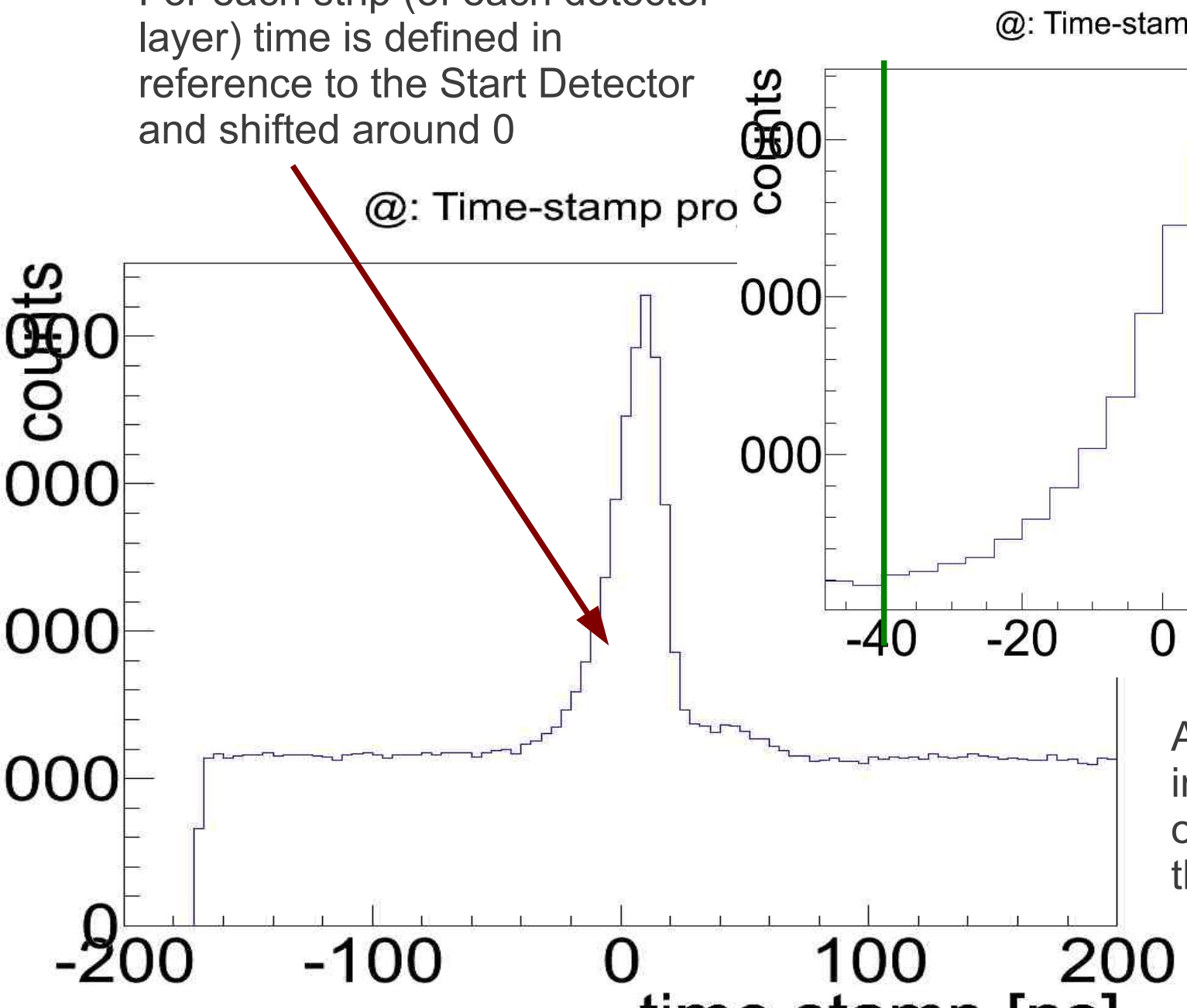
