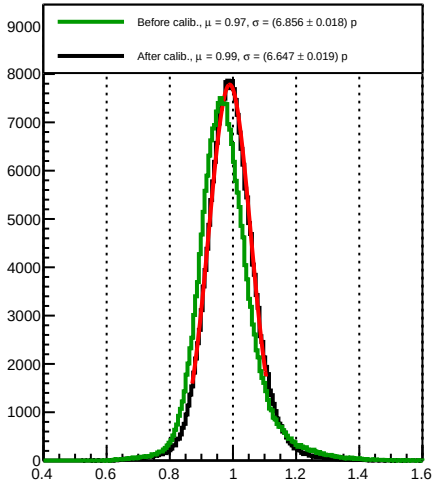
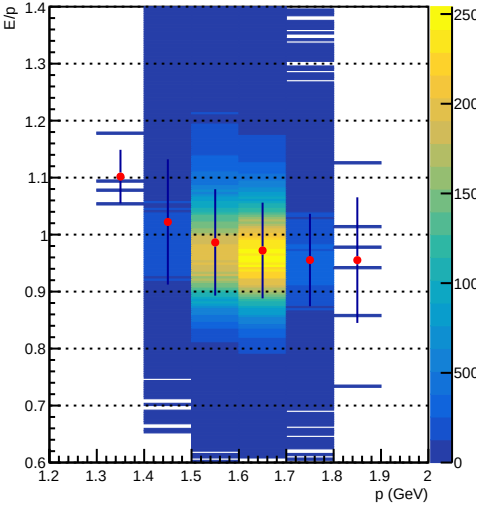
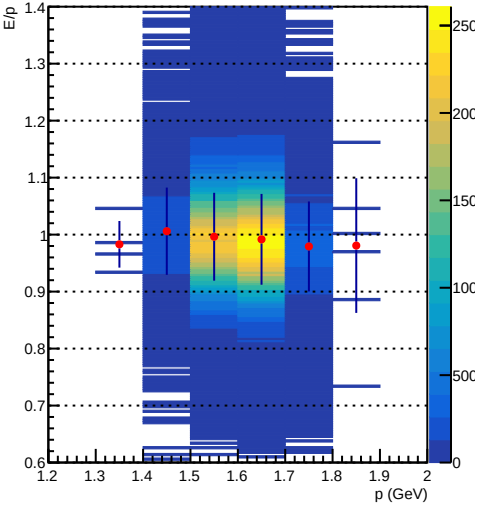
E/p (el. cut)



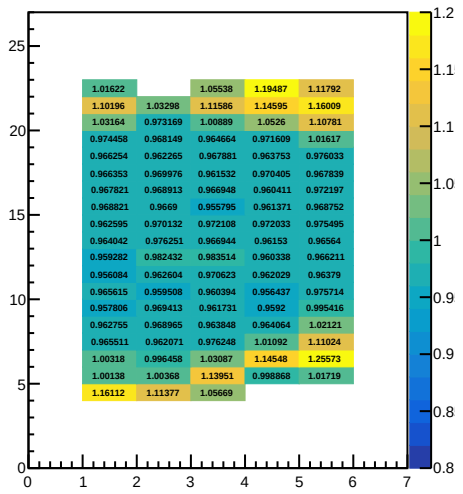
E/p vs p (el. cut)



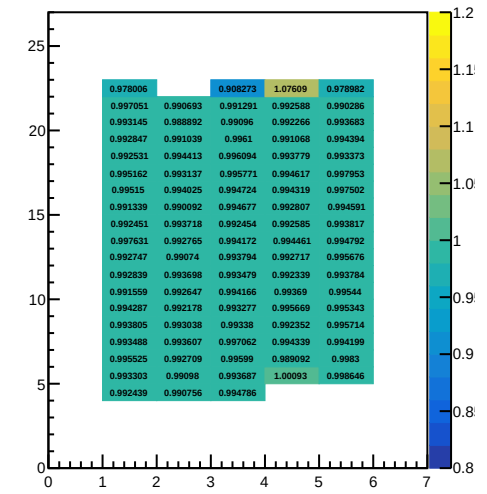
E/p vs p | After Calib. (el. cut)



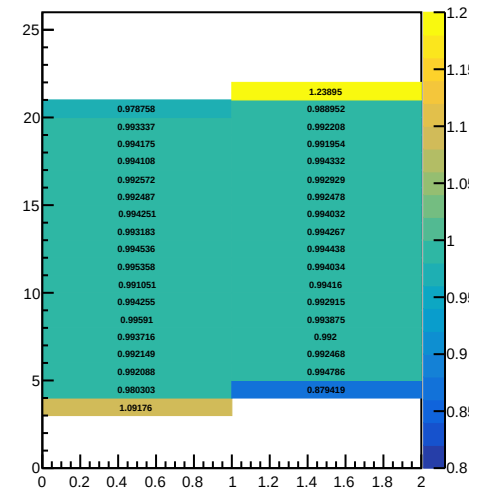
E/p per SH block (el. cut)



