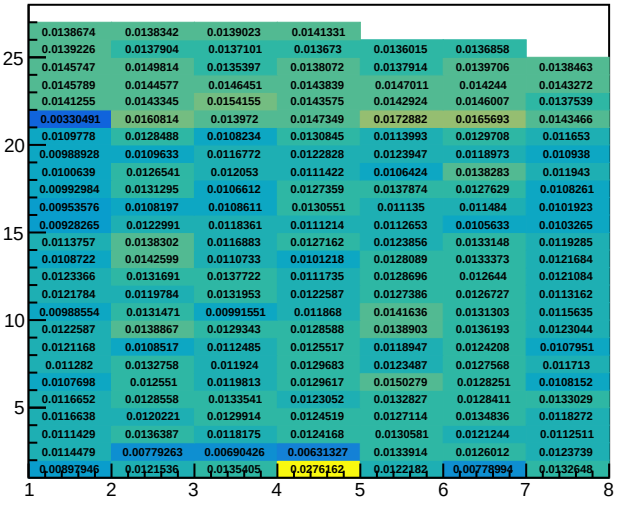

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13573
13574
13575
13576
13577
13578
3500
3000
2500
2000
1500
1000
500
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13573
13574
13575
13576
13577
13578
4000
3500
3000
2500
2000
1500
1000
500
0