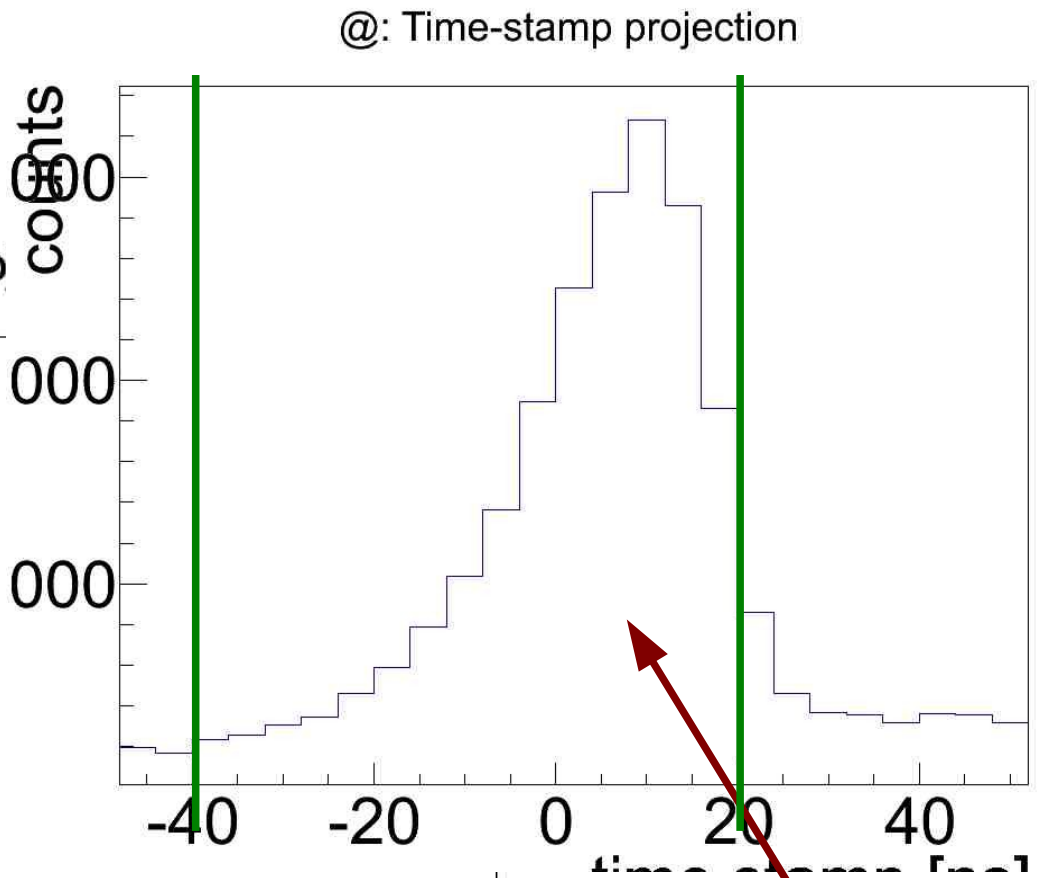
Updates on PionTracker