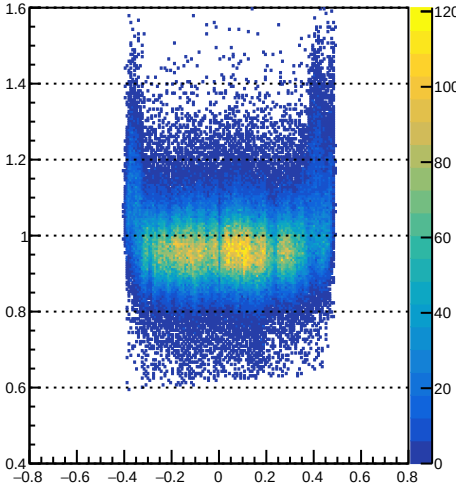
E/p per SH block | After Calib. (el. cut)



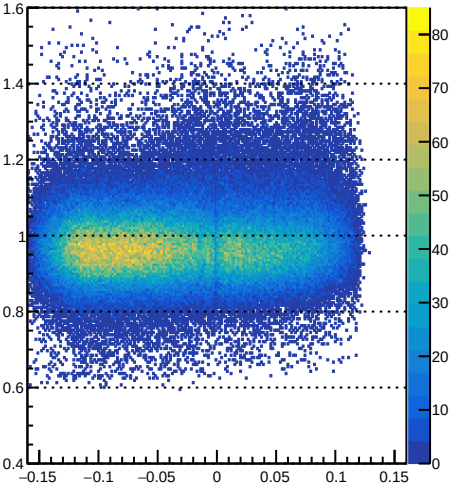
E/p per PS block | After Calib. (el. cut)



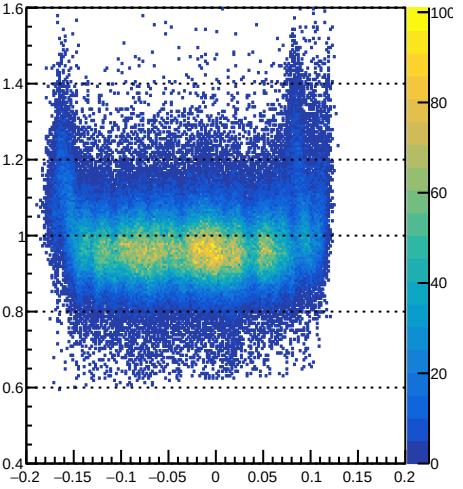
E/p vs Track x (el. cut)



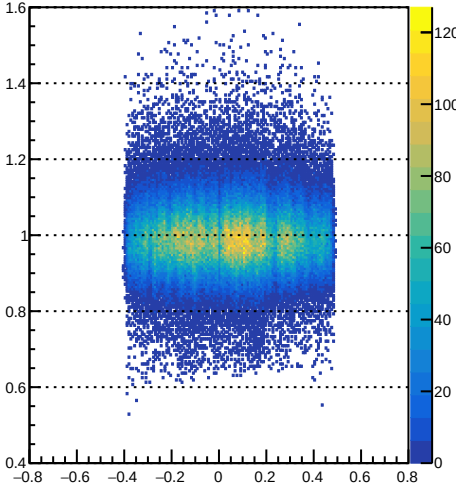
E/p vs Track y (el. cut)



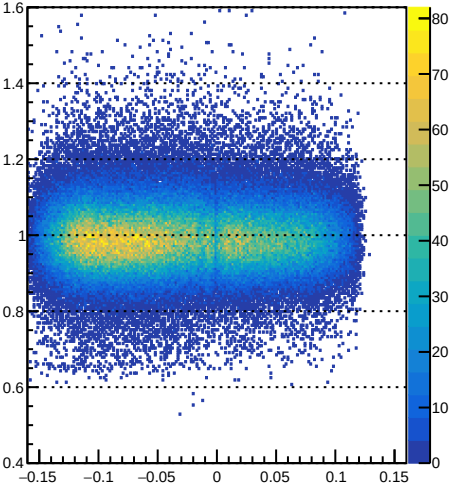
E/p vs Track theta (el. cut)



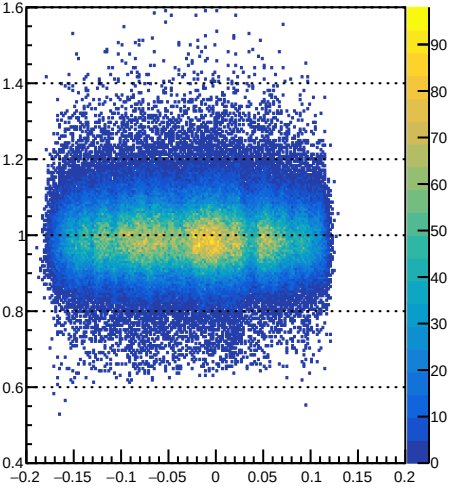
E/p vs Track x | After Calib. (el. cut)



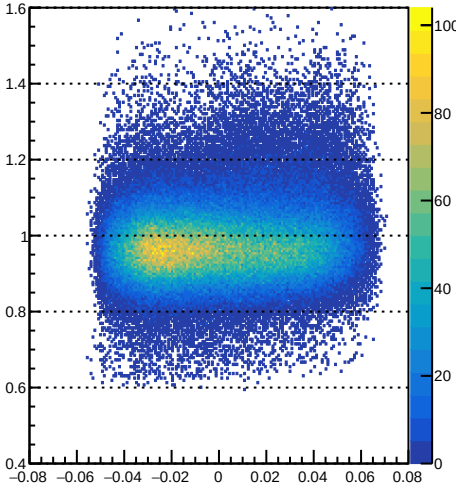
E/p vs Track y | After Calib. (el. cut)



