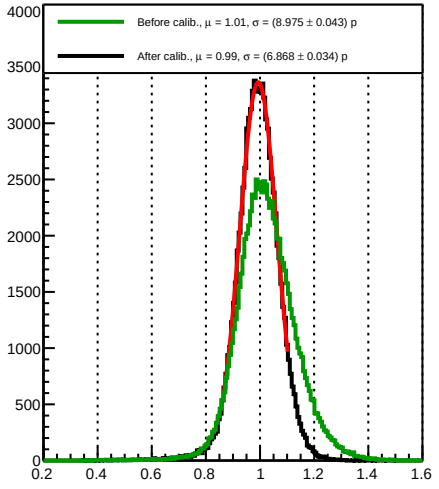
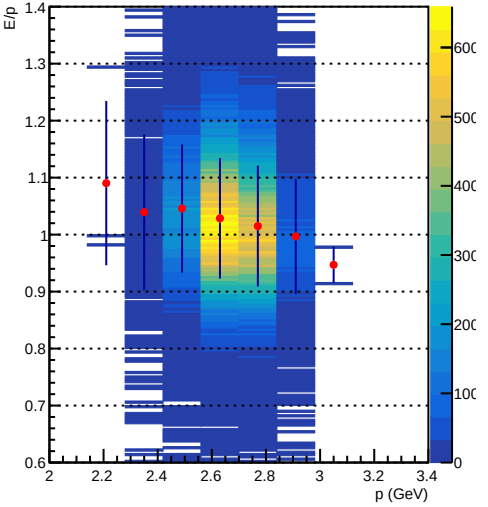
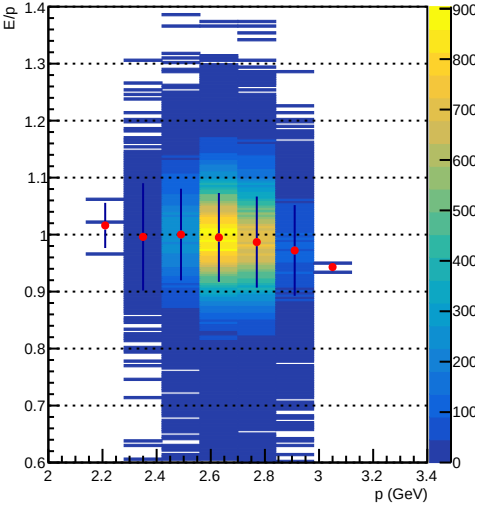
E/p (el. cut)



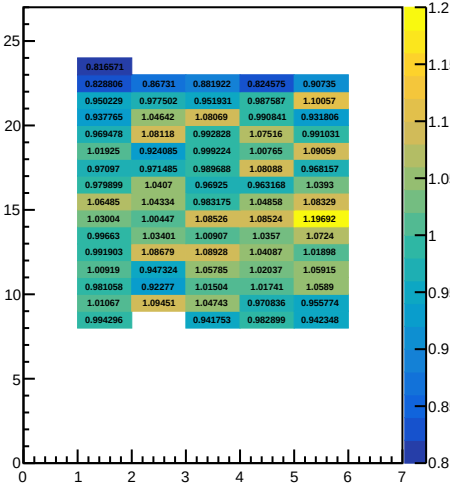
E/p vs p (el. cut)



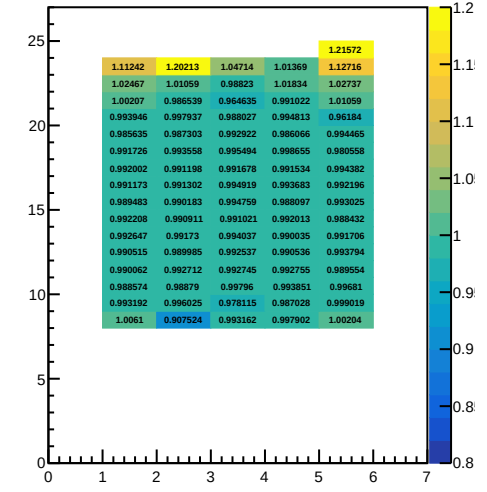
E/p vs p | After Calib. (el. cut)



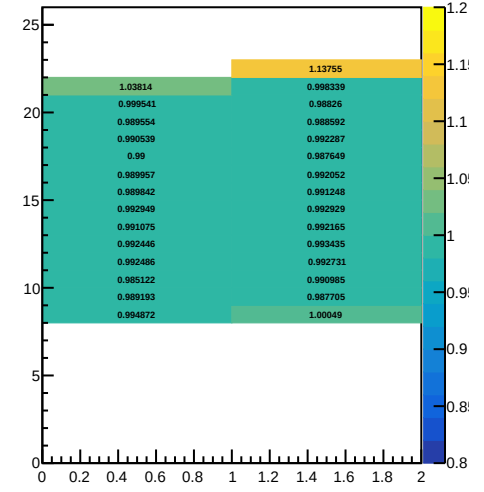
E/p per SH block (el. cut)