1) Timing Cuts
2) Crosstalk
3) Final multiplicities (candidate pairs)
4) Momentum reconstruction

Timing Cuts

For each strip (of each detector layer) time is defined in reference to the Start Detector and shifted around 0

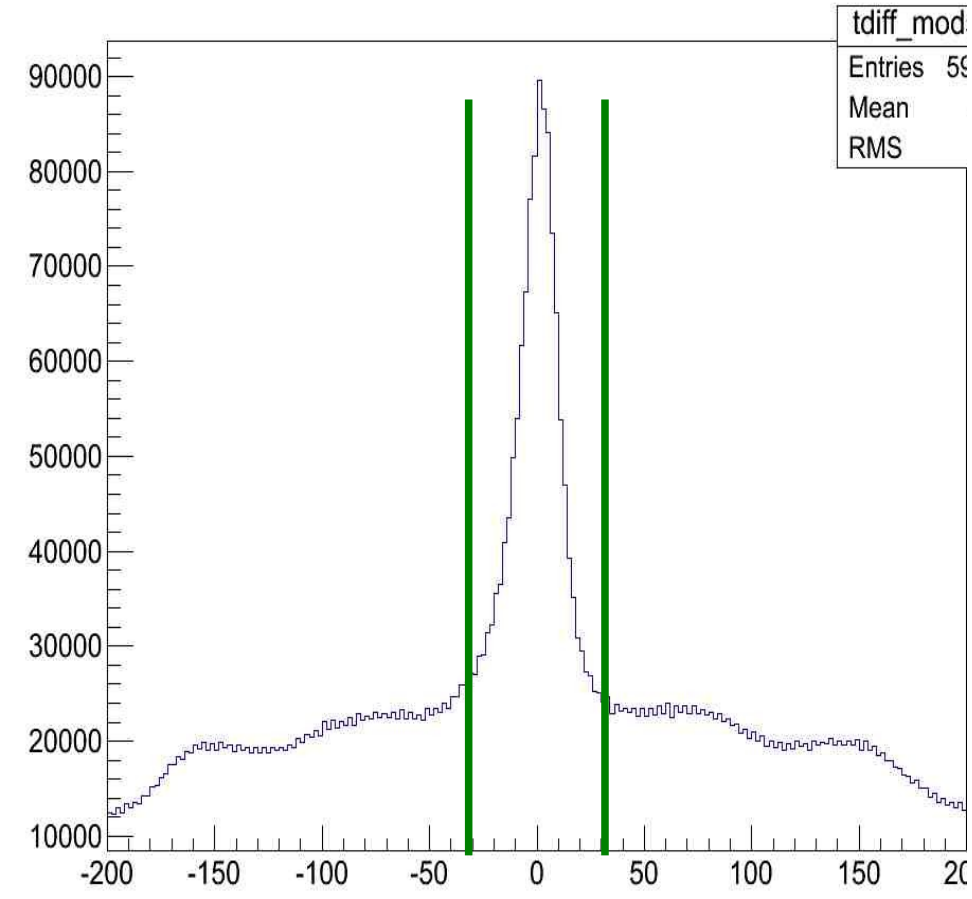


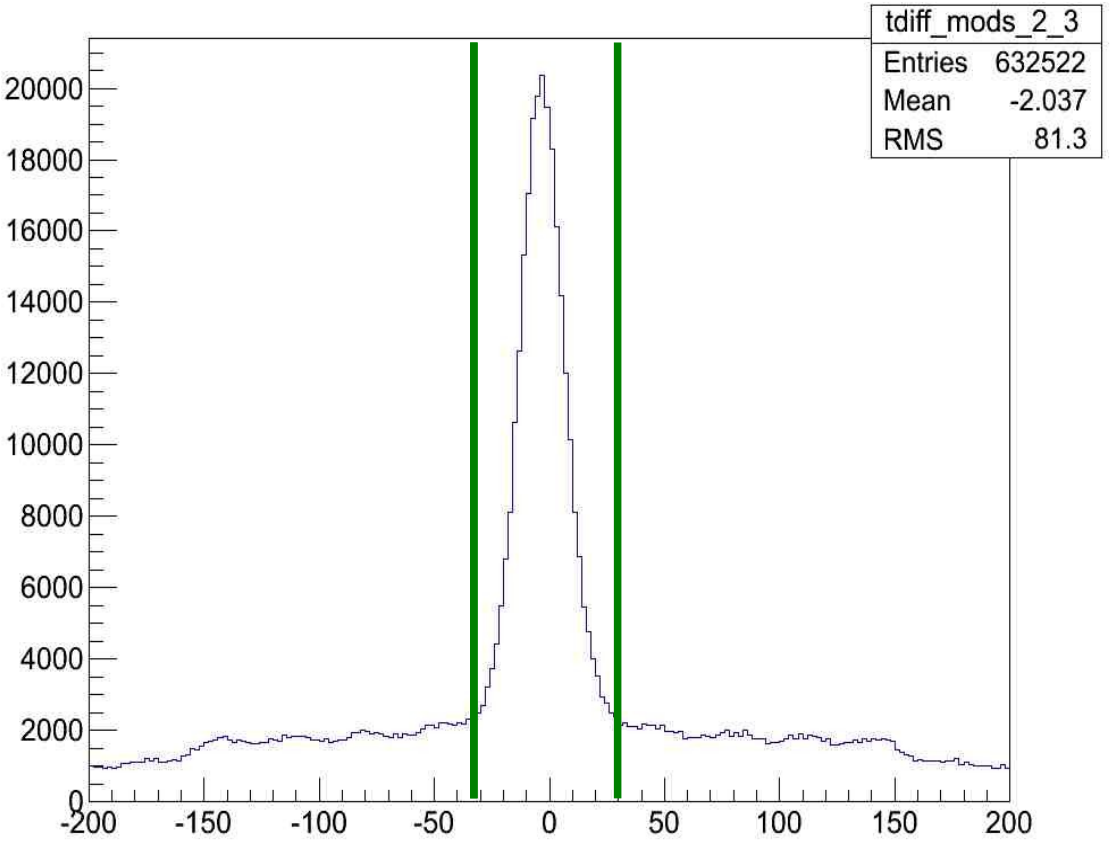


A selection cut (already in hydra, to be optimized???) is done in the region -40:20

