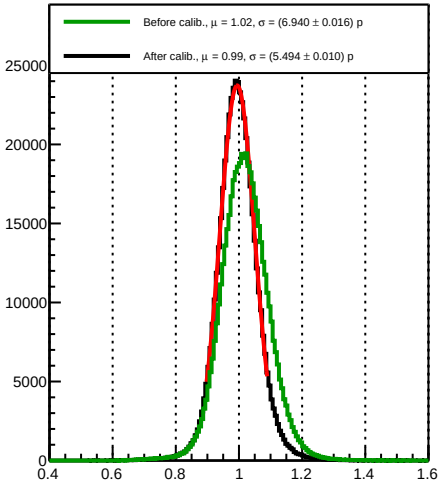
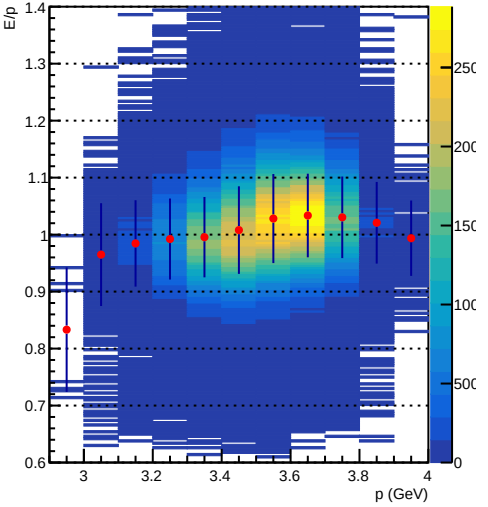
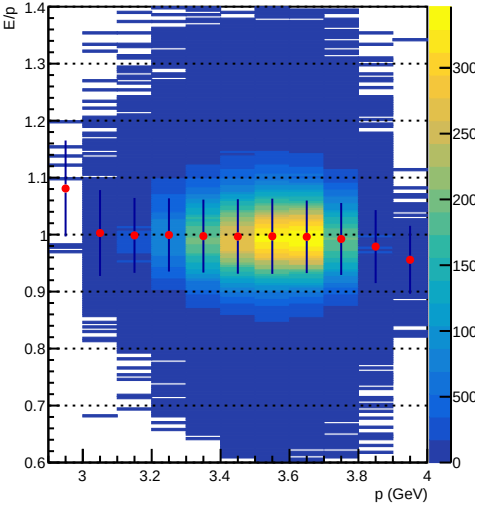
E/p (el. cut)



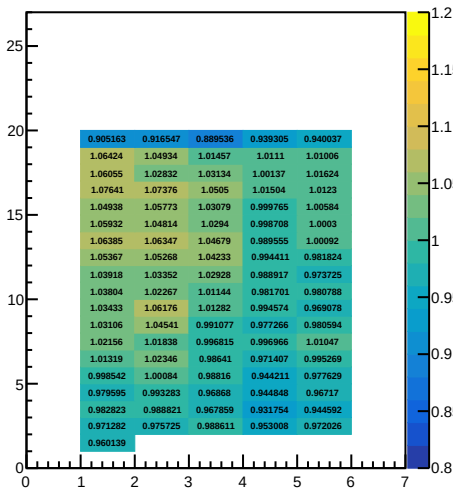
E/p vs p (el. cut)



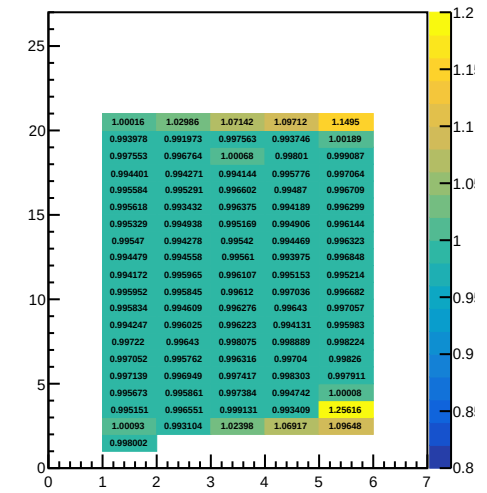
E/p vs p | After Calib. (el. cut)



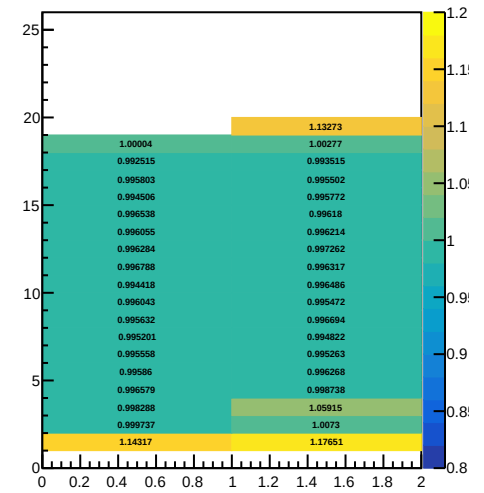
E/p per SH block (el. cut)