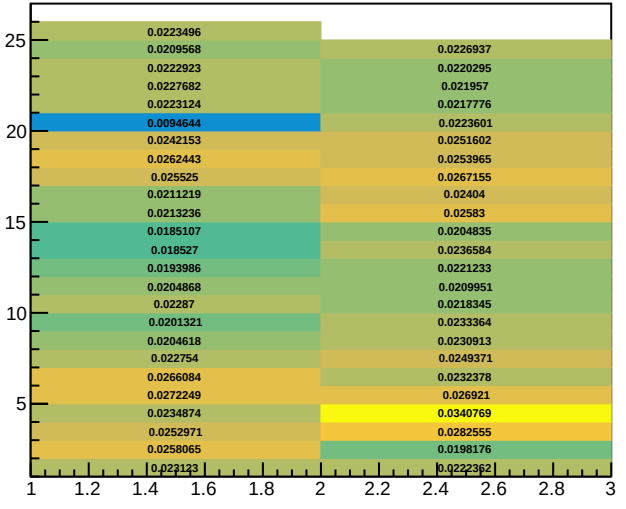
Old ADC Gain Coefficients | SH



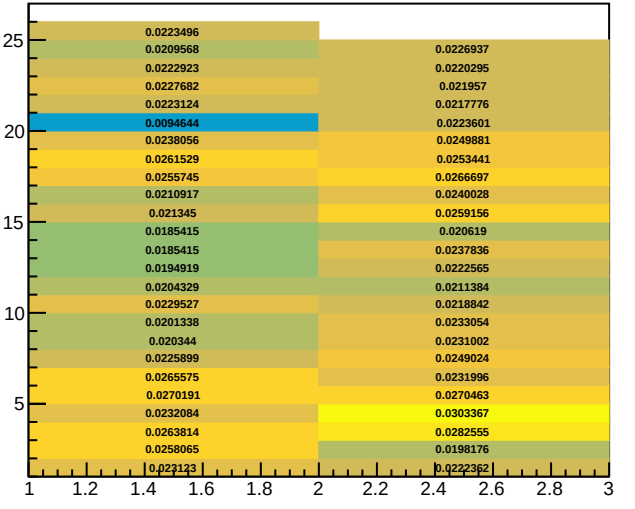
New ADC Gain Coefficients | SH

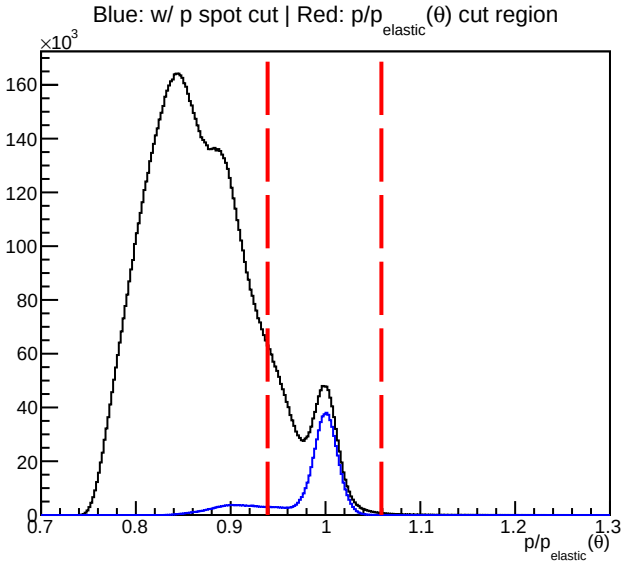


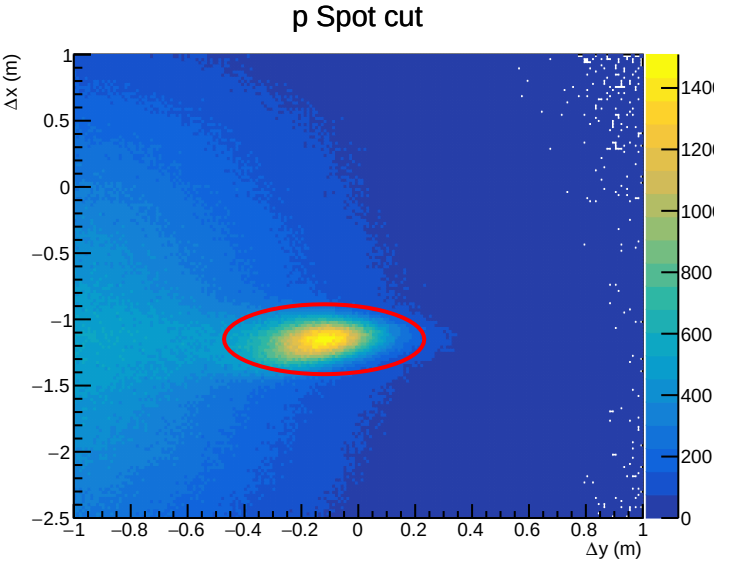
Old ADC Gain Coefficients | PS

