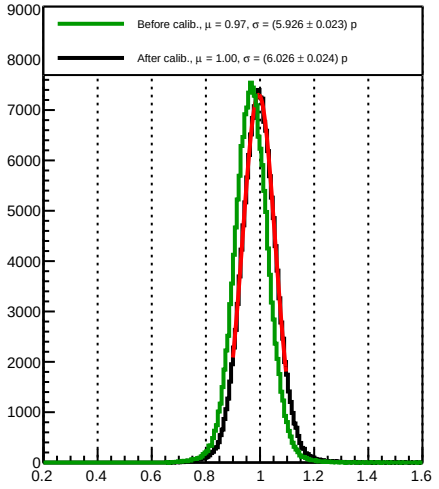
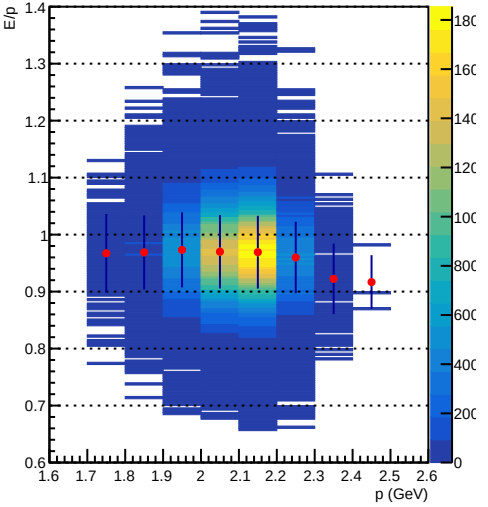
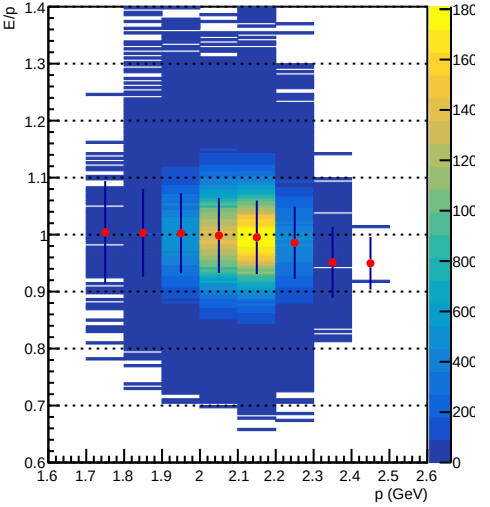
E/p (el. cut)



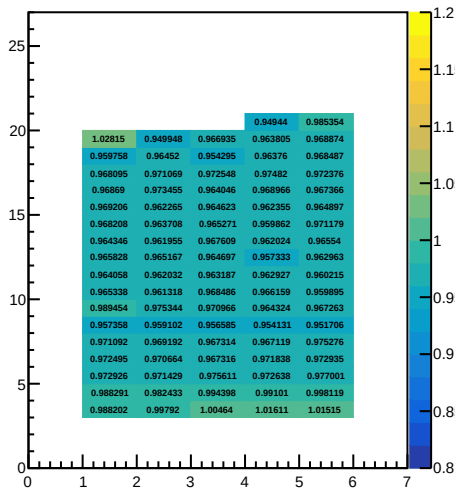
E/p vs p (el. cut)



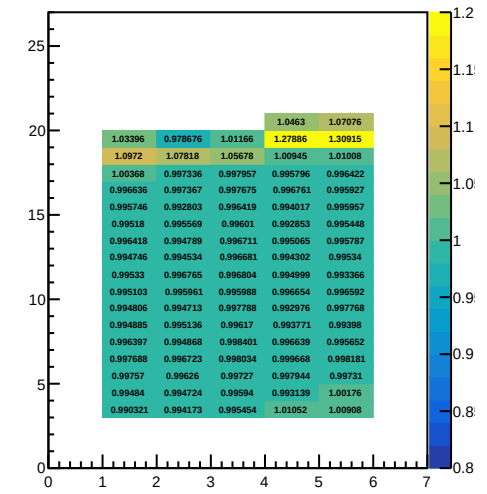
E/p vs p | After Calib. (el. cut)



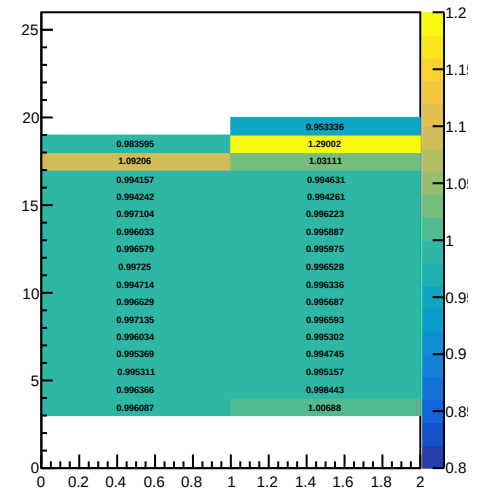
E/p per SH block (el. cut)