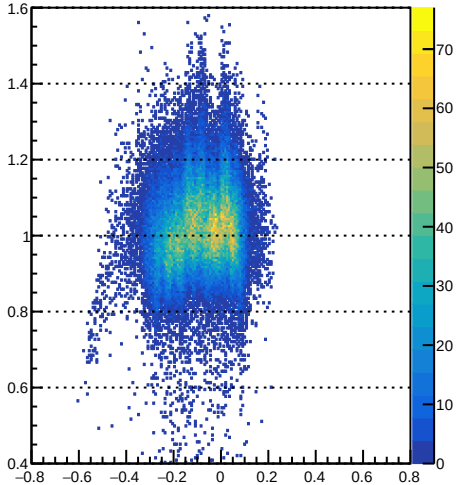
E/p per SH block | After Calib. (el. cut)



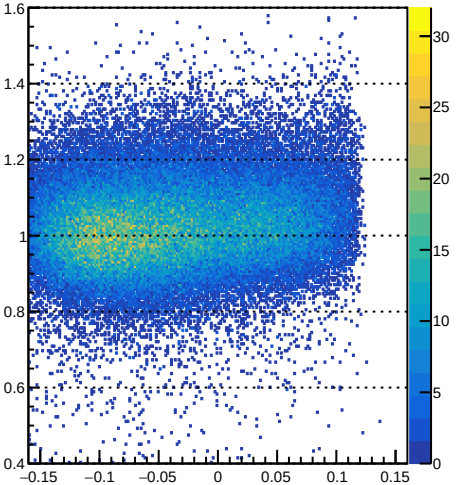
E/p per PS block | After Calib. (el. cut)



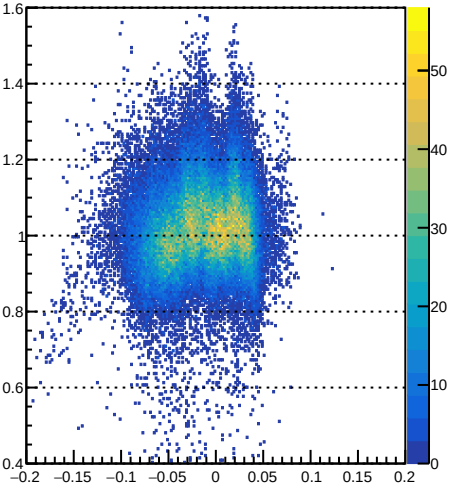
E/p vs Track x (el. cut)



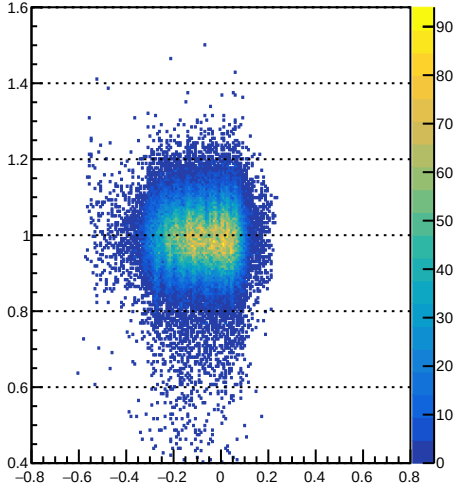
E/p vs Track y (el. cut)



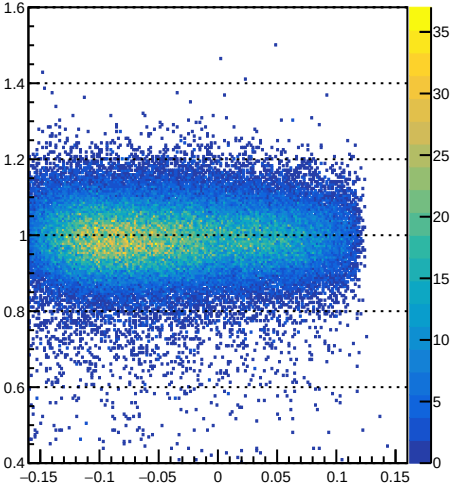
E/p vs Track theta (el. cut)



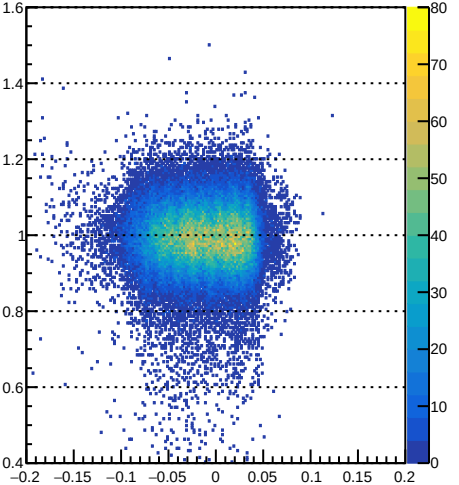
E/p vs Track x | After Calib. (el. cut)



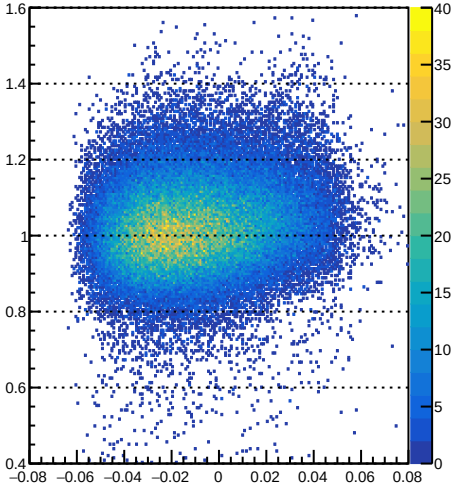
E/p vs Track y | After Calib. (el. cut)