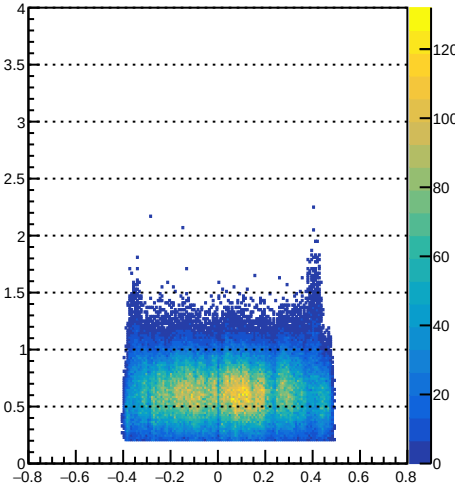
E/p vs Track theta | After Calib. (el. cut)



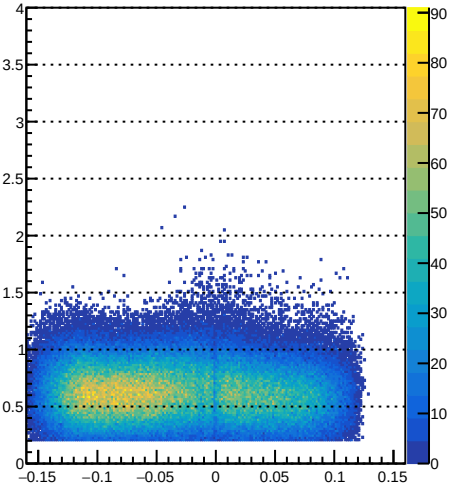
E/p vs Track phi (el. cut)



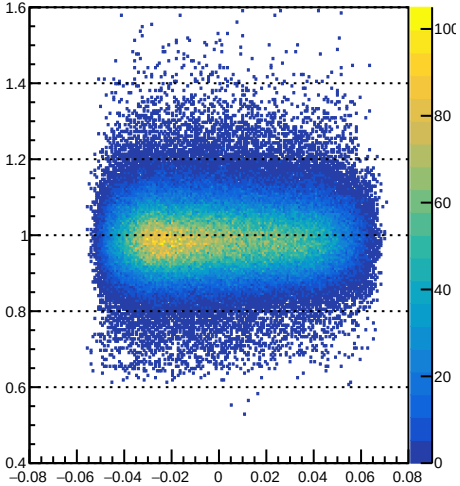
PS energy vs Track x (el. cut)



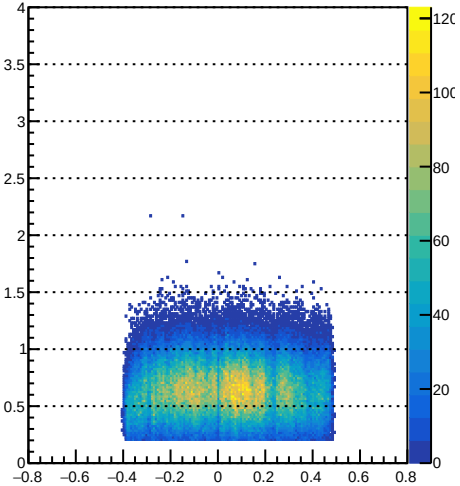
PS energy vs Track y (el. cut)



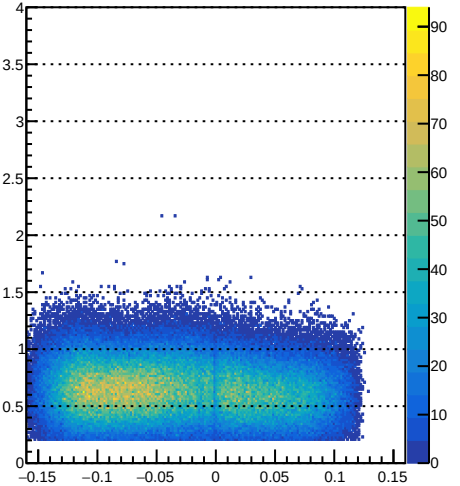
E/p vs Track phi | After Calib. (el. cut)