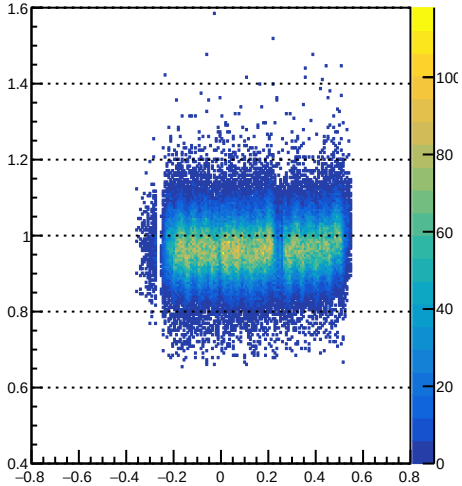
E/p per SH block | After Calib. (el. cut)



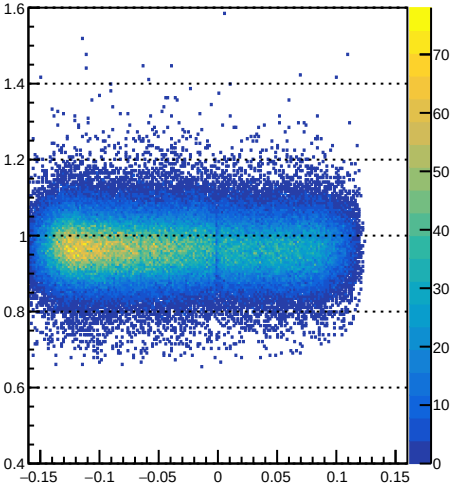
E/p per PS block | After Calib. (el. cut)



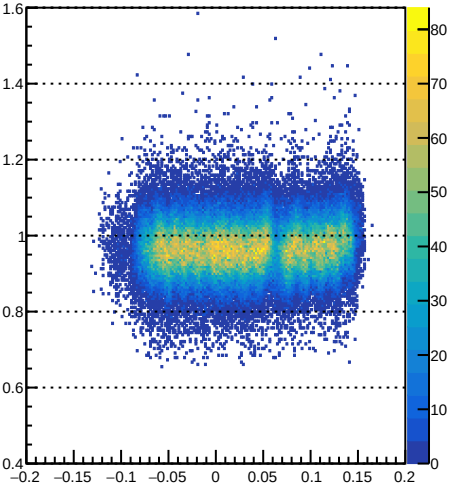
E/p vs Track x (el. cut)



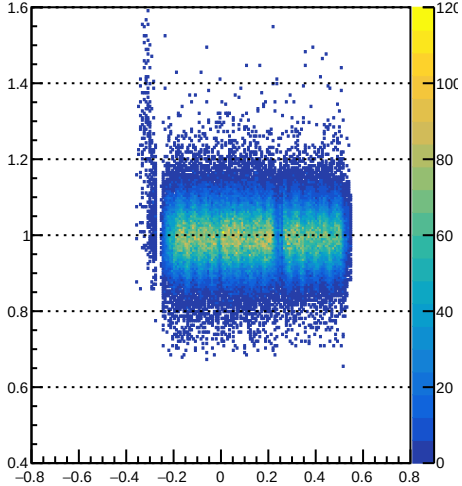
E/p vs Track y (el. cut)



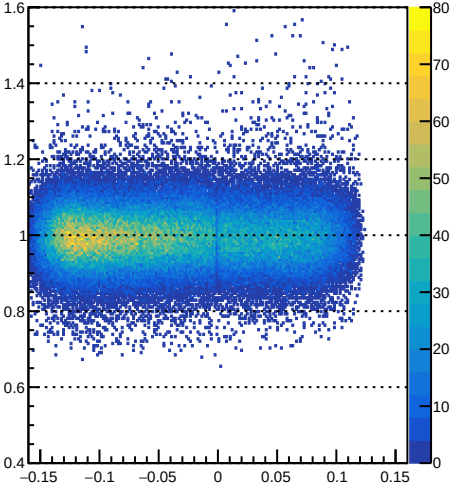
E/p vs Track theta (el. cut)



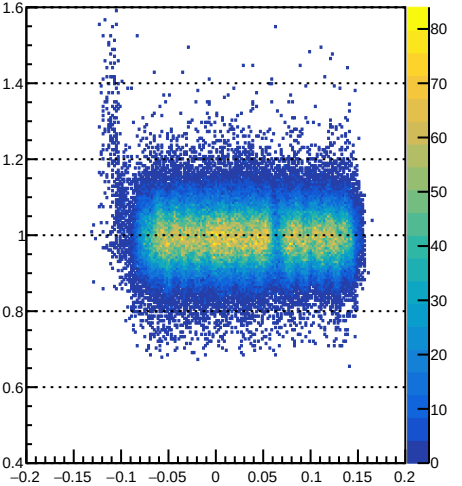
E/p vs Track x | After Calib. (el. cut)



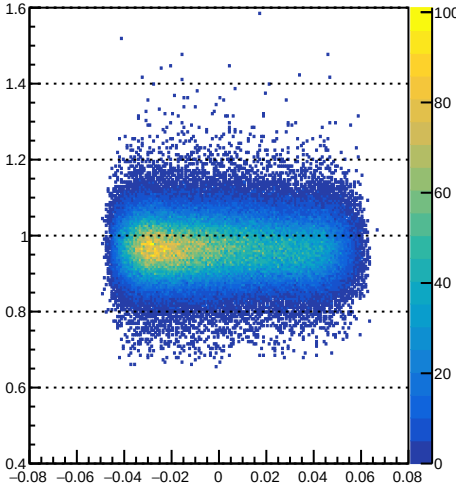
E/p vs Track y | After Calib. (el. cut)