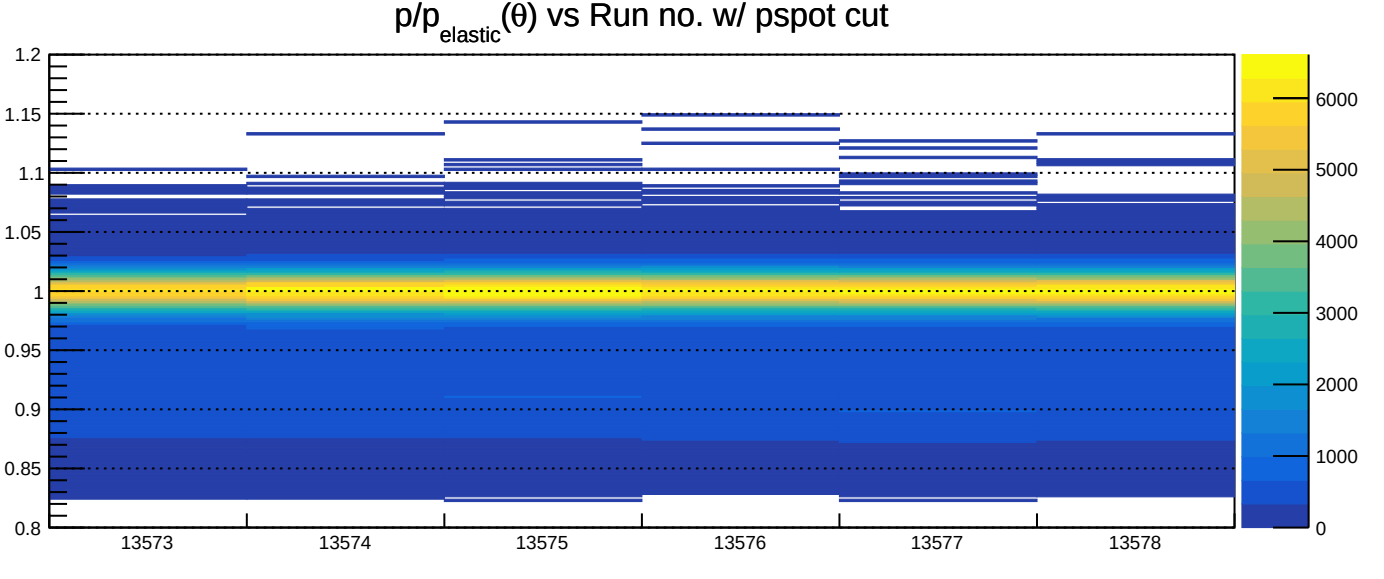


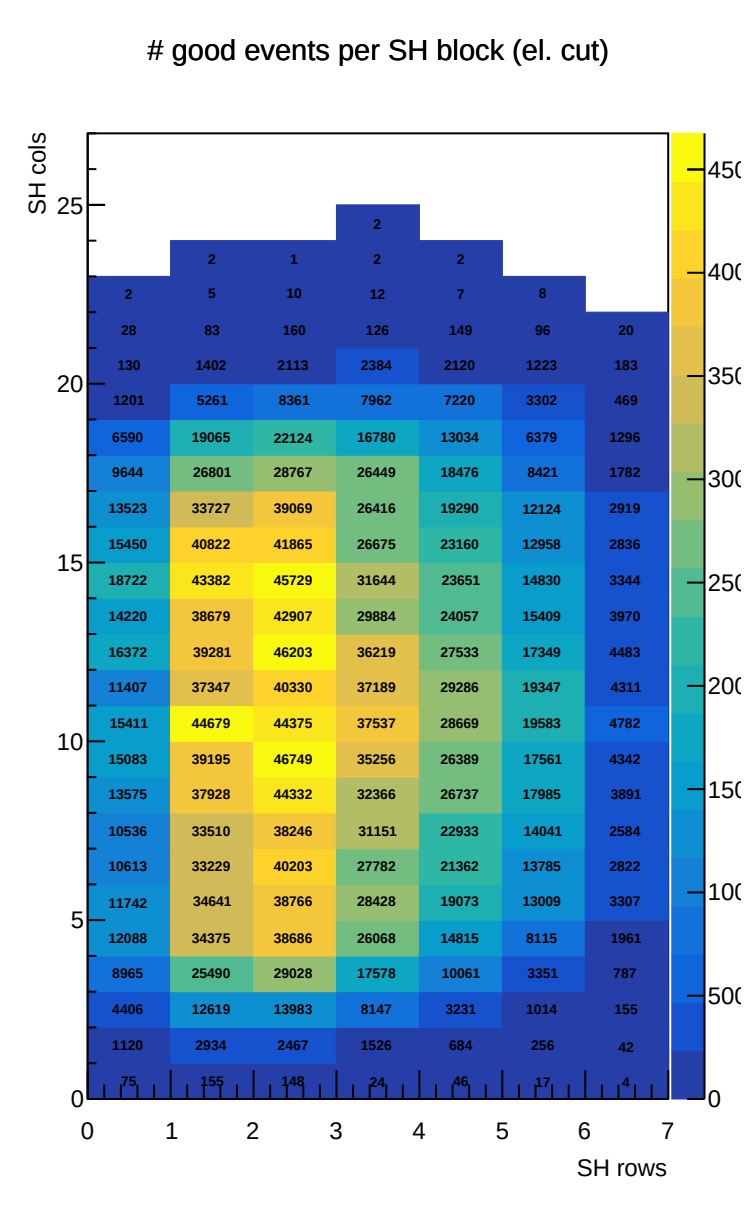
New ADC Gain Coefficients | PS

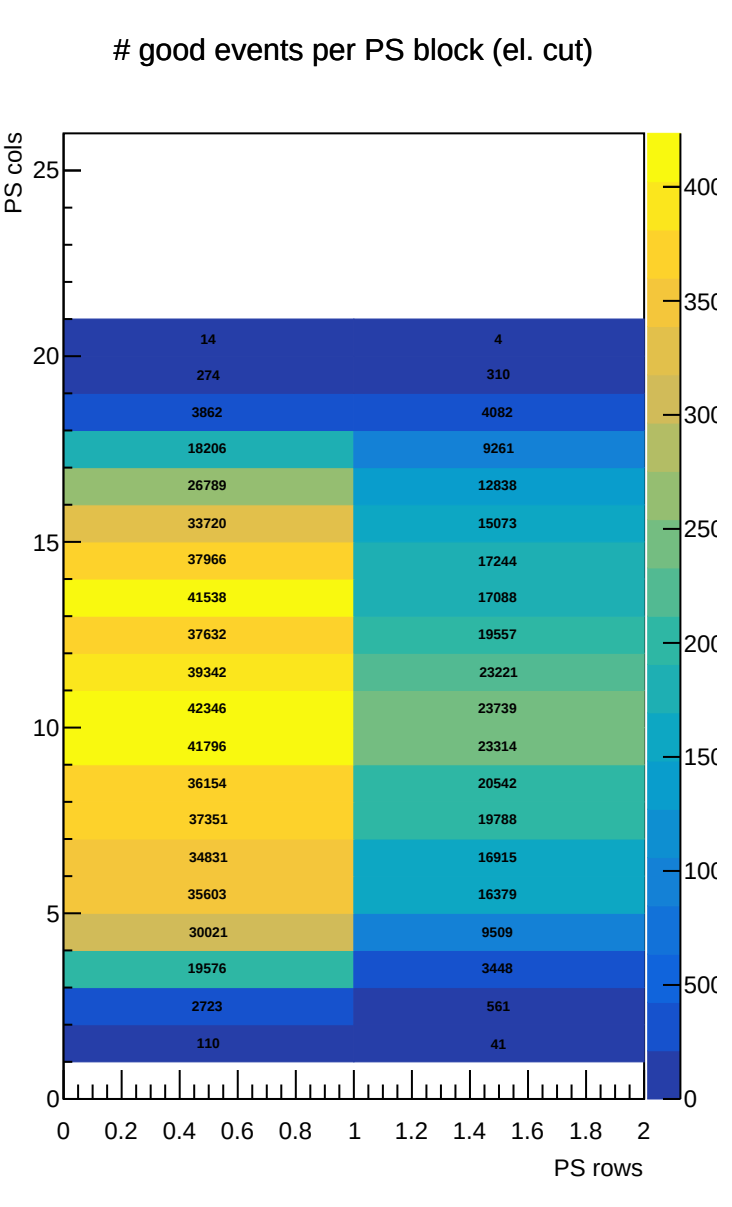



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
×10^3
160
140
120
100
80
60
40
20
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

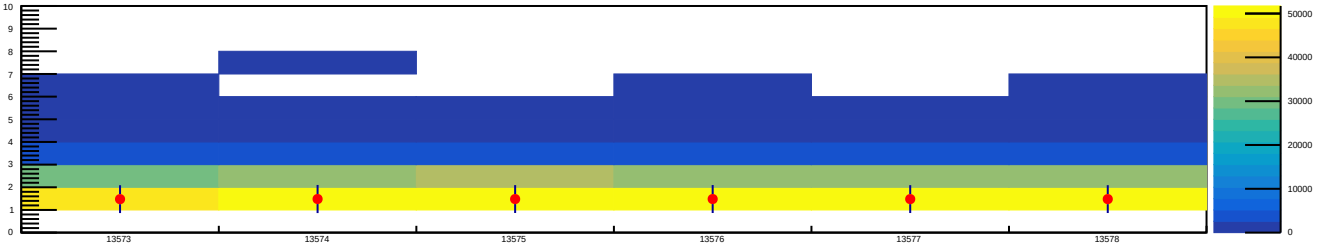

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
1400
1200
1000
800
600
400
200
0


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
13573
13574
13575
13576
13577
13578
6000
5000
4000
3000
2000
1000
0