Timing Cuts

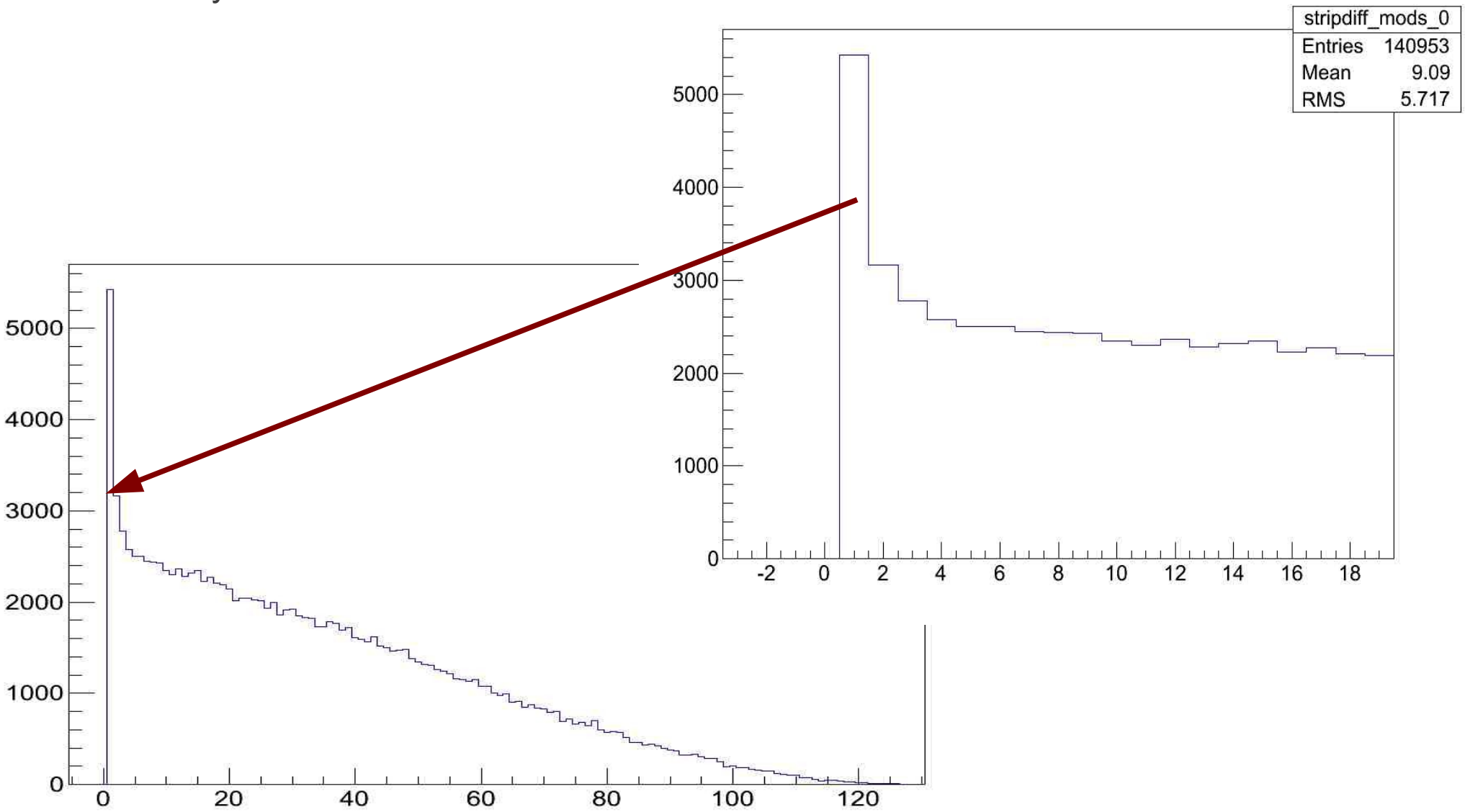
For each detector, time difference between X and Y plane is calculated and a (common???) cut is applied to select pion candidates



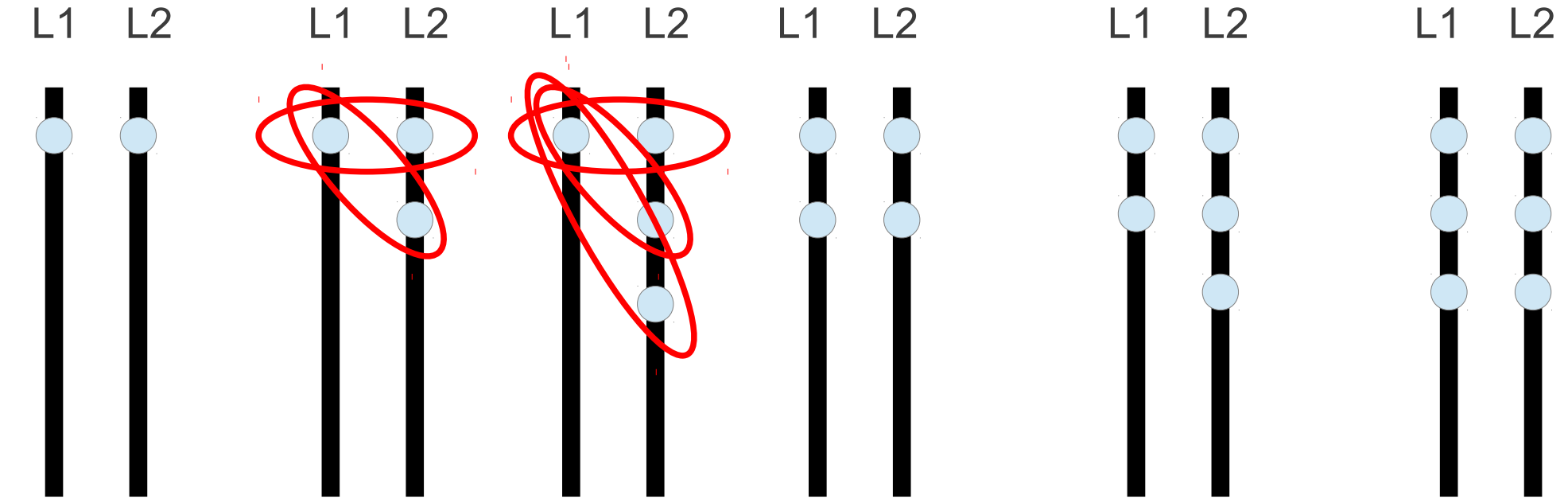


Crosstalk

For each strip (of each detector layer) nearby strips can be fired due to crosstalk; this has to be checked and corrected looking at the distance between 2 hits on the same layer