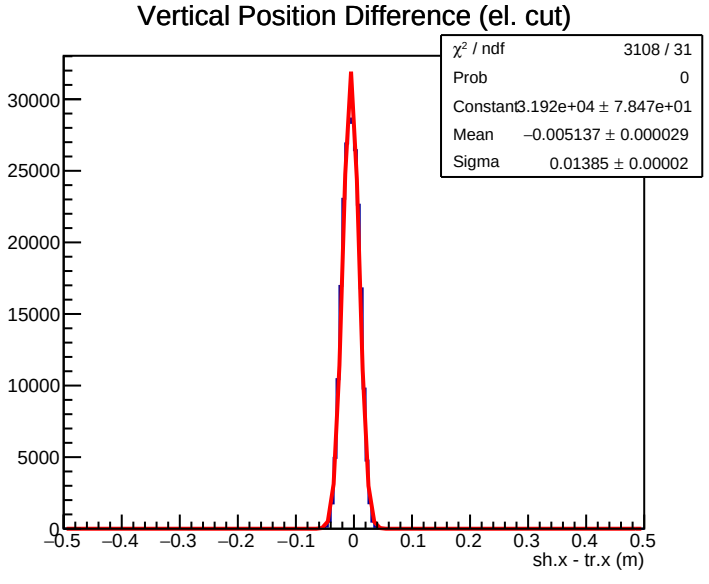


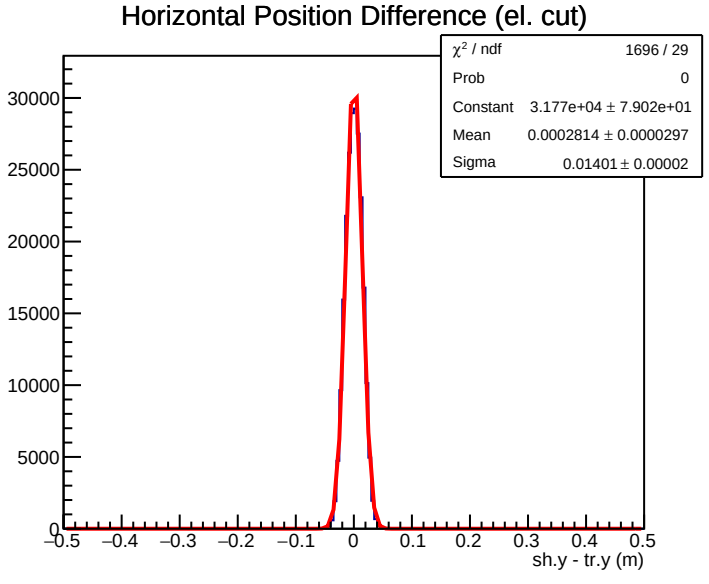
PS energy vs Track x | After Calib. (el. cut)

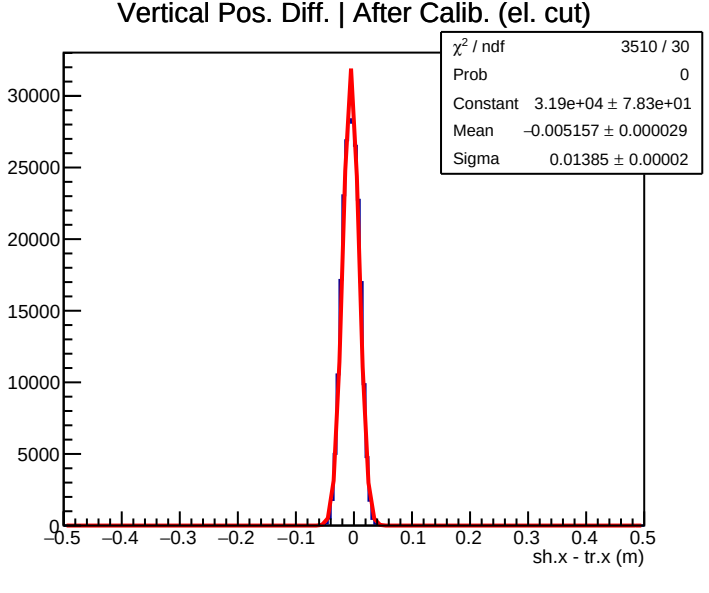


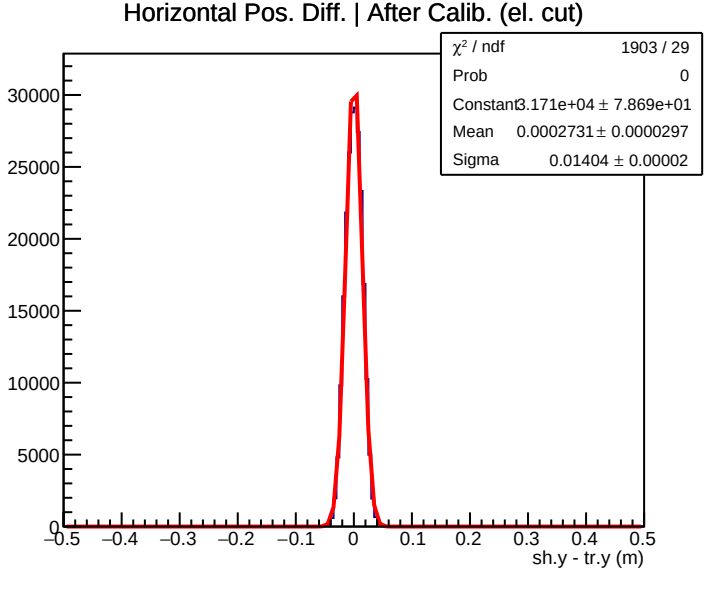
PS energy vs Track y | After Calib. (el. cut)