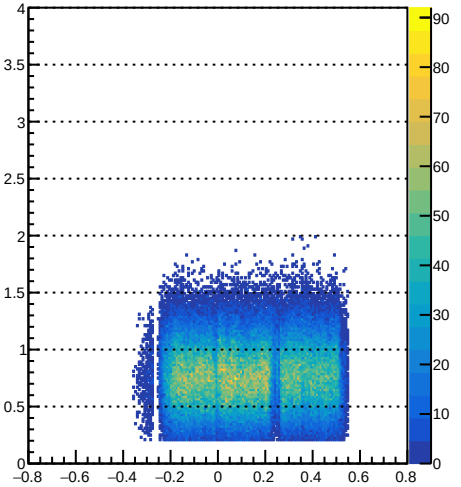
E/p vs Track theta | After Calib. (el. cut)



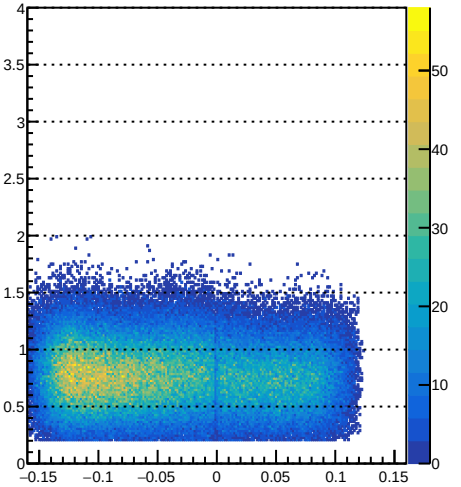
E/p vs Track phi (el. cut)



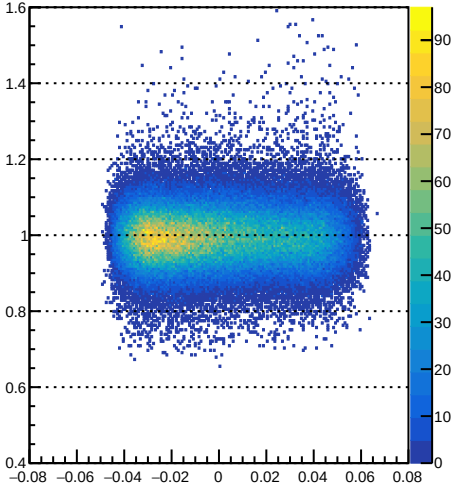
PS energy vs Track x (el. cut)



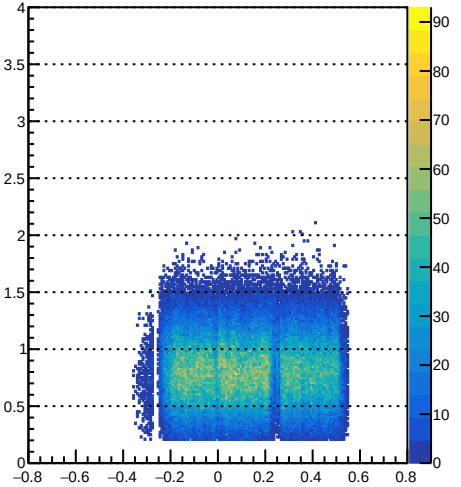
PS energy vs Track y (el. cut)



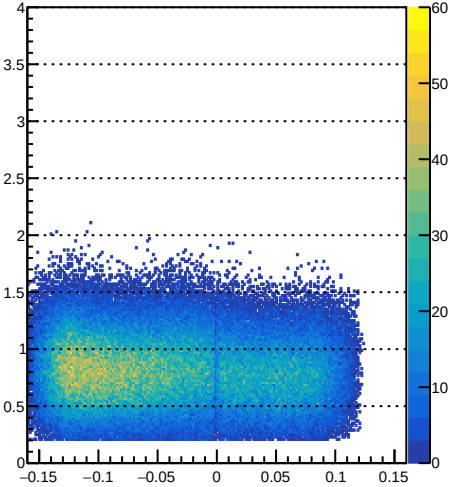
E/p vs Track phi | After Calib. (el. cut)