Pion candidates (pairs) and multiplicity



1 pion candidate (favoured)

2 pion candidates (possible)

3 pion candidates (unfavoured)

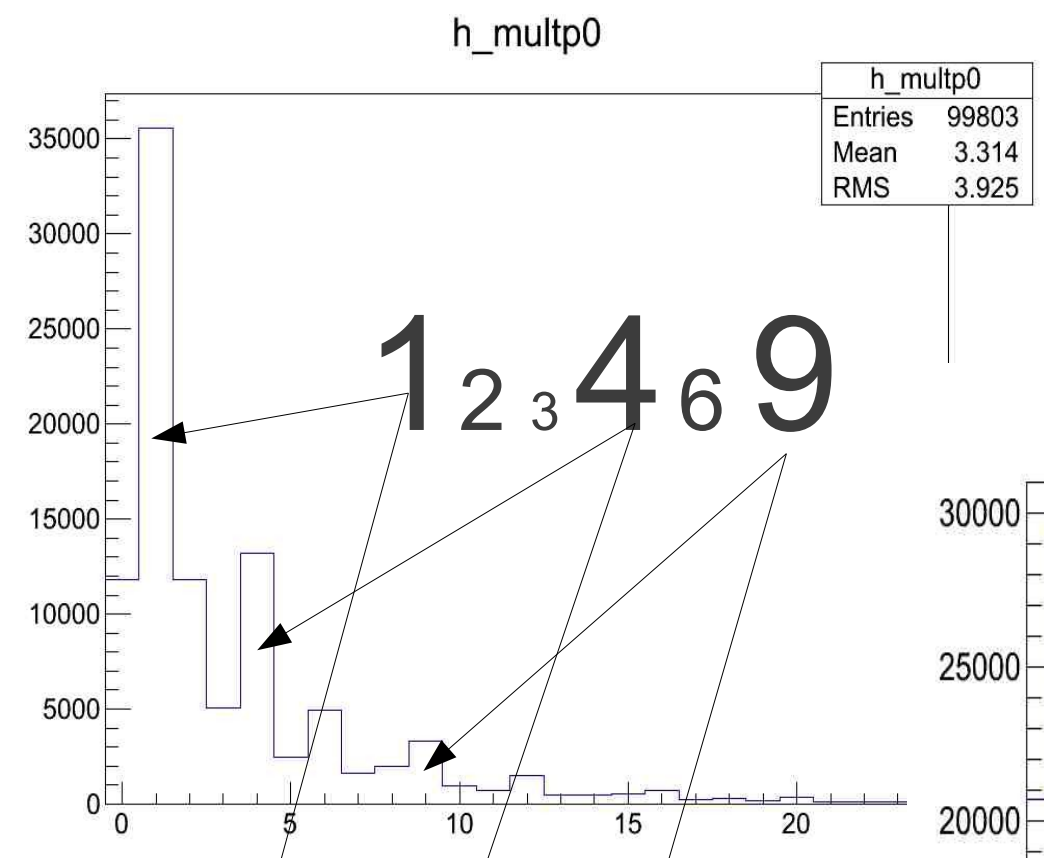
4 pion candidates (favoured)

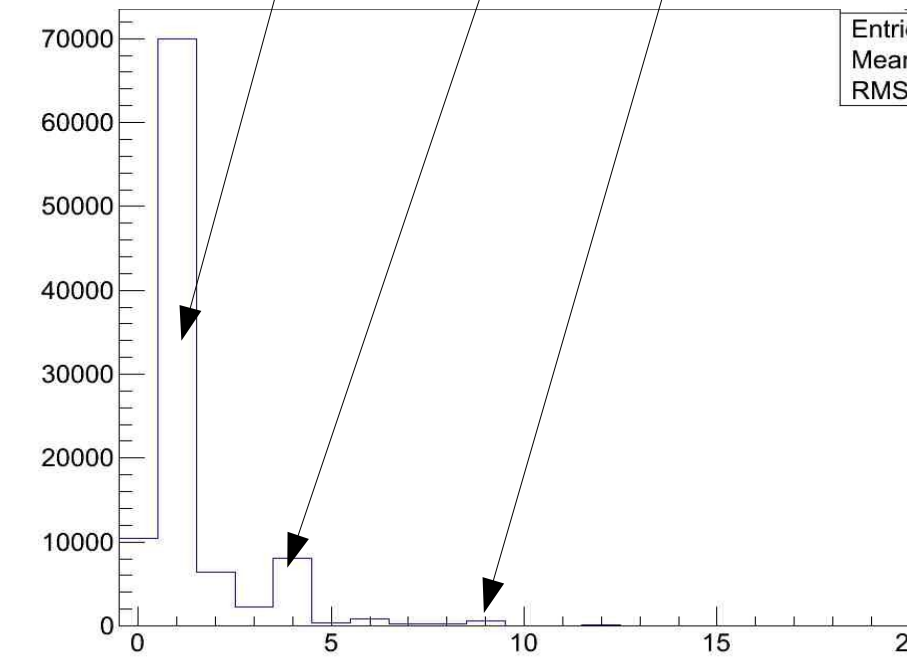
6 pion candidates (possible)