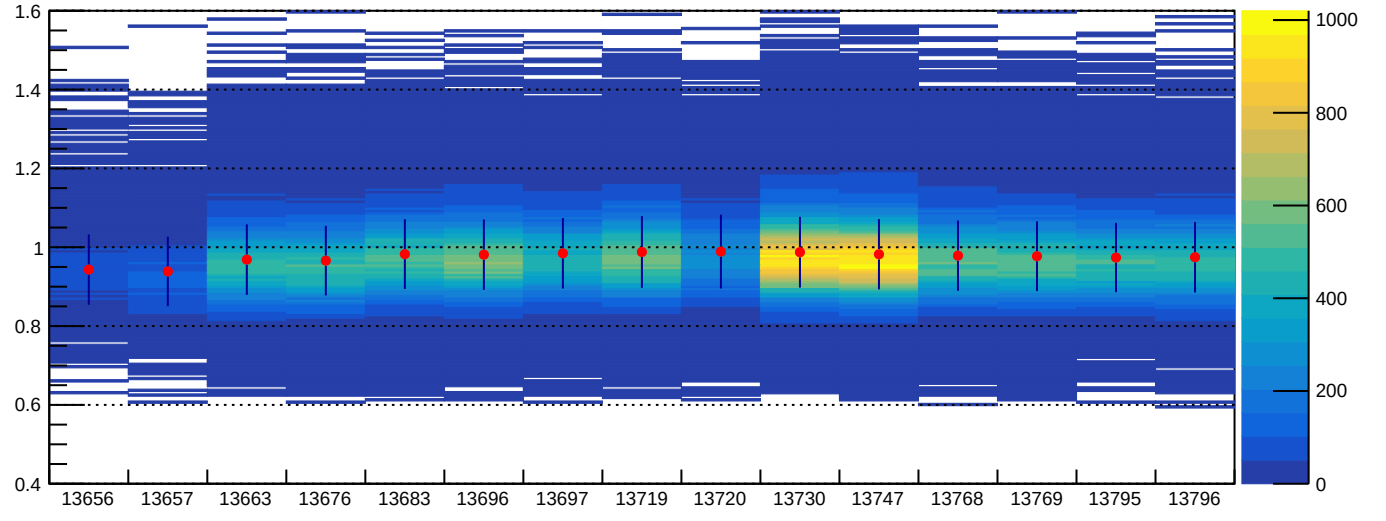


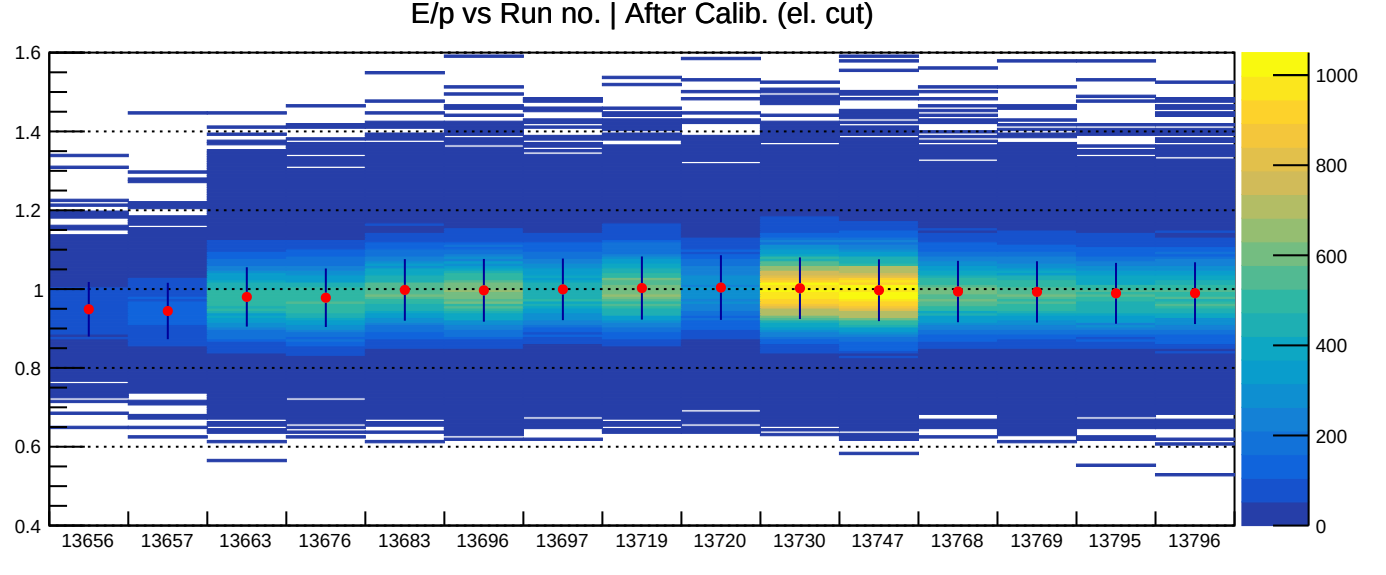

Vertical Position Difference (el. cut)
χ² / ndf 3108 / 31
Prob 0
Constant 3.192e+04 ± 7.847e+01
Mean −0.005137 ± 0.000029
Sigma 0.01385 ± 0.00002
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 1696 / 29
Prob 0
Constant 3.177e+04 ± 7.902e+01
Mean 0.0002814 ± 0.0000297
Sigma 0.01401 ± 0.00002
sh.y - tr.y (m)