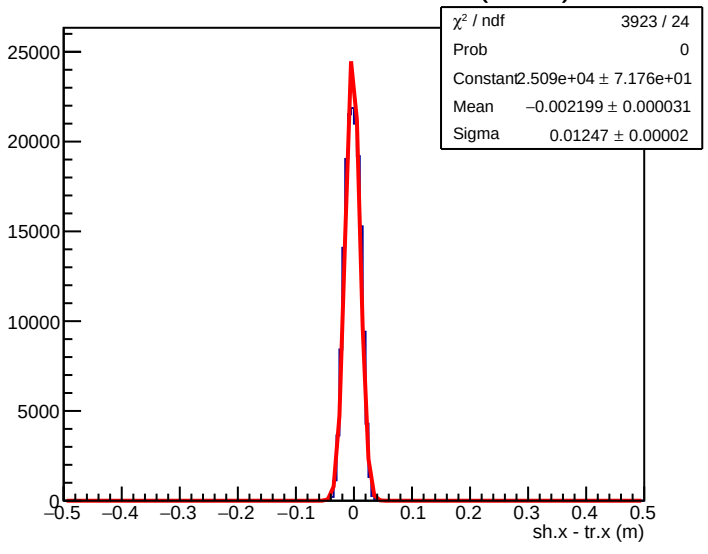


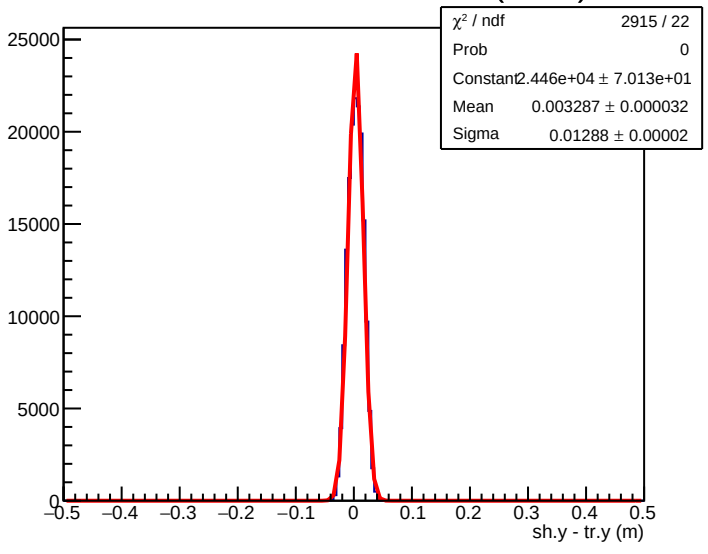
PS energy vs Track x | After Calib. (el. cut)

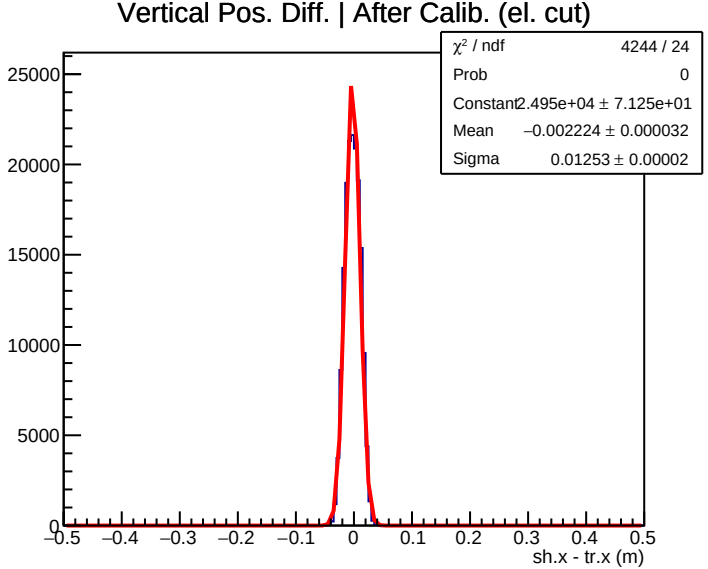


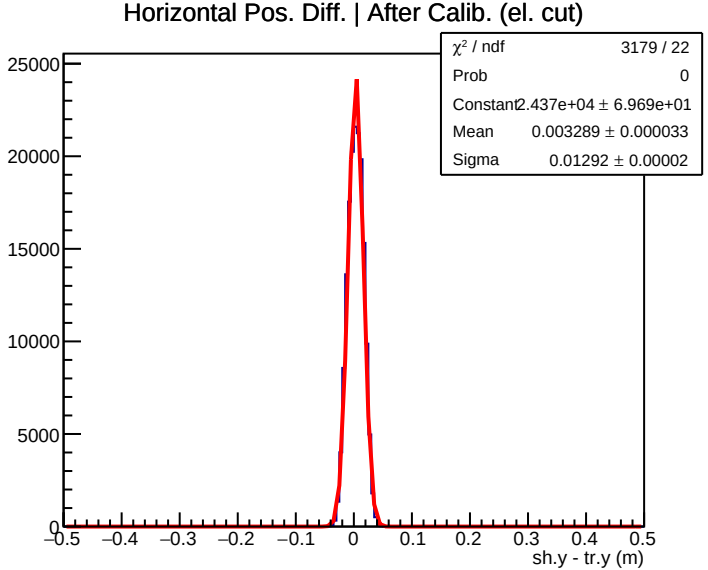
PS energy vs Track y | After Calib. (el. cut)