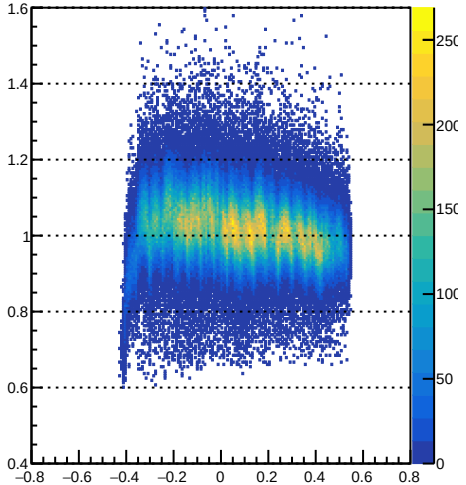
E/p per SH block | After Calib. (el. cut)



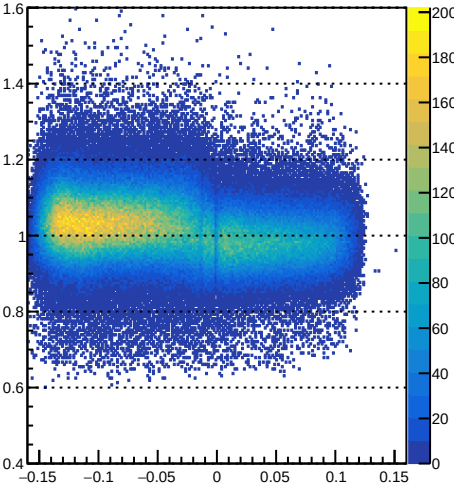
E/p per PS block | After Calib. (el. cut)



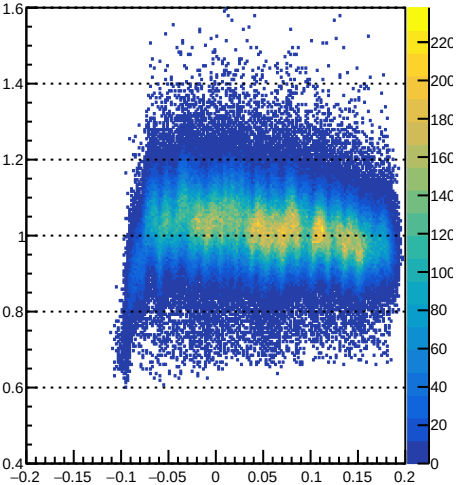
E/p vs Track x (el. cut)



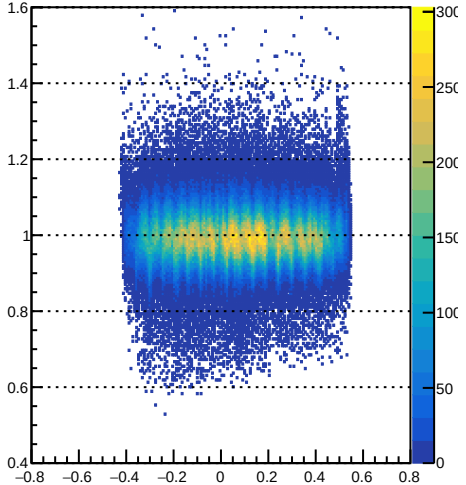
E/p vs Track y (el. cut)



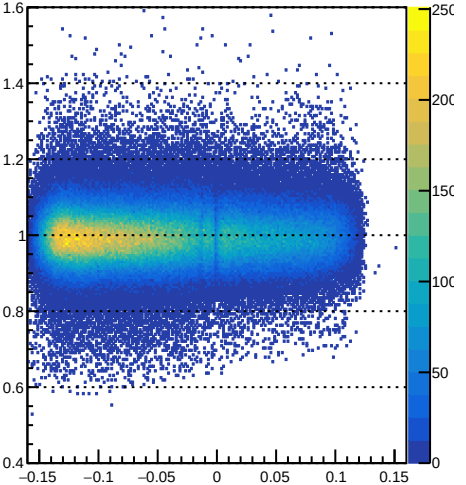
E/p vs Track theta (el. cut)



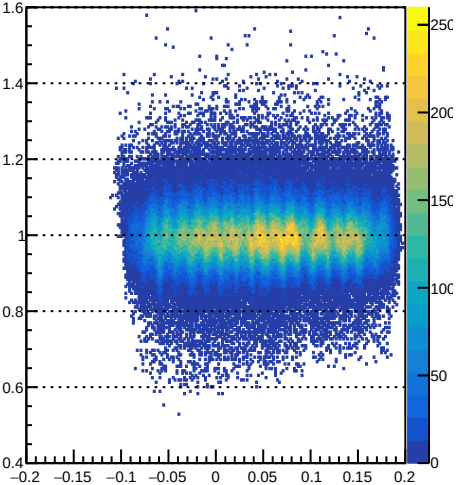
E/p vs Track x | After Calib. (el. cut)



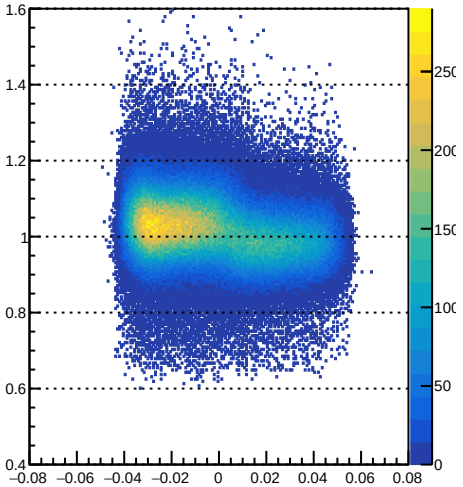
E/p vs Track y | After Calib. (el. cut)