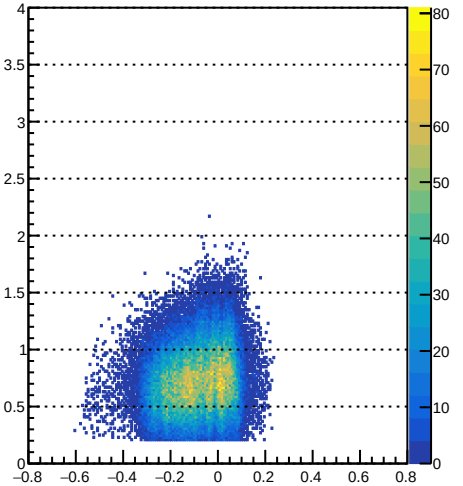
E/p vs Track theta | After Calib. (el. cut)



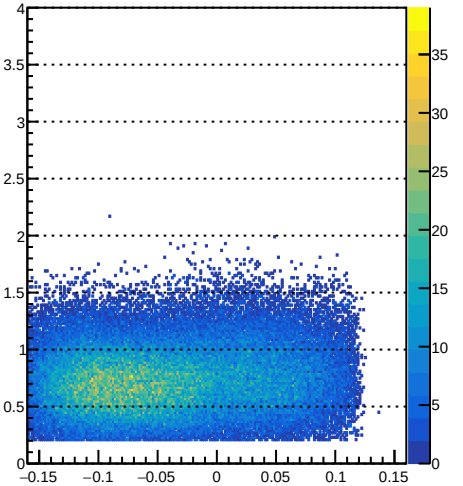
E/p vs Track phi (el. cut)



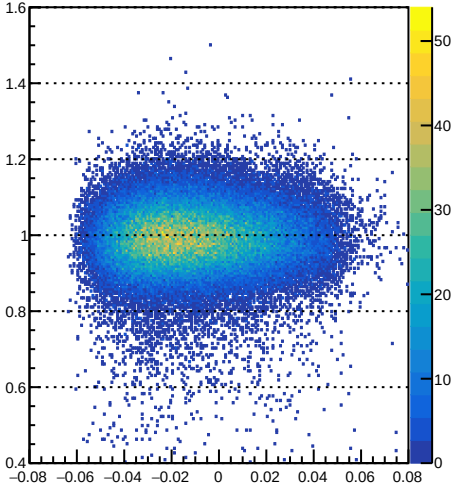
PS energy vs Track x (el. cut)



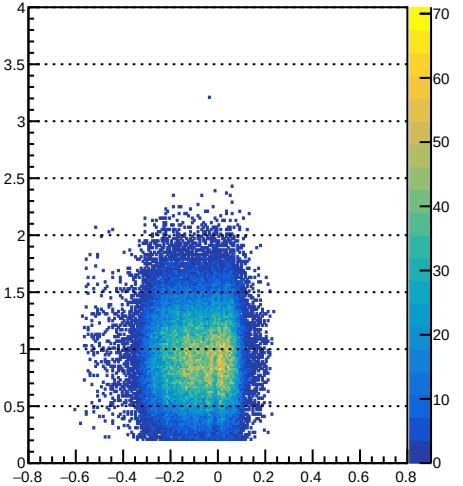
PS energy vs Track y (el. cut)



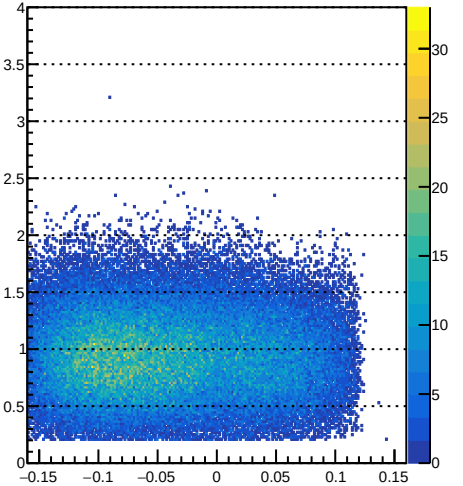
E/p vs Track phi | After Calib. (el. cut)