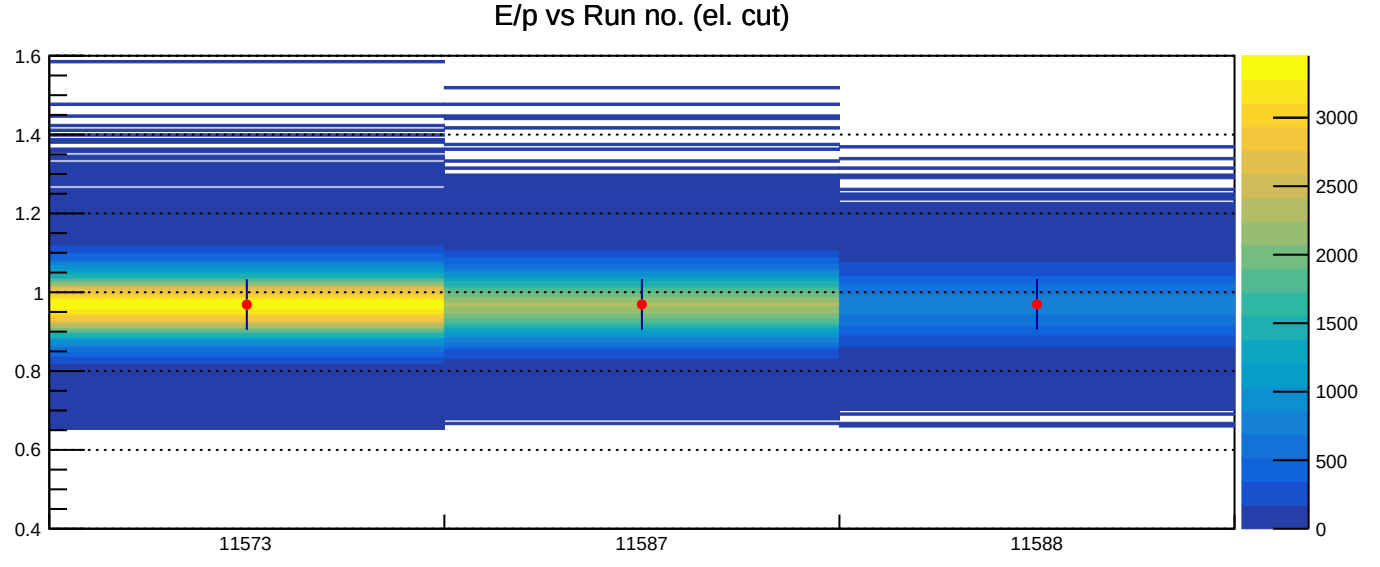


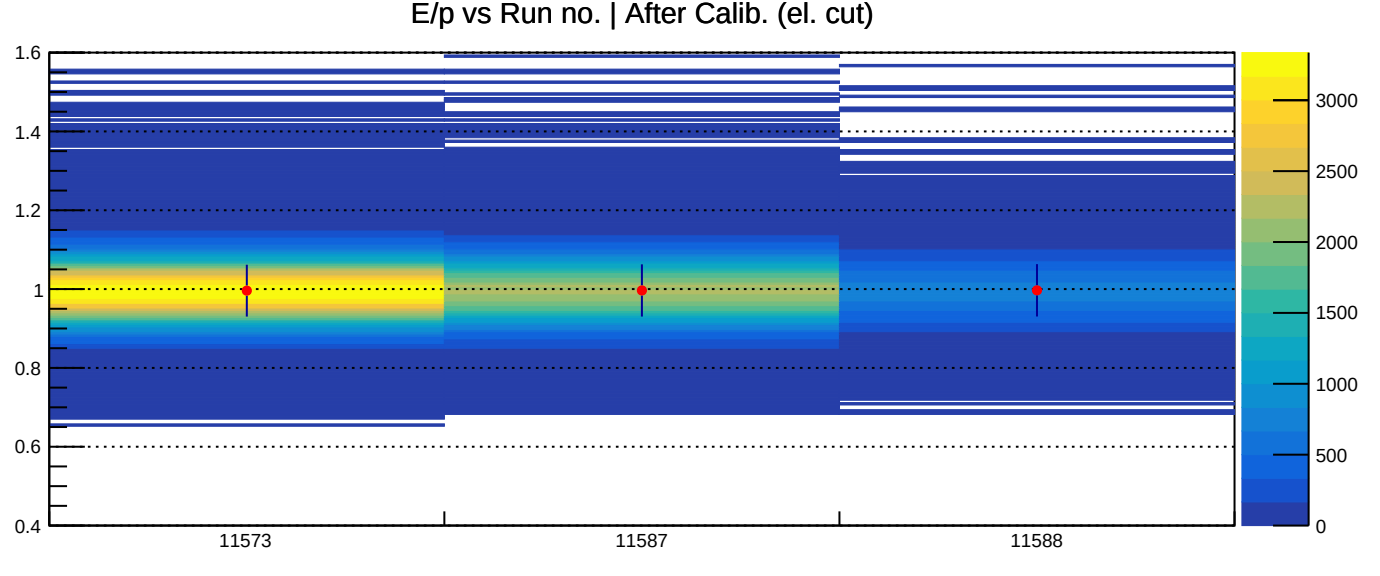

Vertical Position Difference (el. cut)
χ² / ndf 3923 / 24
Prob 0
Constant 2.509e+04 ± 7.176e+01
Mean −0.002199 ± 0.000031
Sigma 0.01247 ± 0.00002
25000
20000
15000
10000
5000
0
−0.5 −0.4 −0.3 −0.2 −0.1 0 0.1 0.2 0.3 0.4 0.5
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 2915 / 22
Prob 0
Constant 2.446e+04 ± 7.013e+01
Mean 0.003287 ± 0.000032
Sigma 0.01288 ± 0.00002
25000
20000
15000
10000
5000
0
−0.5 −0.4 −0.3 −0.2 −0.1 0 0.1 0.2 0.3 0.4 0.5
sh.y - tr.y (m)