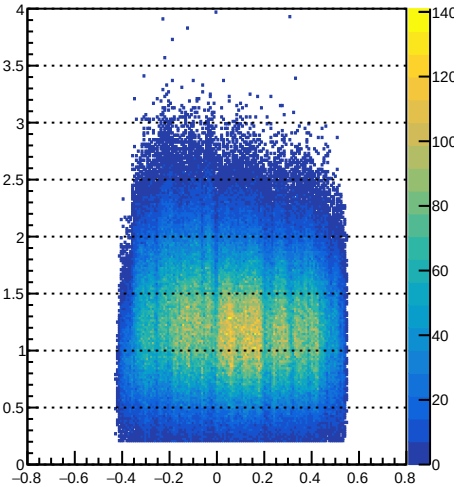
E/p vs Track theta | After Calib. (el. cut)



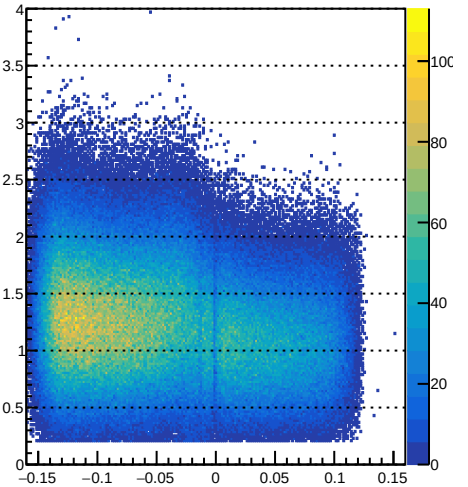
E/p vs Track phi (el. cut)



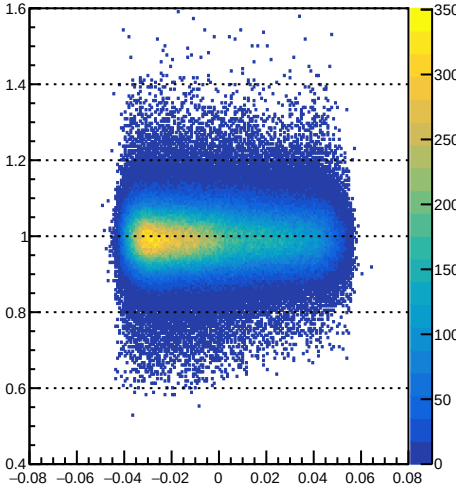
PS energy vs Track x (el. cut)



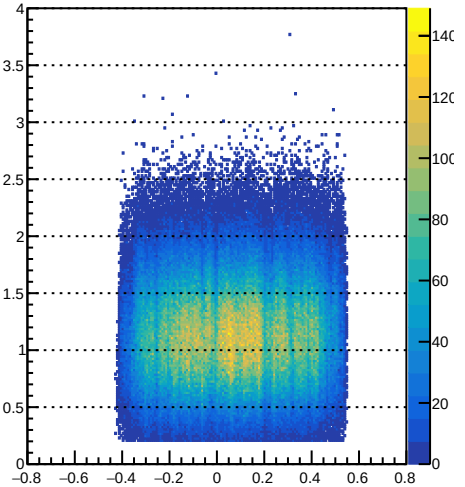
PS energy vs Track y (el. cut)



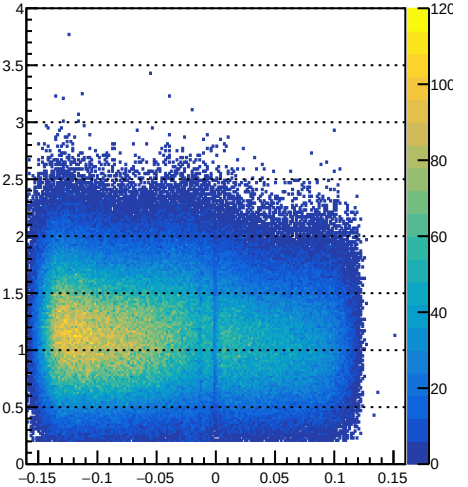
E/p vs Track phi | After Calib. (el. cut)