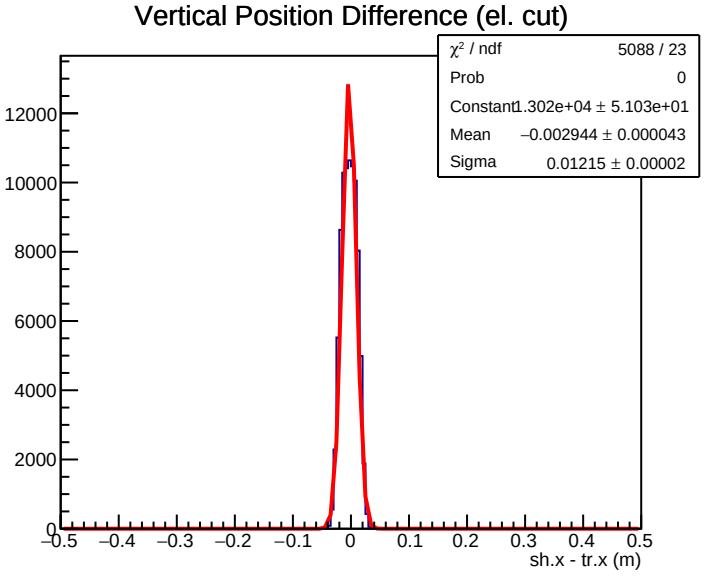


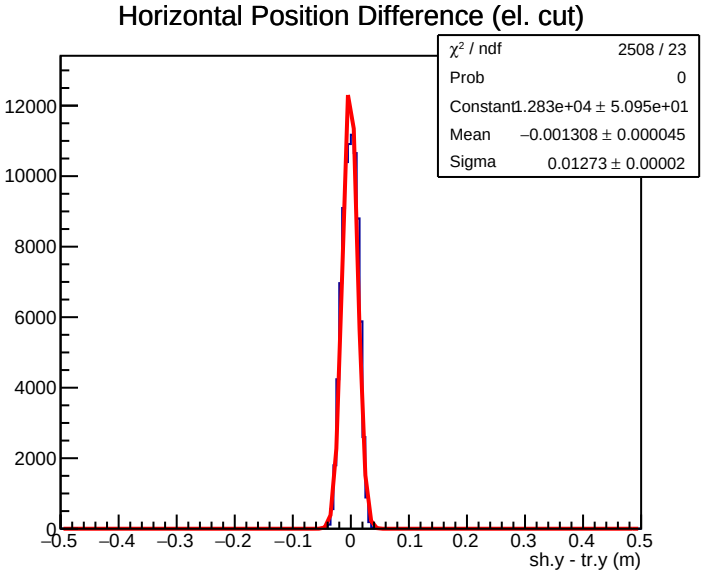
PS energy vs Track x | After Calib. (el. cut)

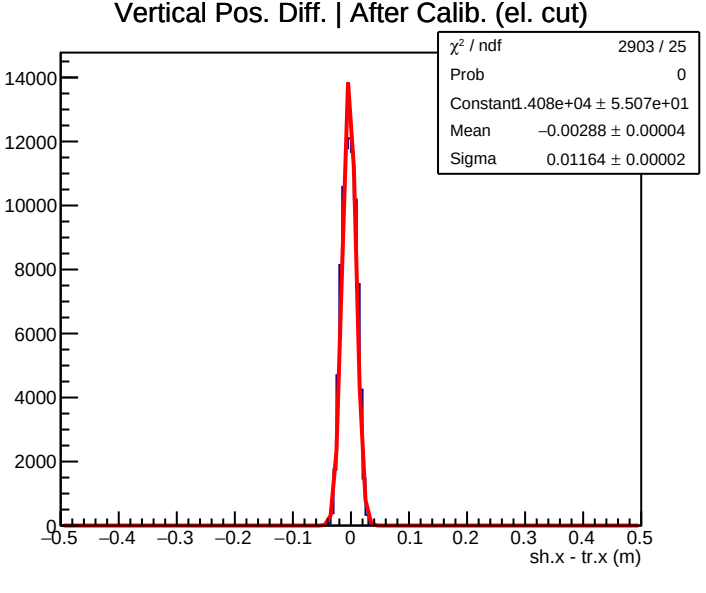


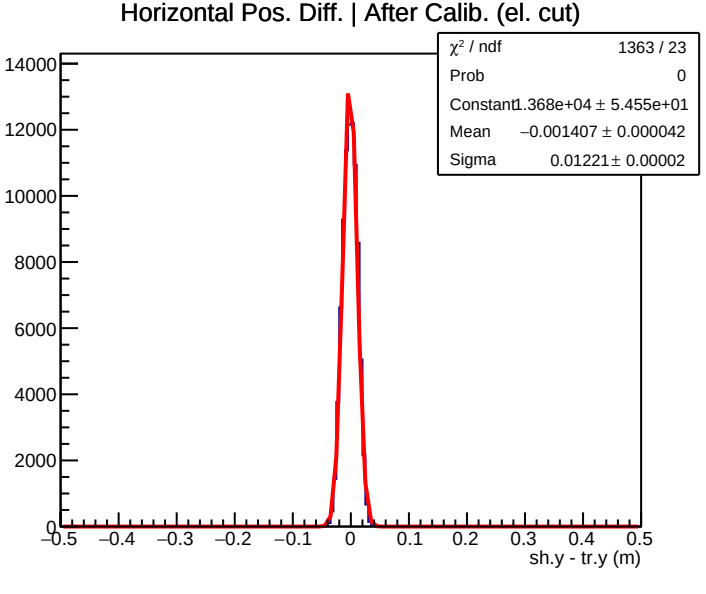
PS energy vs Track y | After Calib. (el. cut)