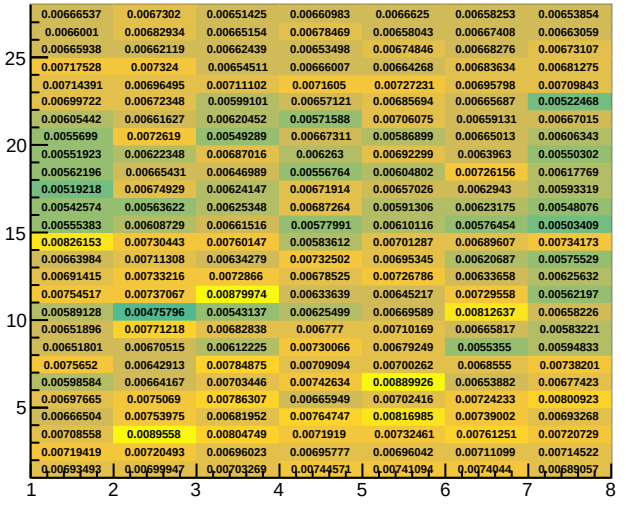

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 4244 / 24
Prob 0
Constant 2.495e+04 ± 7.125e+01
Mean −0.002224 ± 0.000032
Sigma 0.01253 ± 0.00002
25000
20000
15000
10000
5000
0
−0.5 −0.4 −0.3 −0.2 −0.1 0 0.1 0.2 0.3 0.4 0.5
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 3179 / 22
Prob 0
Constant 2.437e+04 ± 6.969e+01
Mean 0.003289 ± 0.000033
Sigma 0.01292 ± 0.00002
25000
20000
15000
10000
5000
0
−0.5 −0.4 −0.3 −0.2 −0.1 0 0.1 0.2 0.3 0.4 0.5
sh.y - tr.y (m)

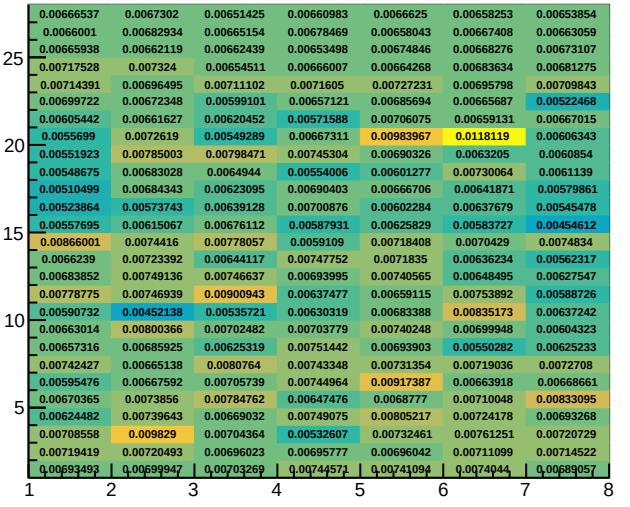

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
11573
11587
11588
3000
2500
2000
1500
1000
500
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
11573
11587
11588
3000
2500
2000
1500
1000
500
0