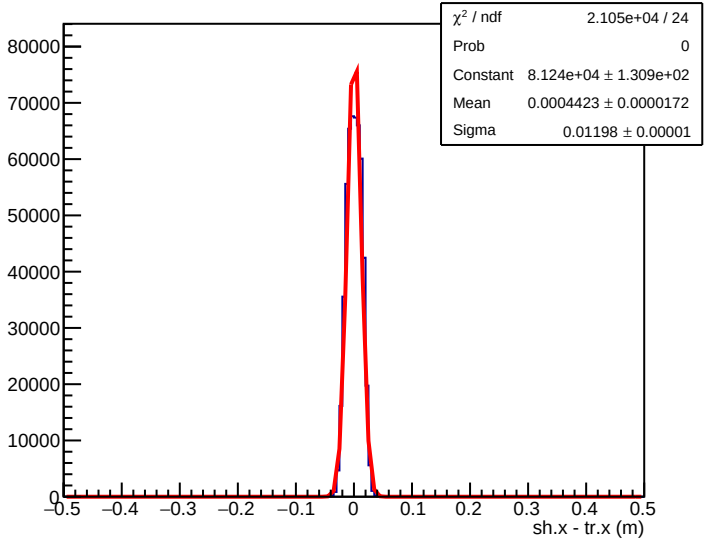


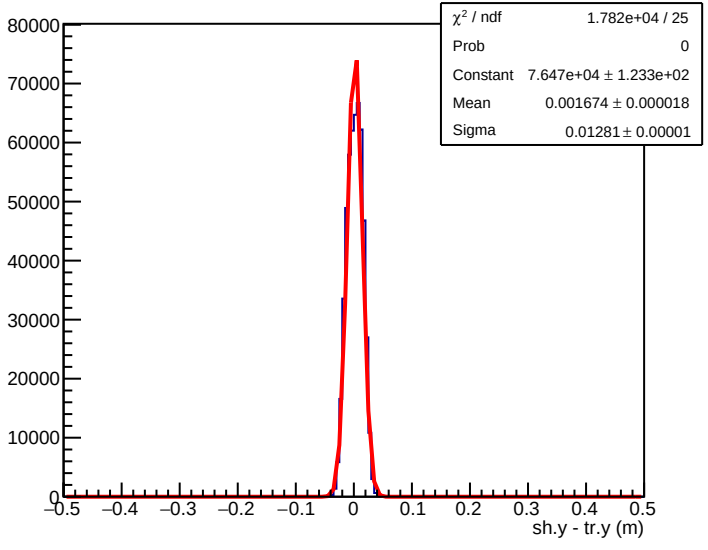
PS energy vs Track x | After Calib. (el. cut)

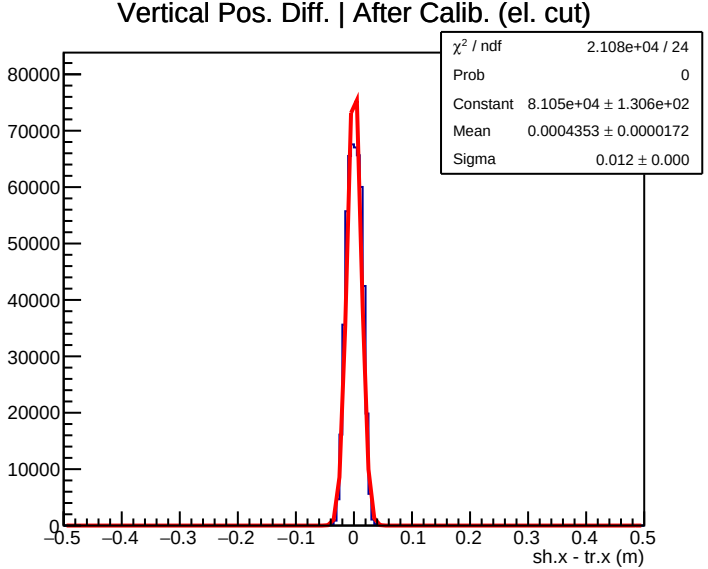


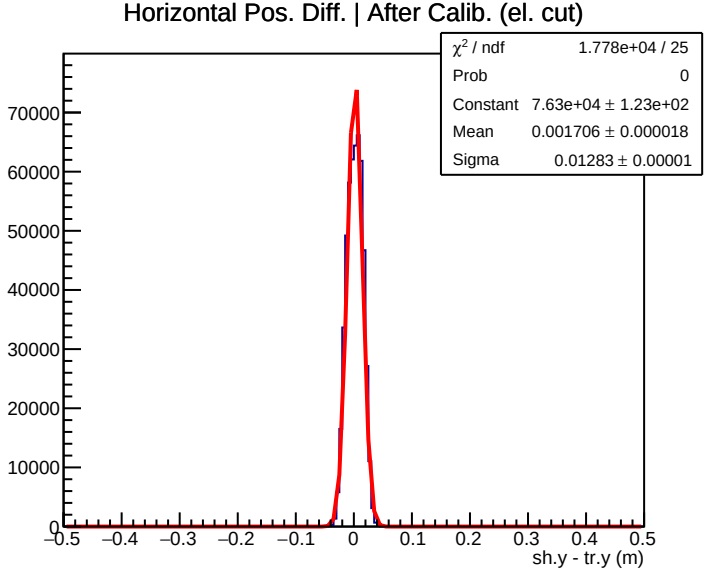
PS energy vs Track y | After Calib. (el. cut)