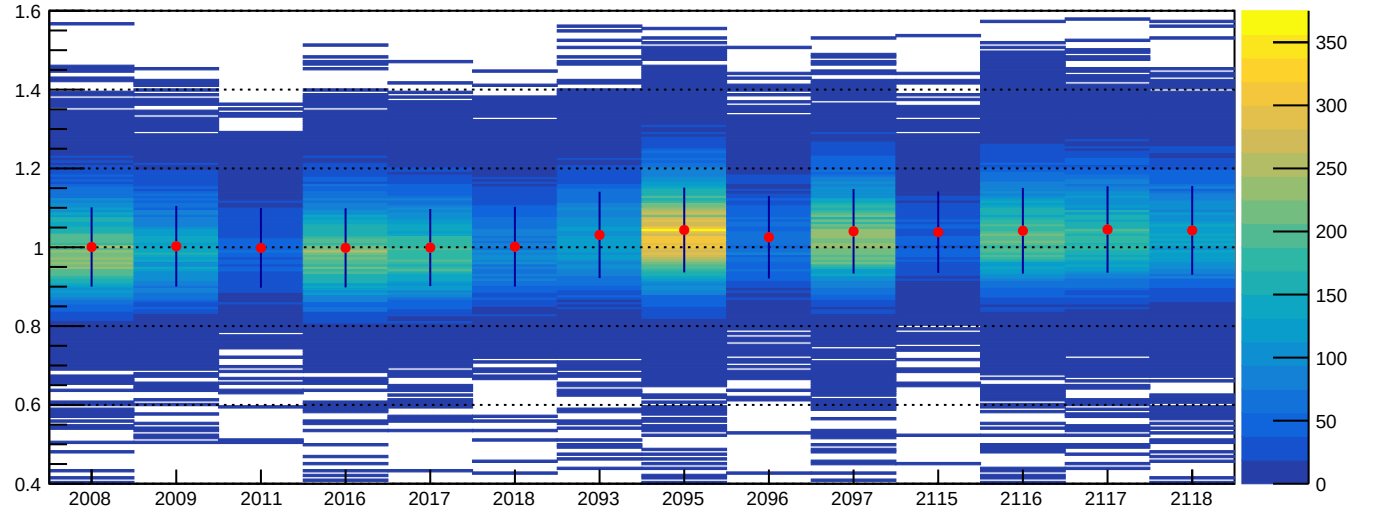


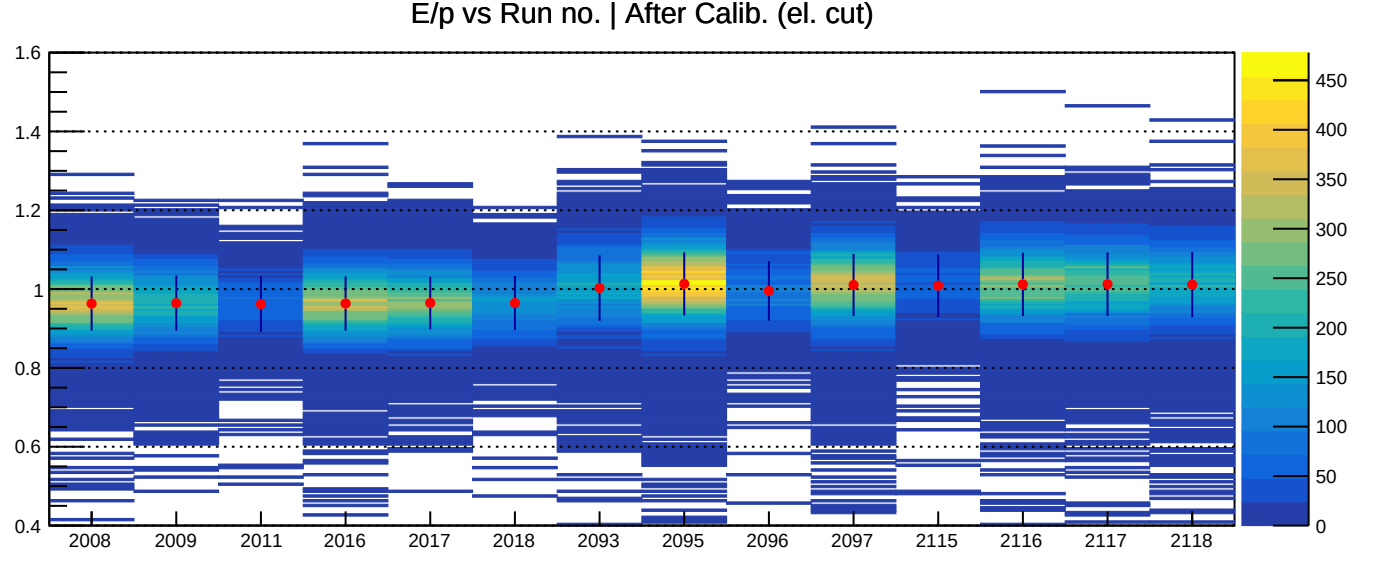

Vertical Position Difference (el. cut)
χ² / ndf 5088 / 23
Prob 0
Constant 1.302e+04 ± 5.103e+01
Mean −0.002944 ± 0.000043
Sigma 0.01215 ± 0.00002
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 2508 / 23
Prob 0
Constant 1.283e+04 ± 5.095e+01
Mean −0.001308 ± 0.000045
Sigma 0.01273 ± 0.00002
sh.y - tr.y (m)