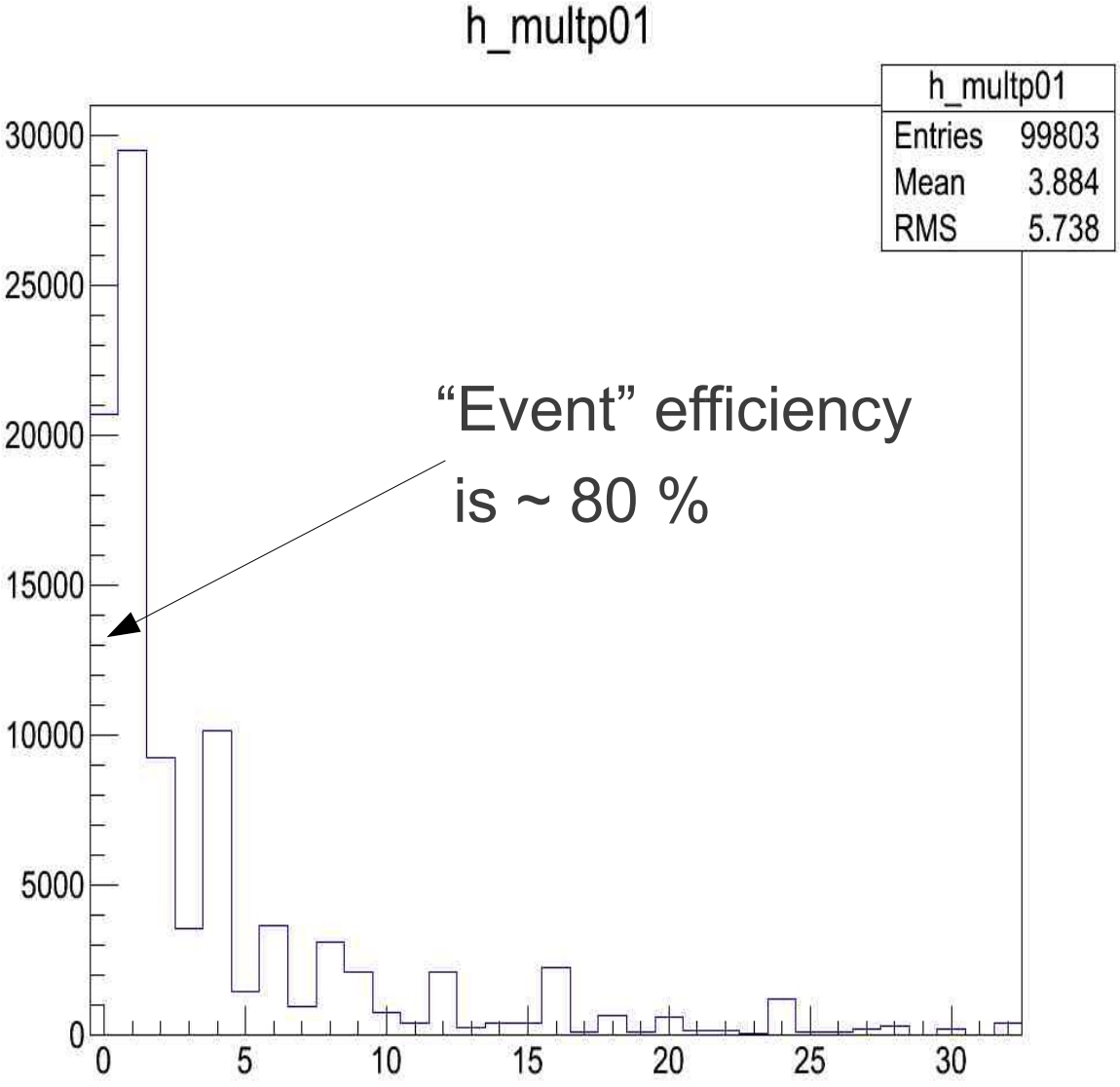
9 pion candidates (favoured)