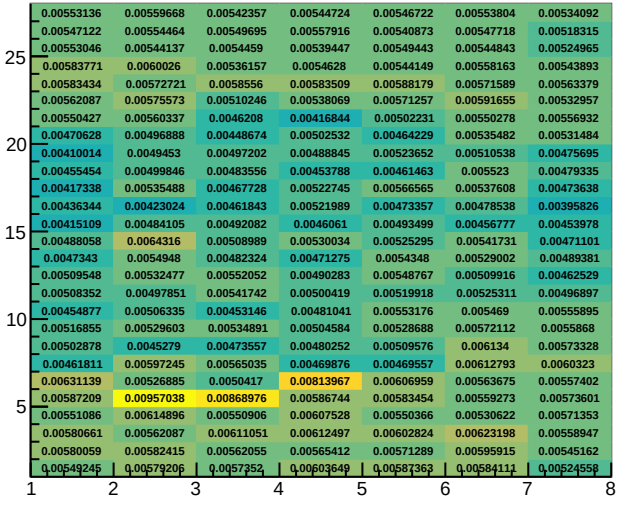

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 3510 / 30
Prob 0
Constant 3.19e+04 ± 7.83e+01
Mean −0.005157 ± 0.000029
Sigma 0.01385 ± 0.00002
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1903 / 29
Prob 0
Constant 3.171e+04 ± 7.869e+01
Mean 0.0002731 ± 0.0000297
Sigma 0.01404 ± 0.00002
sh.y - tr.y (m)

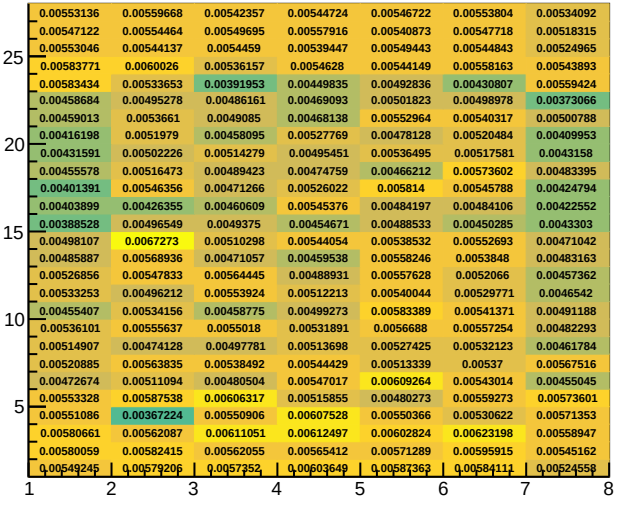

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13656
13657
13663
13676
13683
13696
13697
13719
13720
13730
13747
13768
13769
13795
13796
1000
800
600
400
200
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13656
13657
13663
13676
13683
13696
13697
13719
13720
13730
13747
13768
13769
13795
13796
1000
800
600
400
200
0