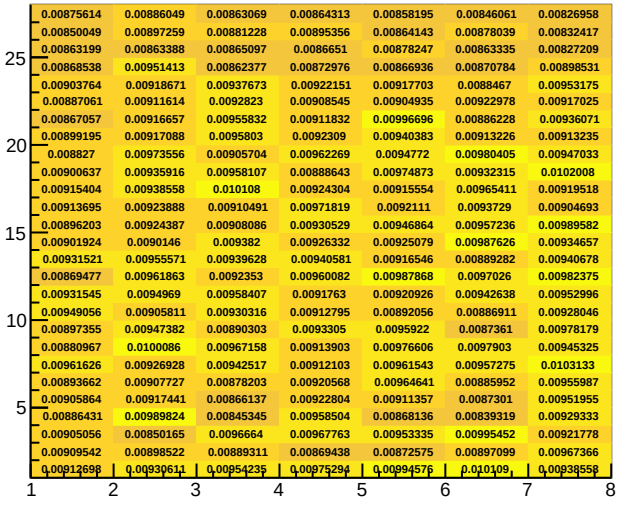

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 2903 / 25
Prob 0
Constant 1.408e+04 ± 5.507e+01
Mean −0.00288 ± 0.00004
Sigma 0.01164 ± 0.00002
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1363 / 23
Prob 0
Constant 1.368e+04 ± 5.455e+01
Mean −0.001407 ± 0.000042
Sigma 0.01221 ± 0.00002
sh.y - tr.y (m)

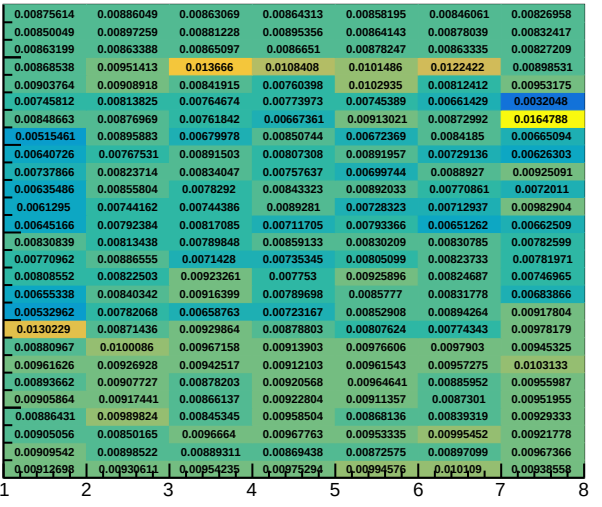

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
2008
2009
2011
2016
2017
2018
2093
2095
2096
2097
2115
2116
2117
2118
350
300
250
200
150
100
50
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
2008
2009
2011
2016
2017
2018
2093
2095
2096
2097
2115
2116
2117
2118
450
400
350
300
250
200
150
100
50
0