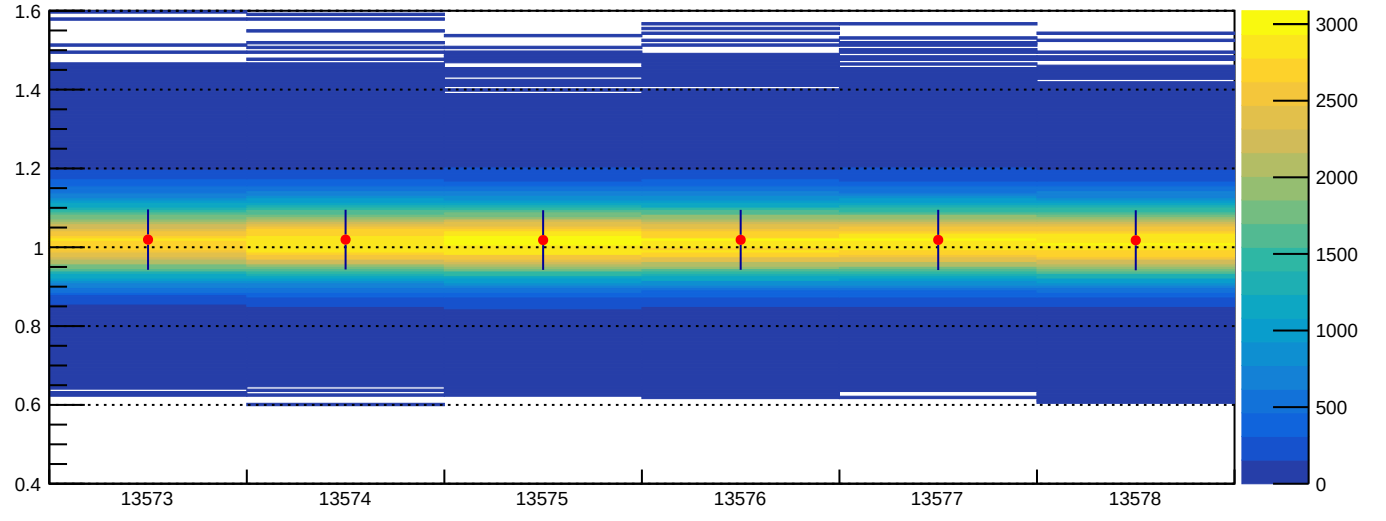


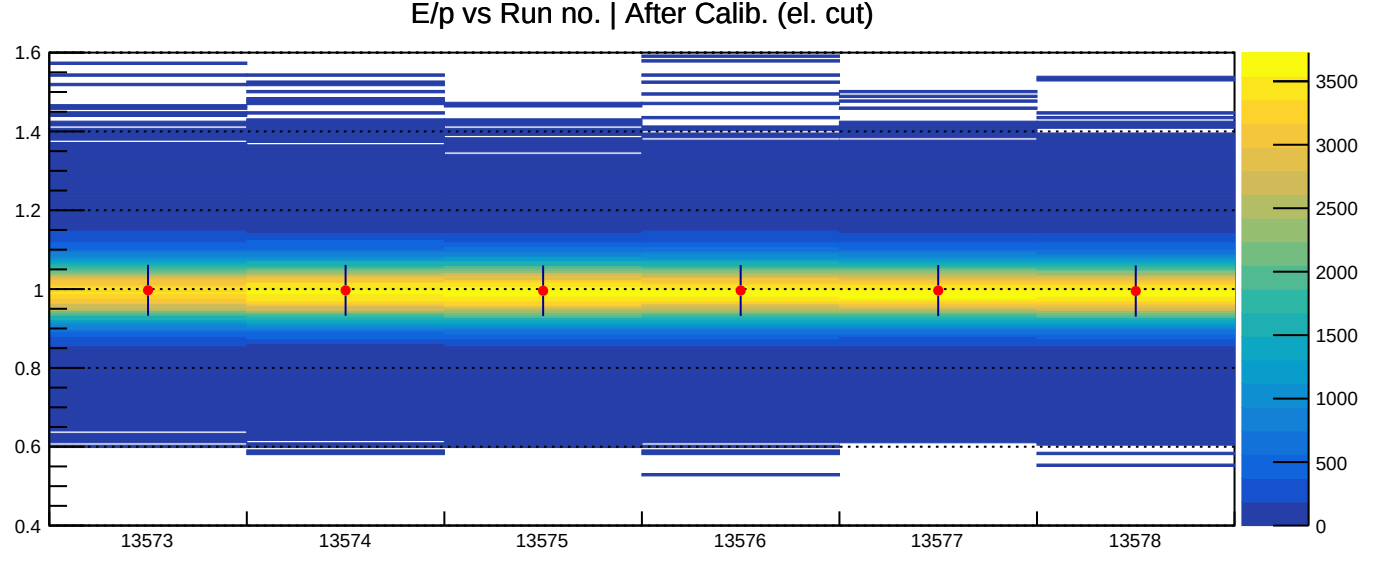

Vertical Position Difference (el. cut)
χ² / ndf 2.105e+04 / 24
Prob 0
Constant 8.124e+04 ± 1.309e+02
Mean 0.0004423 ± 0.0000172
Sigma 0.01198 ± 0.00001
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 1.782e+04 / 25
Prob 0
Constant 7.647e+04 ± 1.233e+02
Mean 0.001674 ± 0.000018
Sigma 0.01281 ± 0.00001
sh.y - tr.y (m)