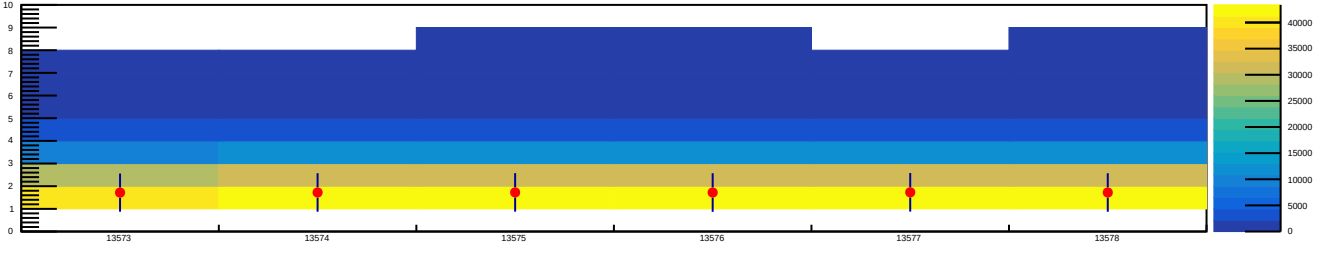

good events per SH block (el. cut)
SH cols
SH rows
0 1 2 3 4 5 6 7
0 5 10 15 20 25
2
2 1 2 2
2 5 10 12 7 8
28 83 160 126 149 96 20
130 1402 2113 2384 2120 1223 183
1201 5261 8361 7962 7220 3302 469
6590 19065 22124 16780 13034 6379 1296
9644 26801 28767 26449 18476 8421 1782
13523 33727 39069 26416 19290 12124 2919
15450 40822 41865 26675 23160 12958 2836
18722 43382 45729 31644 23651 14830 3344
14220 38679 42907 29884 24057 15409 3970
16372 39281 46203 36219 27533 17349 4483
11407 37347 40330 37189 29286 19347 4311
15411 44679 44375 37537 28669 19583 4782
15083 39195 46749 35256 26389 17561 4342
13575 37928 44332 32366 26737 17985 3891
10536 33510 38246 31151 22933 14041 2584
10613 33229 40203 27782 21362 13785 2822
11742 34641 38766 28428 19073 13009 3307
12088 34375 38686 26068 14815 8115 1961
8965 25490 29028 17578 10061 3351 787
4406 12619 13983 8147 3231 1014 155
1120 2934 2467 1526 684 256 42
75 155 148 24 46 17 4
0 50 100 150 200 250 300 350 400 450


good events per PS block (el. cut)
PS cols
PS rows
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
0 5 10 15 20 25
14 4
274 310
3862 4082
18206 9261
26789 12838
33720 15073
37966 17244
41538 17088
37632 19557
39342 23221
42346 23739
41796 23314
36154 20542
37351 19788
34831 16915
35603 16379
30021 9509
19576 3448
2723 561
110 41
0 50 100 150 200 250 300 350 400

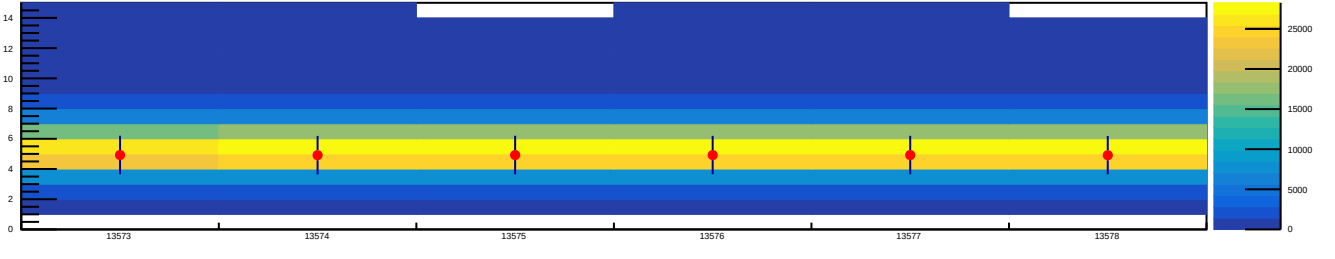
PS (best) cluster size vs Run no. (el. cut)



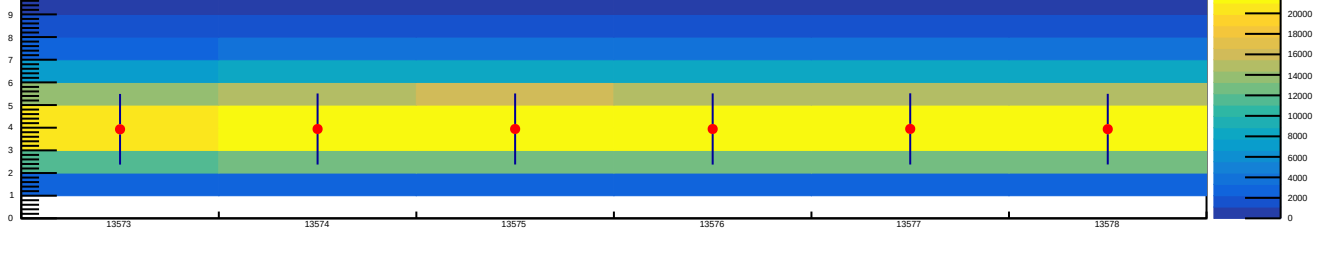
PS cluster multiplicity vs Run no. (el. cut)



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-sbs70p-set2.cfg

Total # events analyzed: 28374186, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.98, σ = (5.379 $\pm$ 0.011) p

E/p (after calib.) | μ = 0.99, σ = (5.370 $\pm$ 0.011) 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: 11702106

Elastic cuts:

$|p/p_{el}(\theta) - 0.999| \leq 4.0*0.015$

proton spot cut ranges:

Δx (m): Mean = -1.1500, 2.0σ = 0.1320
Δy (m): Mean = -0.1200, 2.0σ = 0.1760

 # events passed global & elastic cuts: 642174

Other cuts:

Minimum # events per block: 1000 | 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 2413.3s | Real 4784.0s