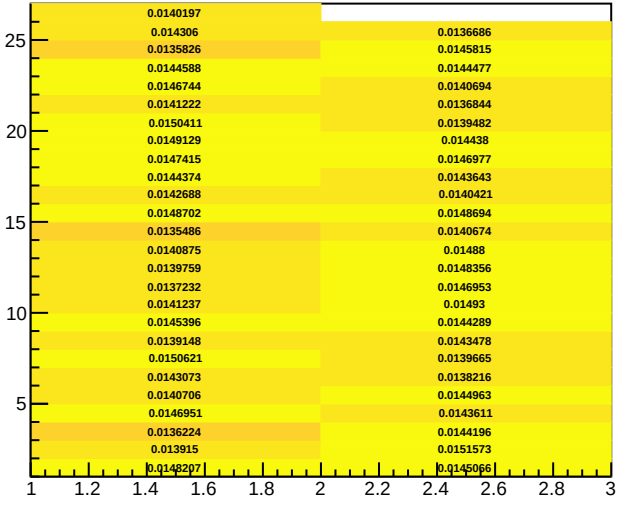
Old ADC Gain Coefficients | SH



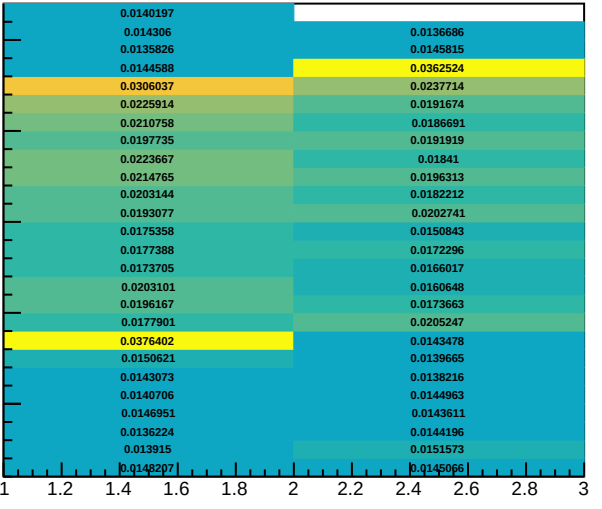
New ADC Gain Coefficients | SH

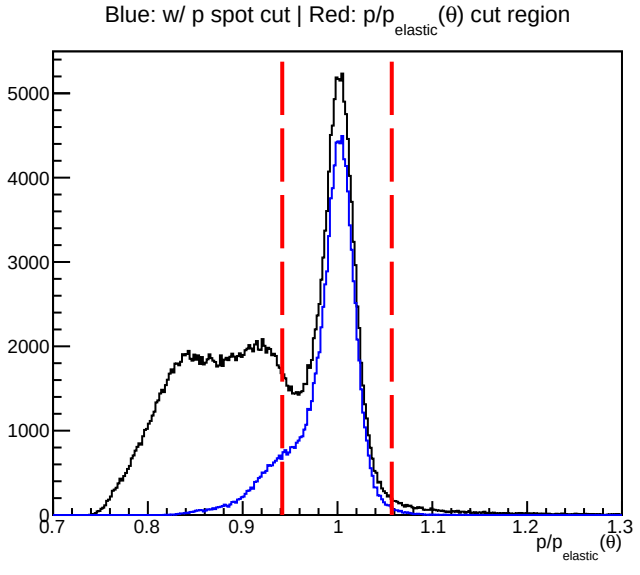


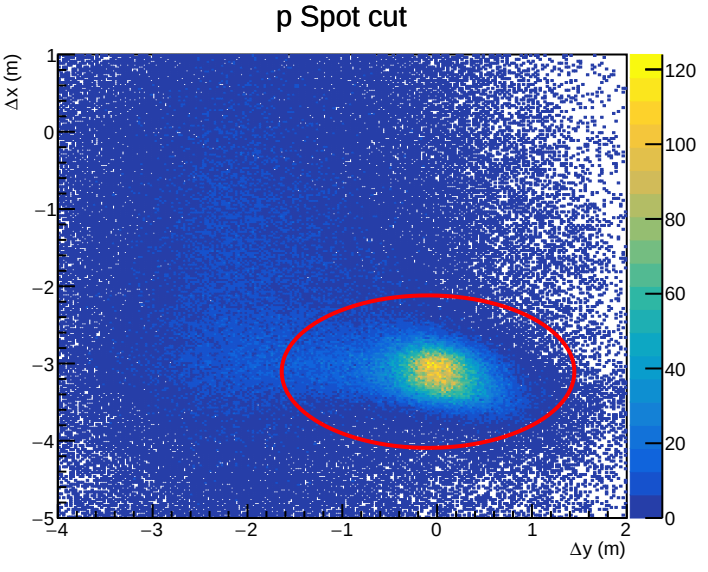
Old ADC Gain Coefficients | PS

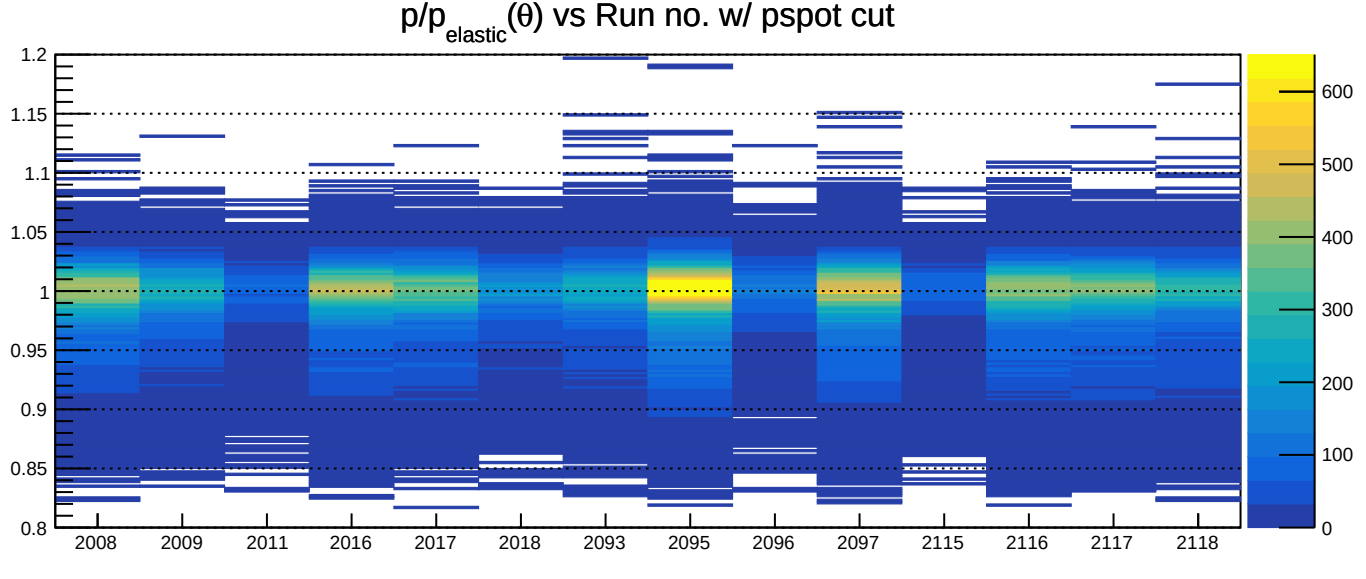


New ADC Gain Coefficients | PS

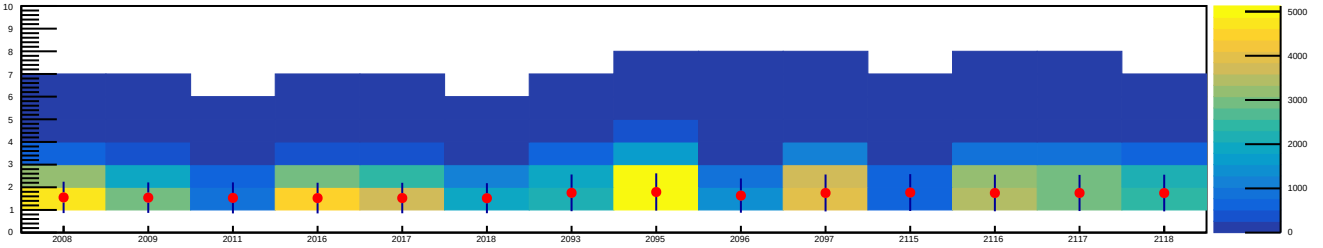



Blue: w/ p spot cut | Red: p/p elastic (θ) cut region
5000
4000
3000
2000
1000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p elastic (θ)