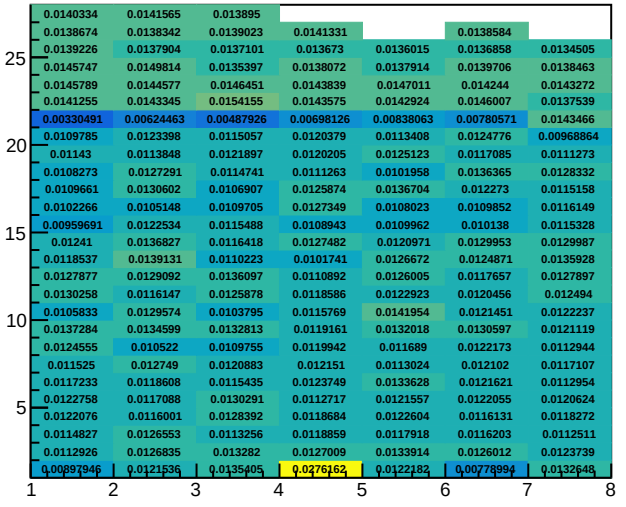

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 2.108e+04 / 24
Prob 0
Constant 8.105e+04 ± 1.306e+02
Mean 0.0004353 ± 0.0000172
Sigma 0.012 ± 0.000
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.778e+04 / 25
Prob 0
Constant 7.63e+04 ± 1.23e+02
Mean 0.001706 ± 0.000018
Sigma 0.01283 ± 0.00001
sh.y - tr.y (m)

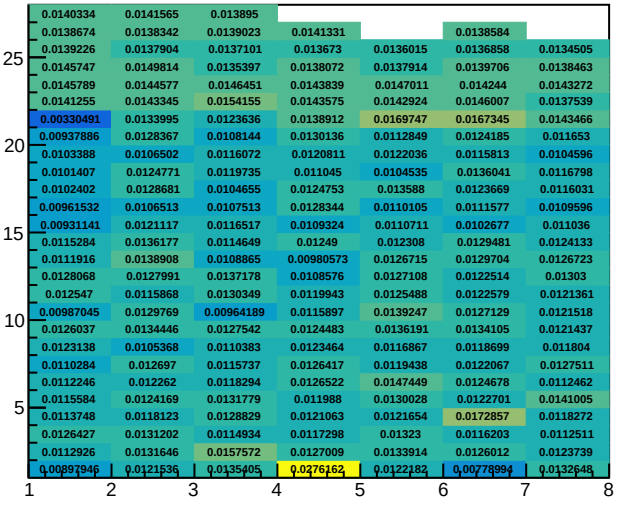

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13573
13574
13575
13576
13577
13578
3000
2500
2000
1500
1000
500
0


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
3500
3000
2500
2000
1500
1000
500
0