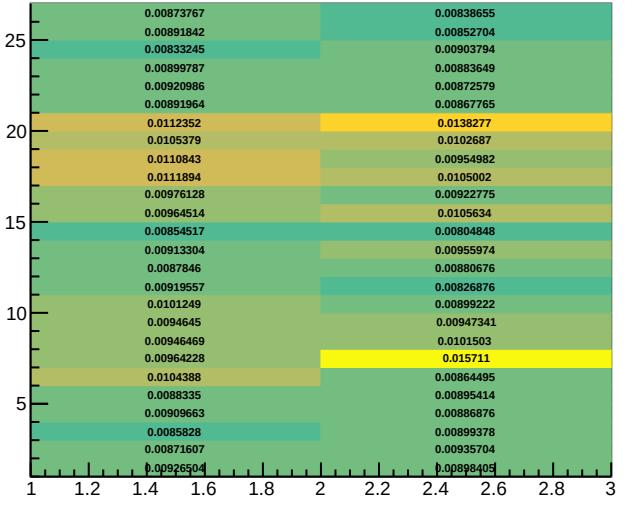
Old ADC Gain Coefficients | SH



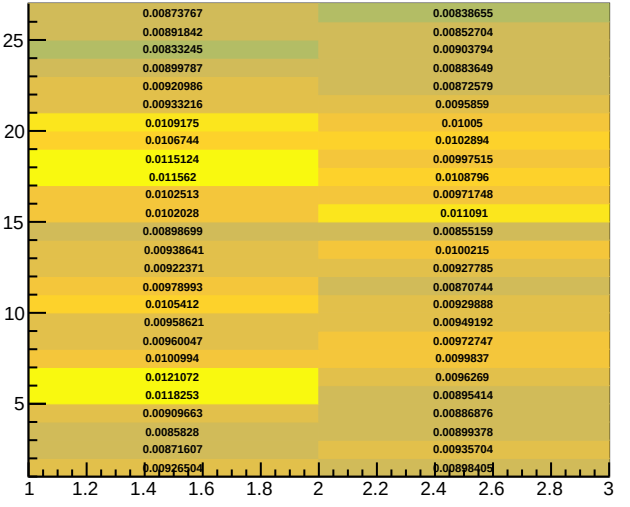
New ADC Gain Coefficients | SH

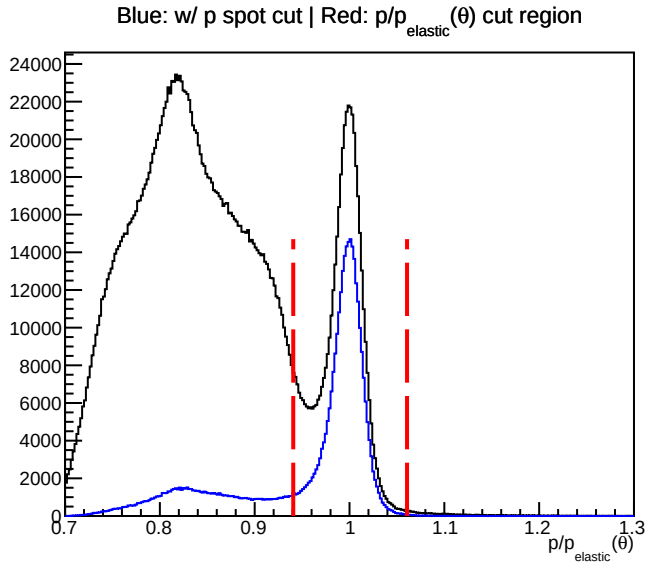


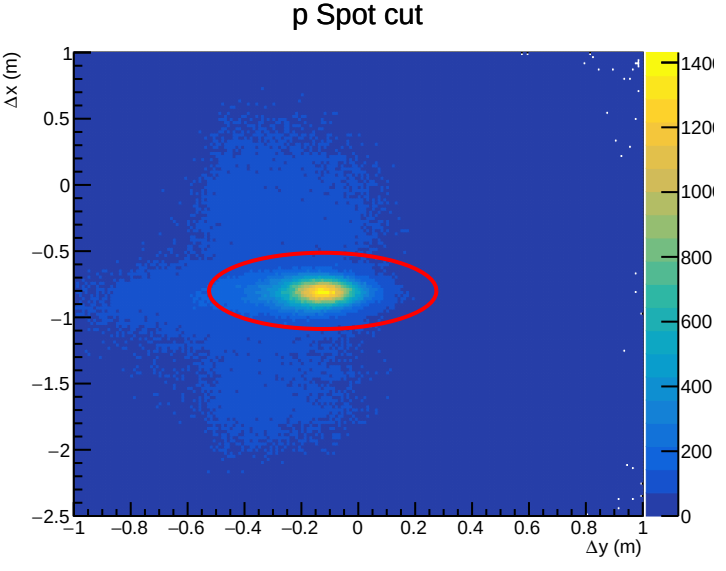
Old ADC Gain Coefficients | PS

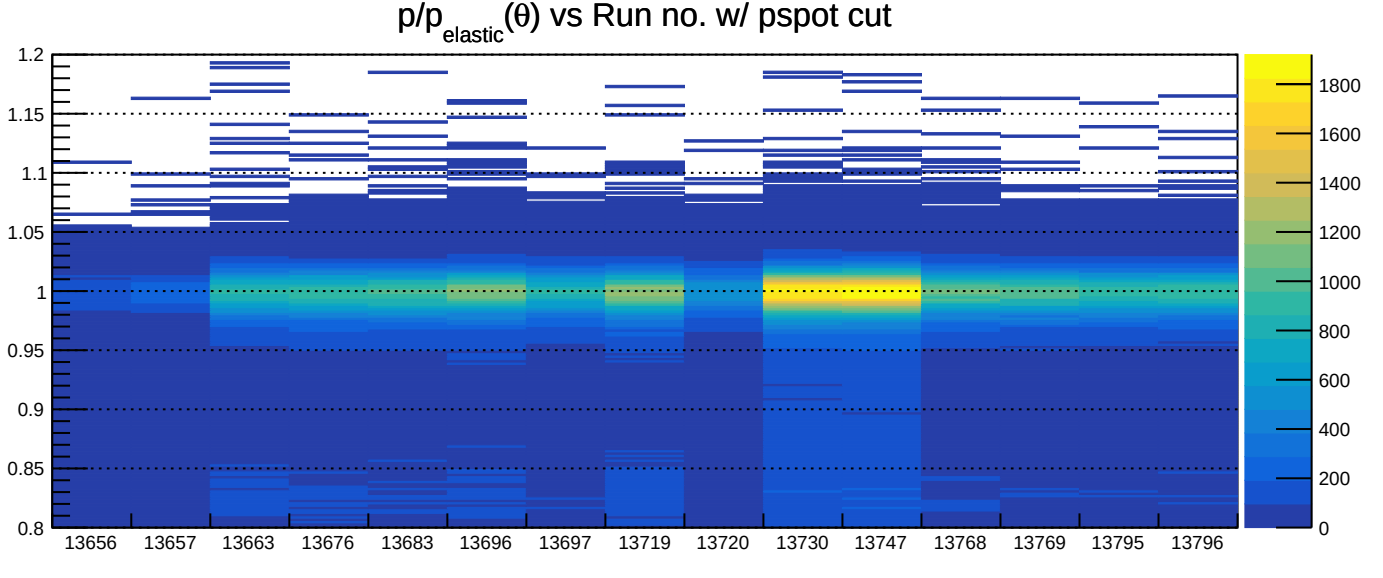


New ADC Gain Coefficients | PS

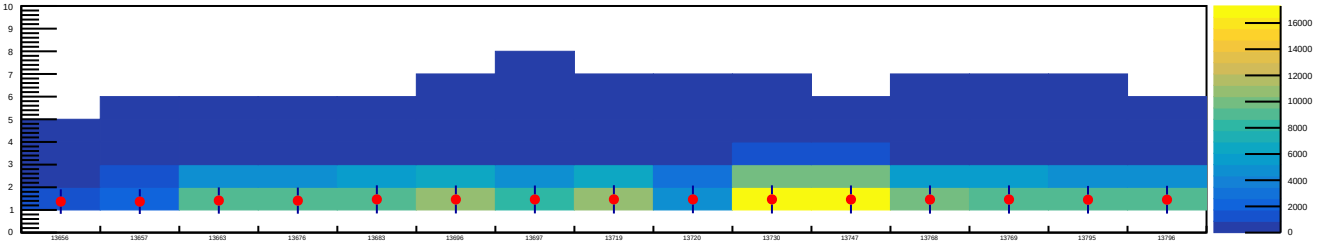



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

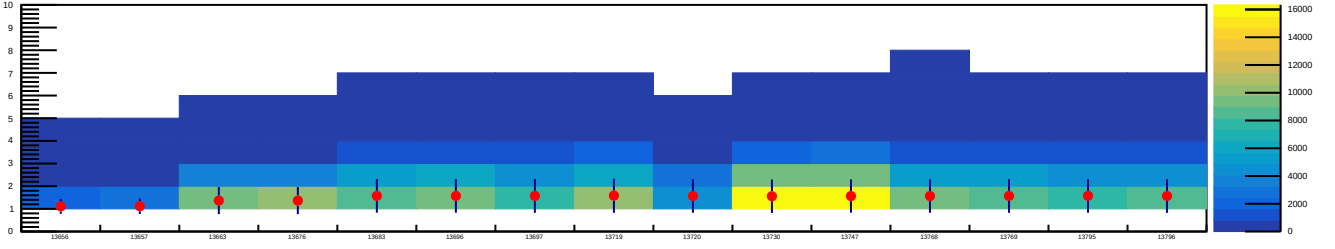

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
1400
1200
1000
800
600
400
200
0


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
13656
13657
13663
13676
13683
13696
13697
13719
13720
13730
13747
13768
13769
13795
13796
1800
1600
1400
1200
1000
800
600
400
200
0

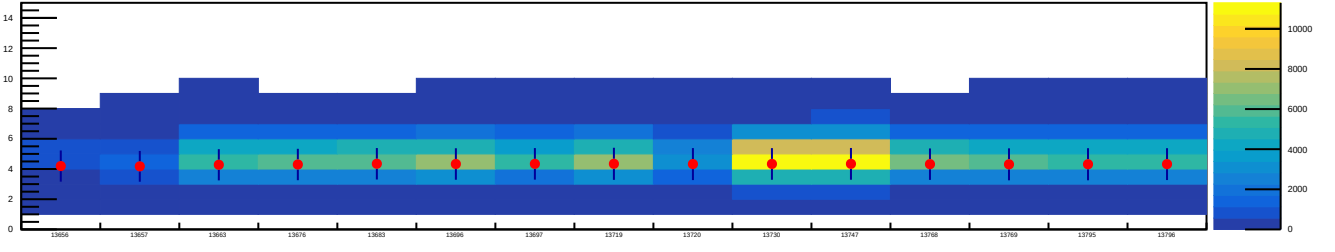
PS (best) cluster size vs Run no. (el. cut)



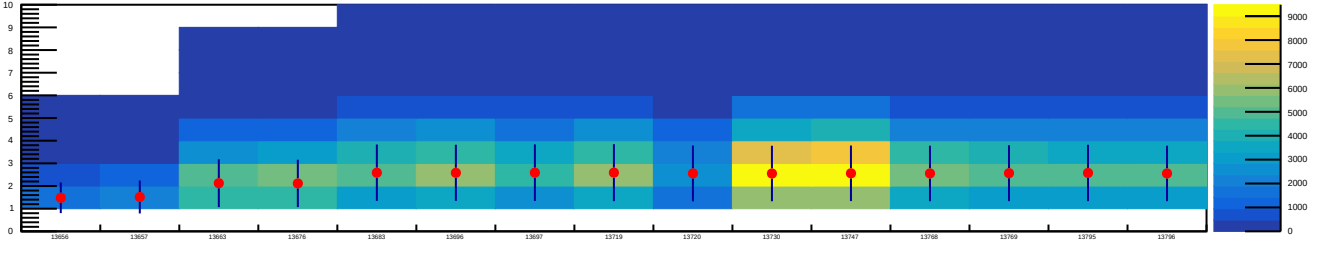
PS cluster multiplicity vs Run no. (el. cut)



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/sbs9-sbs70p.cfg

Total # events analyzed: 7493655, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.97, σ = (6.856 $\pm$ 0.018) p

E/p (after calib.) | μ = 0.99, σ = (6.647 $\pm$ 0.019) 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]-0.025)<0.3,
PS cluster energy > 0.2 GeV
p_recon > 1.2 GeV/c

events passed global cuts: 2279971

Elastic cuts:

$|p/p_{el}(\theta) - 1.001| \leq 6.0*0.010$

proton spot cut ranges:

Δx (m): Mean = -0.8000, 3.0σ = 0.0960

Δy (m): Mean = -0.1250, 4.0σ = 0.1000

events passed global & elastic cuts: 282434

Other cuts:

Minimum # events per block: 200, (Cluster) hit threshold: 0.02 GeV

Various offsets:

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

Momentum calibration factors: A = 0.270277690, B = 0.885406510, C = 0.0, $\theta_{pitch}^{GEM} = 10.0^{o}$, $d_{BB} = 1.5500$ m

Macro processing time: CPU 515.4s | Real 630.5s