1 2 3 4 6 9

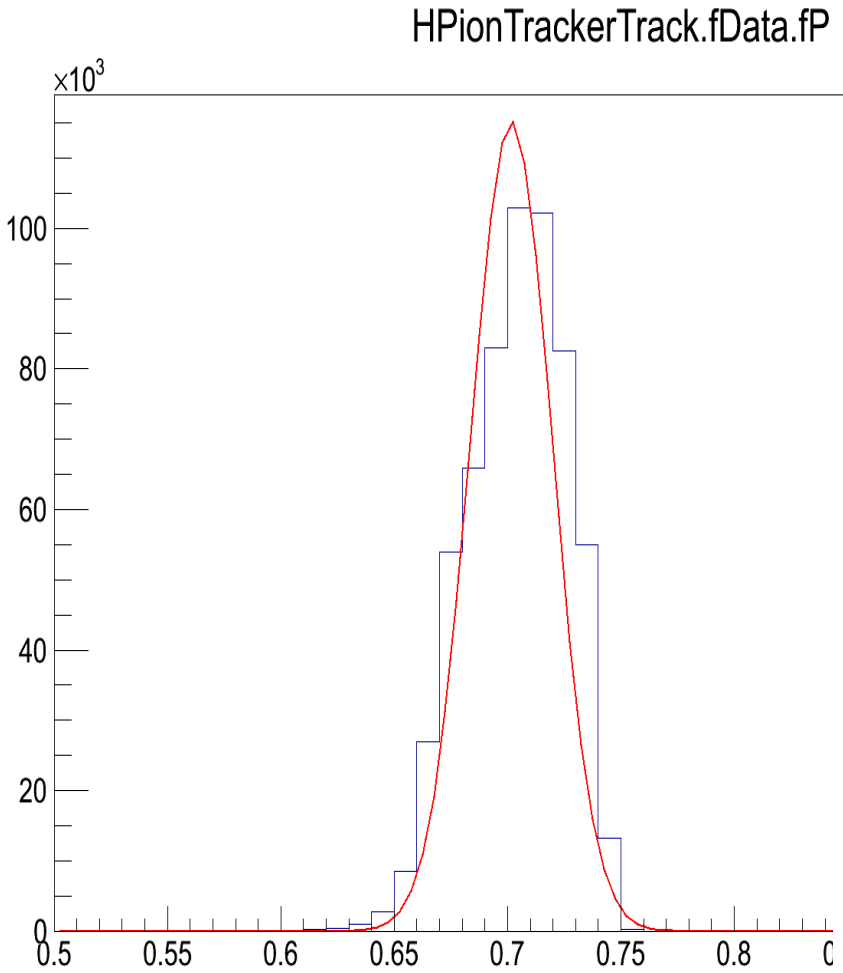
Pion candidates multiplicity







Momentum Reconstruction

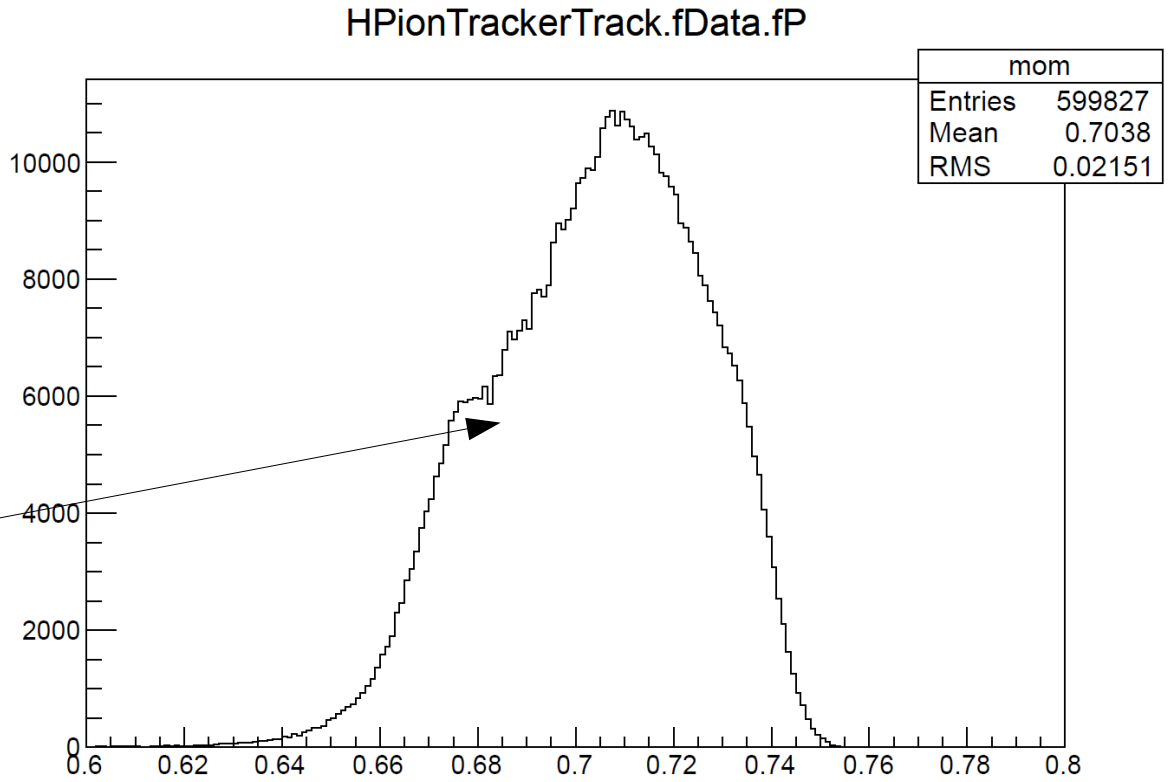


mom	
Entries	599827
Mean	0.7037
RMS	0.02203
χ^2 / ndf	7.909e+04 / 43
Prob	0
Constant	1.153e+05 ± 1.869e+02