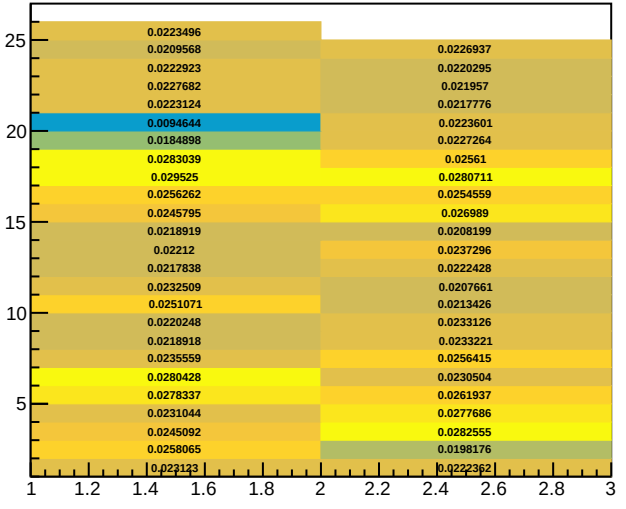
Old ADC Gain Coefficients | SH



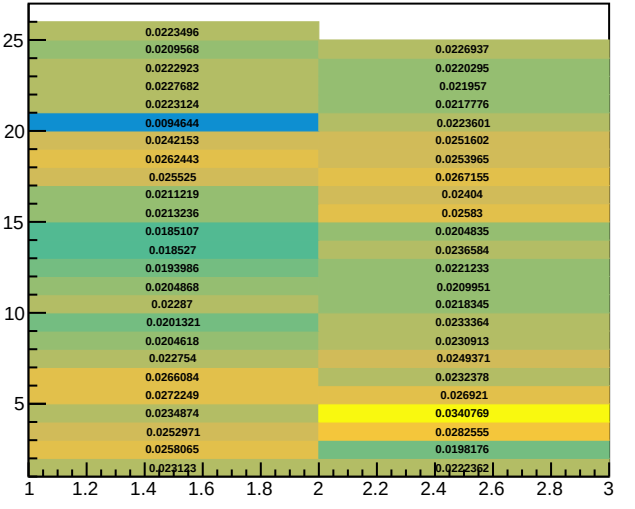
New ADC Gain Coefficients | SH

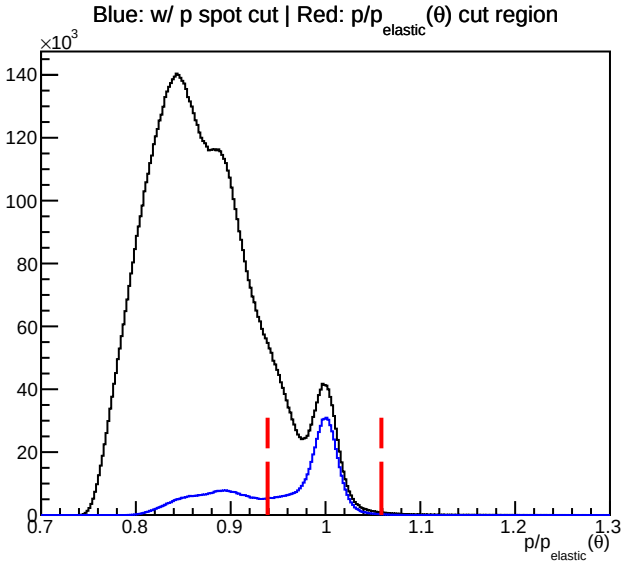


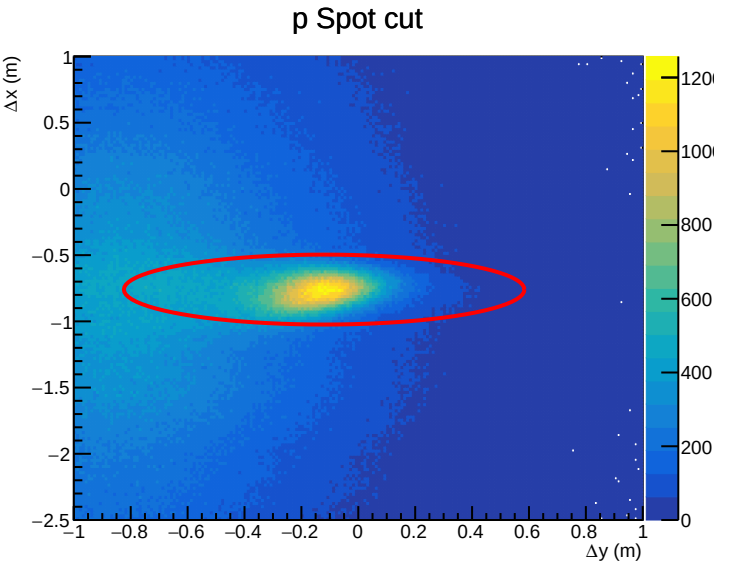
Old ADC Gain Coefficients | PS

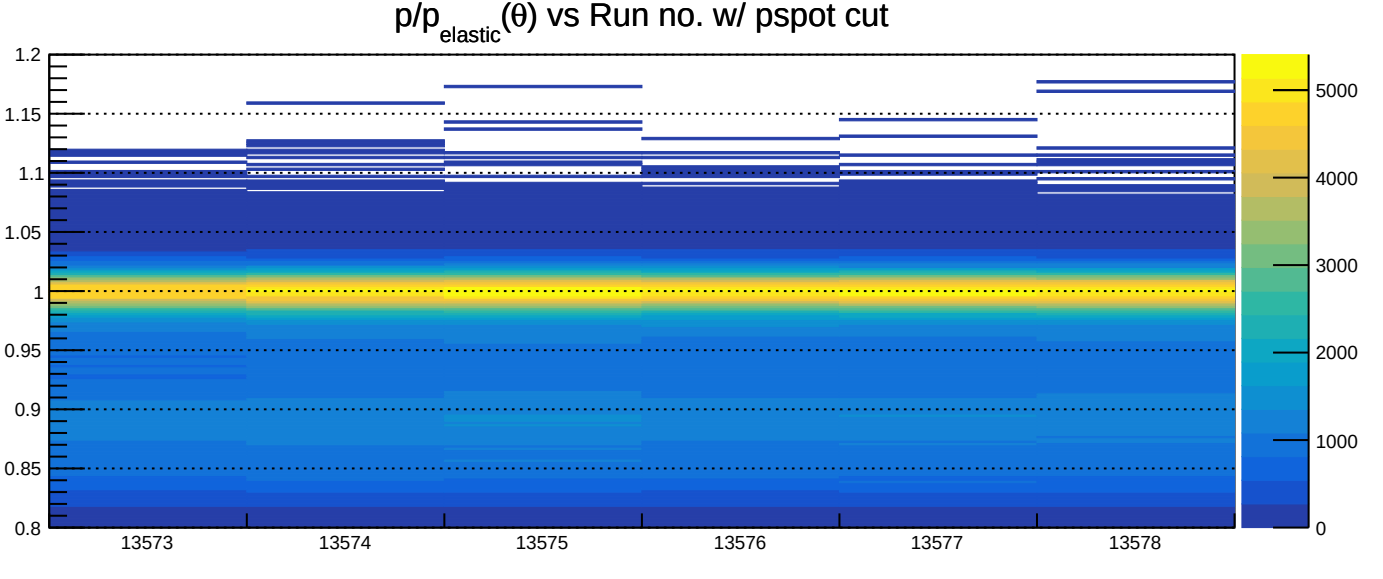


New ADC Gain Coefficients | PS

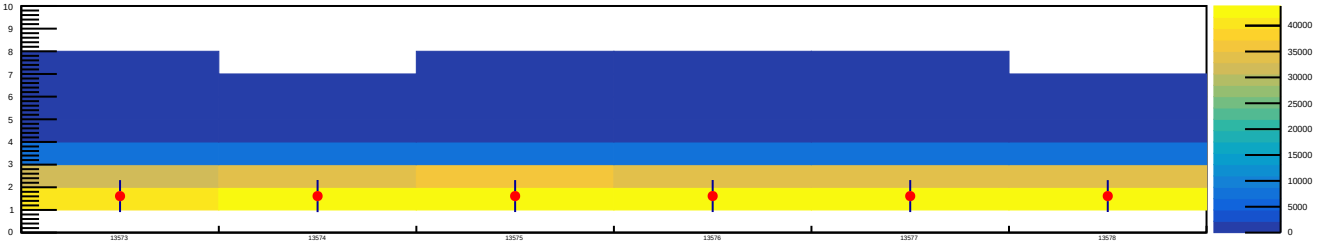



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
×10^3
140
120
100
80
60
40
20
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