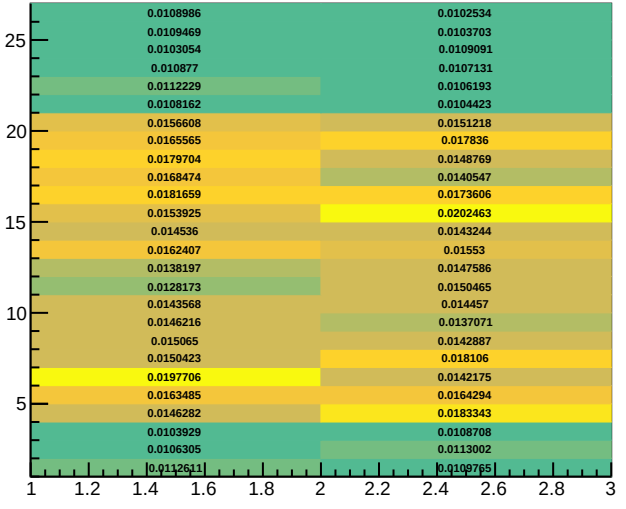
Old ADC Gain Coefficients | SH



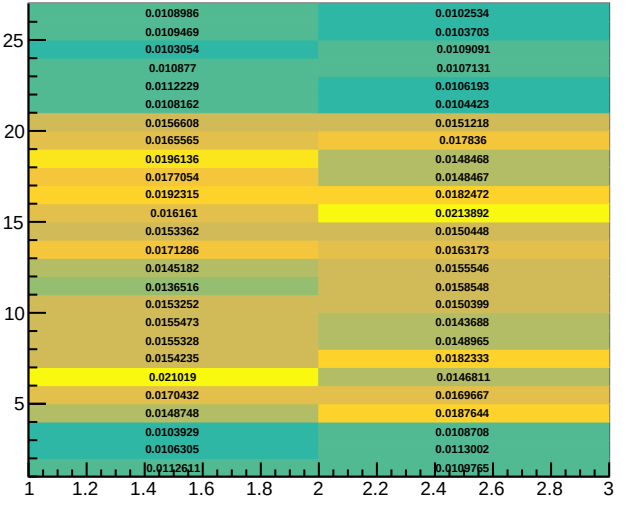
New ADC Gain Coefficients | SH

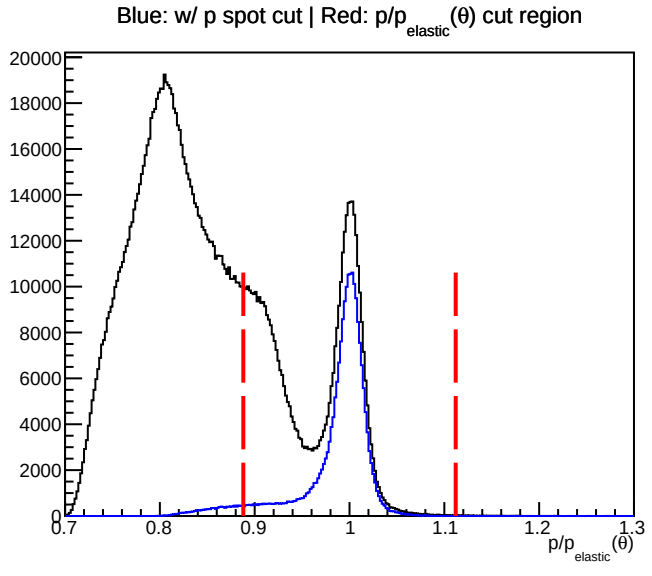


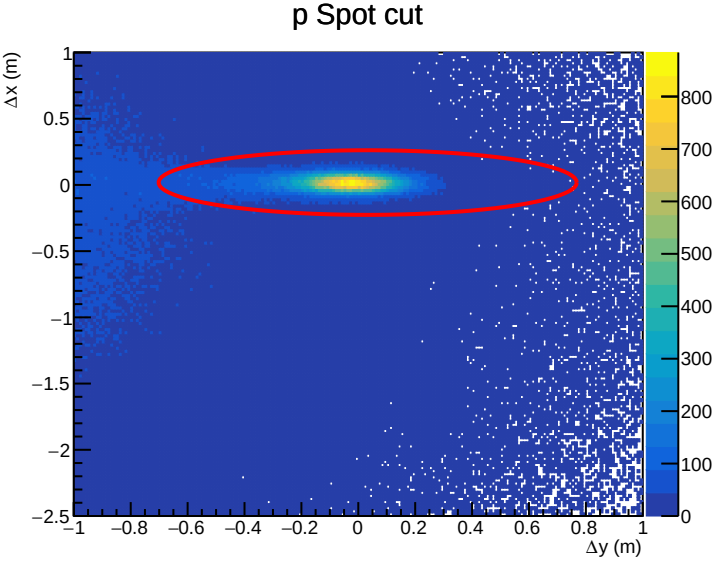
Old ADC Gain Coefficients | PS

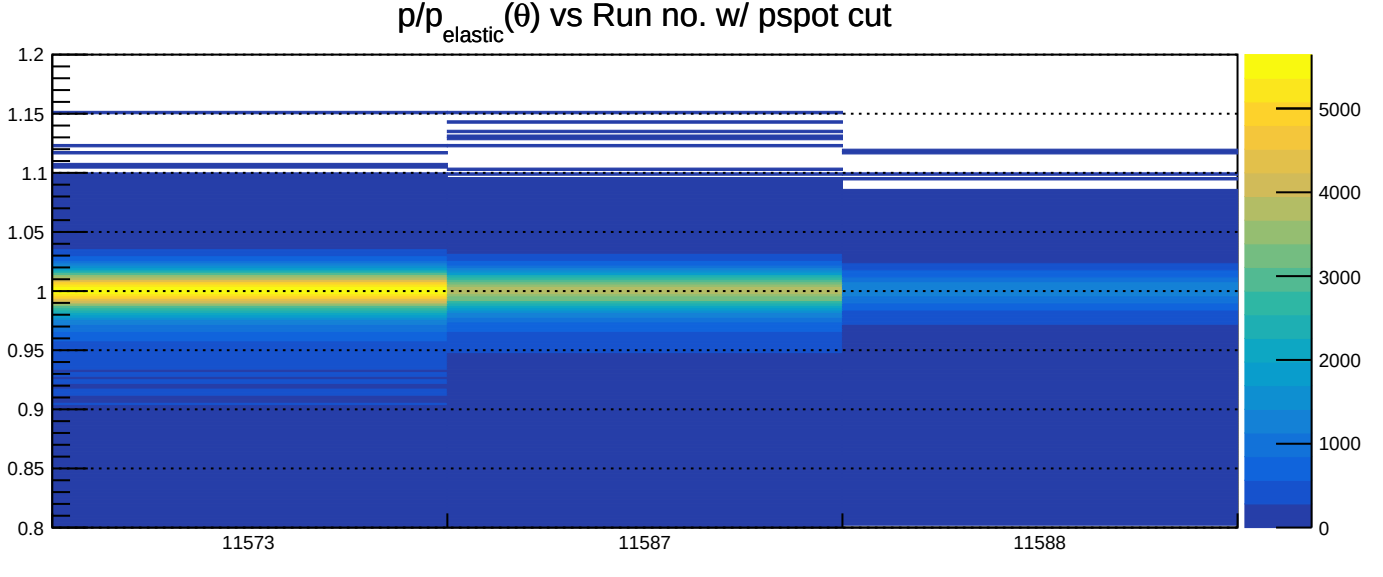


New ADC Gain Coefficients | PS

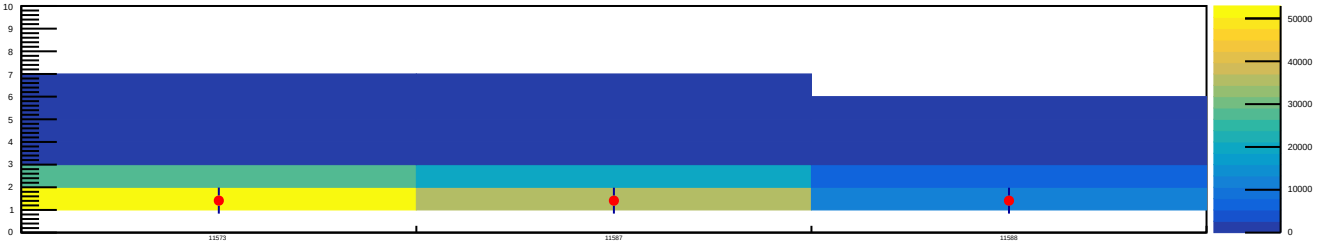



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

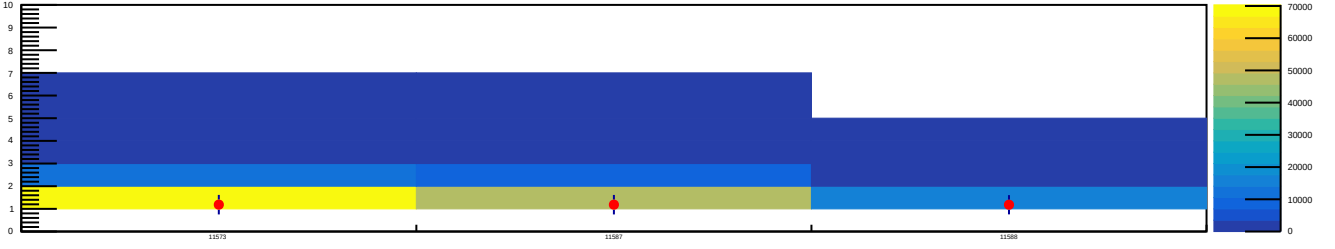

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
800
700
600
500
400
300
200
100
0


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
11573
11587
11588
5000
4000
3000
2000
1000
0

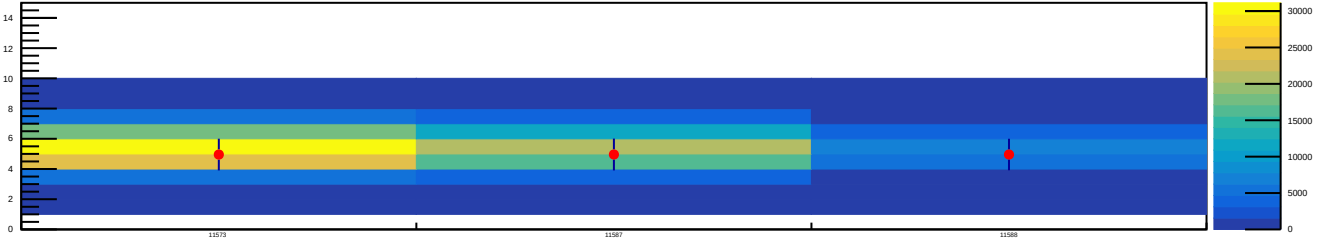
PS (best) cluster size vs Run no. (el. cut)



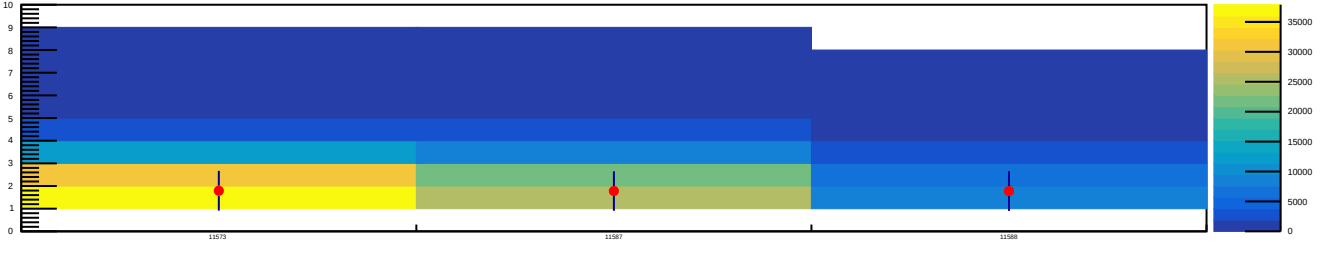
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 8/18/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs4-sbs0p.cfg

Total # events analyzed: 4693901, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.97, σ = (5.926 $\pm$ 0.023) p

E/p (after calib.) | μ = 1.00, σ = (6.026 $\pm$ 0.024) 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]-0.02)<0.33,
PS cluster energy > 0.2 GeV
p_recon > 1.6 GeV/c

events passed global cuts: 1549909

Elastic cuts:

$|p/p_{el}(\theta) - 1.000| \leq 8.0*0.014$

proton spot cut ranges:

Δx (m): Mean = 0.0180, 4.0σ = 0.0610
Δy (m): Mean = 0.0330, 5.0σ = 0.1470

events passed global & elastic cuts: 206196

Other cuts:

Minimum # events per block: 300, (Cluster) hit threshold: 0.02 GeV

Various offsets:

Momentum fudge factor: 1.00, BBCAL cluster energy scale factor: 1.00
Momentum calibration factors: A = 0.270388074, B = 1.030707300, C = 0.0, θ_{pitch}^{GEM} = 10.0^{o}, d_{BB} = 1.7988 m

Macro processing time: CPU 340.5s | Real 412.9s