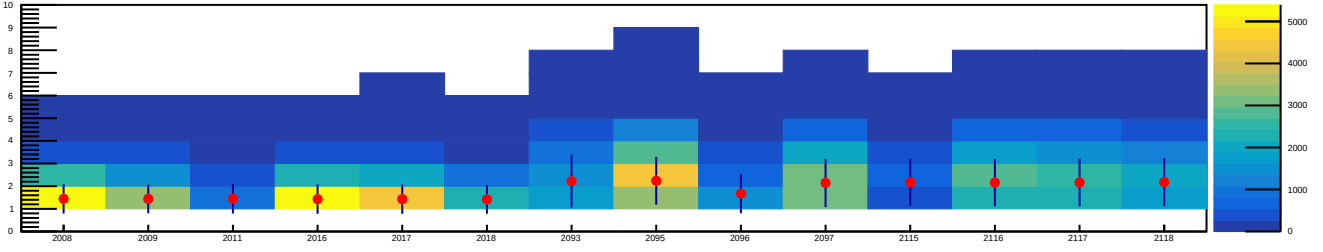

p Spot cut
Δx (m)
1
0
−1
−2
−3
−4
−5
−4
−3
−2
−1
0
1
2
Δy (m)
120
100
80
60
40
20
0


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
2008
2009
2011
2016
2017
2018
2093
2095
2096
2097
2115
2116
2117
2118
600
500
400
300
200
100
0

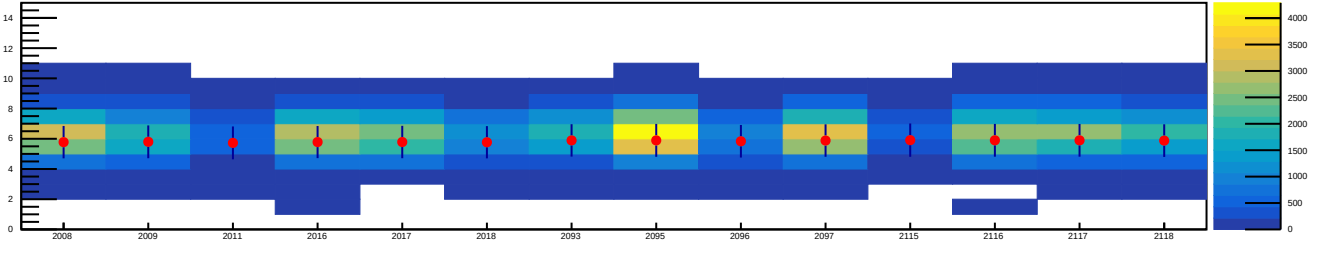
PS (best) cluster size vs Run no. (el. cut)



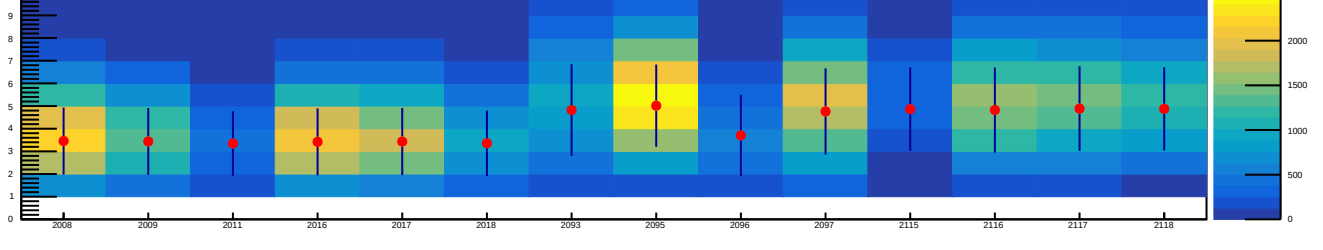
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 8/31/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/GEN2_SBS_p100.cfg

Total # events analyzed: 11687312, Preparing for replay pass: 0

E/p (before calib.) | μ = 1.01, σ = (8.975 $\pm$ 0.043) p

E/p (after calib.) | μ = 0.99, σ = (6.868 $\pm$ 0.034) p

Global cuts:

bb.tr.n==1, abs(bb.tr.vz[0])<0.27, bb.gem.track.nhits>3,

PS cluster energy > 0.2 GeV

p_recon > 2.2 GeV/c

events passed global cuts: 274456

Elastic cuts:

$|p/p_{el}(\theta) - 0.999| \leq 3.0*0.019$

proton spot cut ranges:

Δx (m): Mean = -3.1053, 3.0σ = 0.3290

Δy (m): Mean = -0.0958, 3.0σ = 0.5145

events passed global & elastic cuts: 101357

Other cuts:

Minimum # events per block: 20, (Cluster) hit threshold: 0.02 GeV

Various offsets:

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

Mom. calib. params: A = 0.263077985, B = 0.999237626, C = 0.0, Avy = -0.014763, Bvy = -15.893095, θ_{pitch}^{GEM} = 10.0^{o}, d_{BB} = 1.6300 m

Macro processing time: CPU 588.8s | Real 892.7s