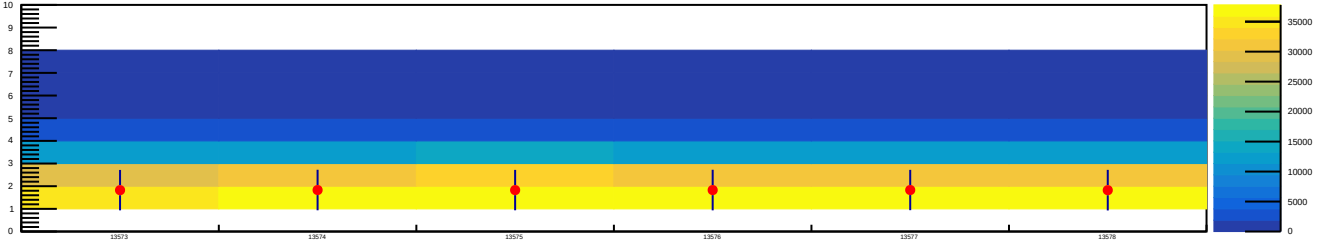

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
1200
1000
800
600
400
200
0


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
5000
4000
3000
2000
1000
0

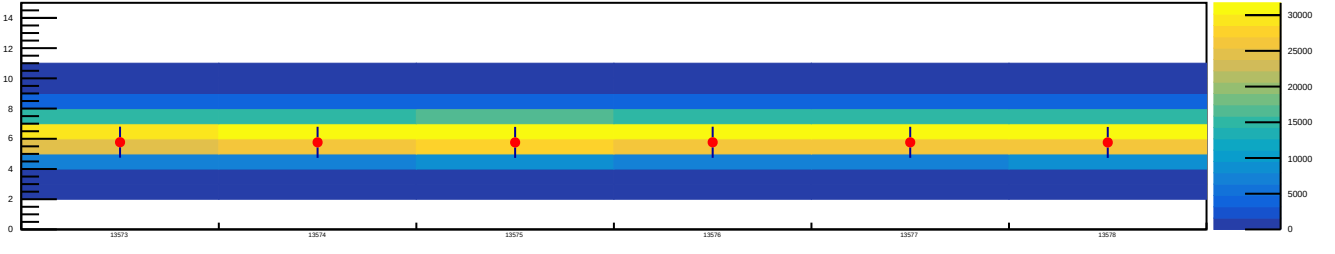
PS (best) cluster size vs Run no. (el. cut)



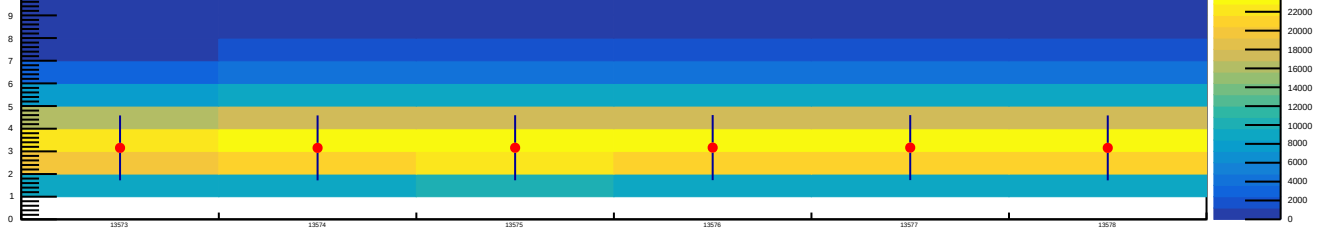
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 8/16/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs8-sbs70p-set2.cfg

Total # events analyzed: 24378727, Preparing for replay pass: 2

E/p (before calib.) | μ = 1.02, σ = (6.940 $\pm$ 0.016) p

E/p (after calib.) | μ = 0.99, σ = (5.494 $\pm$ 0.010) 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: 9985203

Elastic cuts:

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

proton spot cut ranges:

Δx (m): Mean = -0.7600, 2.0σ = 0.1320

Δy (m): Mean = -0.1200, 4.0σ = 0.1760

events passed global & elastic cuts: 624306

Other cuts:

Minimum # events per block: 1000, (Cluster) hit threshold: 0.02 GeV

Various offsets:

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

Momentum calibration factors: A = 0.292476240, B = 1.032896400, C = 0.0, $\theta_{pitch}^{GEM} = 10.0^{o}$, d_{BB} = 1.9747 m

Macro processing time: CPU 1688.0s | Real 2228.0s