Mean	0.7016 ± 0.0000
Sigma	0.01801 ± 0.00002

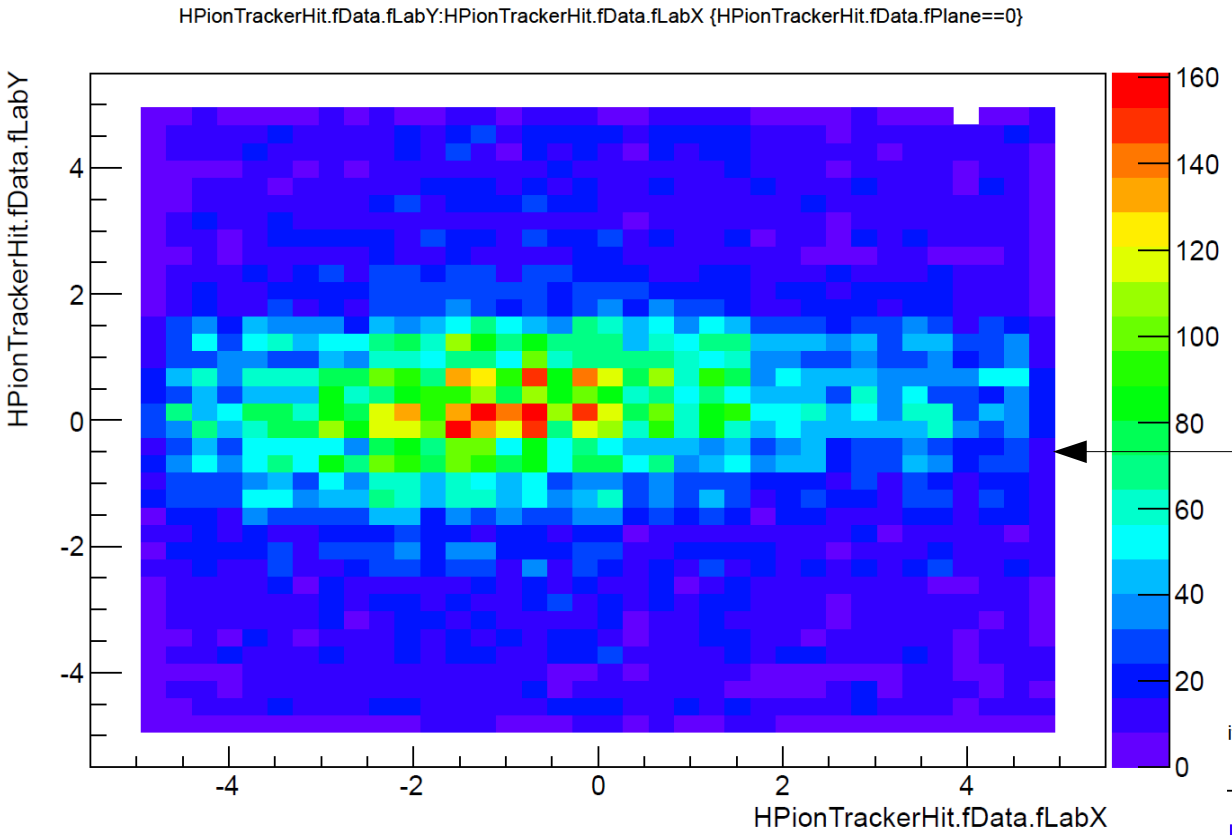
Momentum is recontructed with a resolution of

$\sigma P/P \sim 0.027$

With a finest binning, the asimmetry becomes evident; where does it come from?

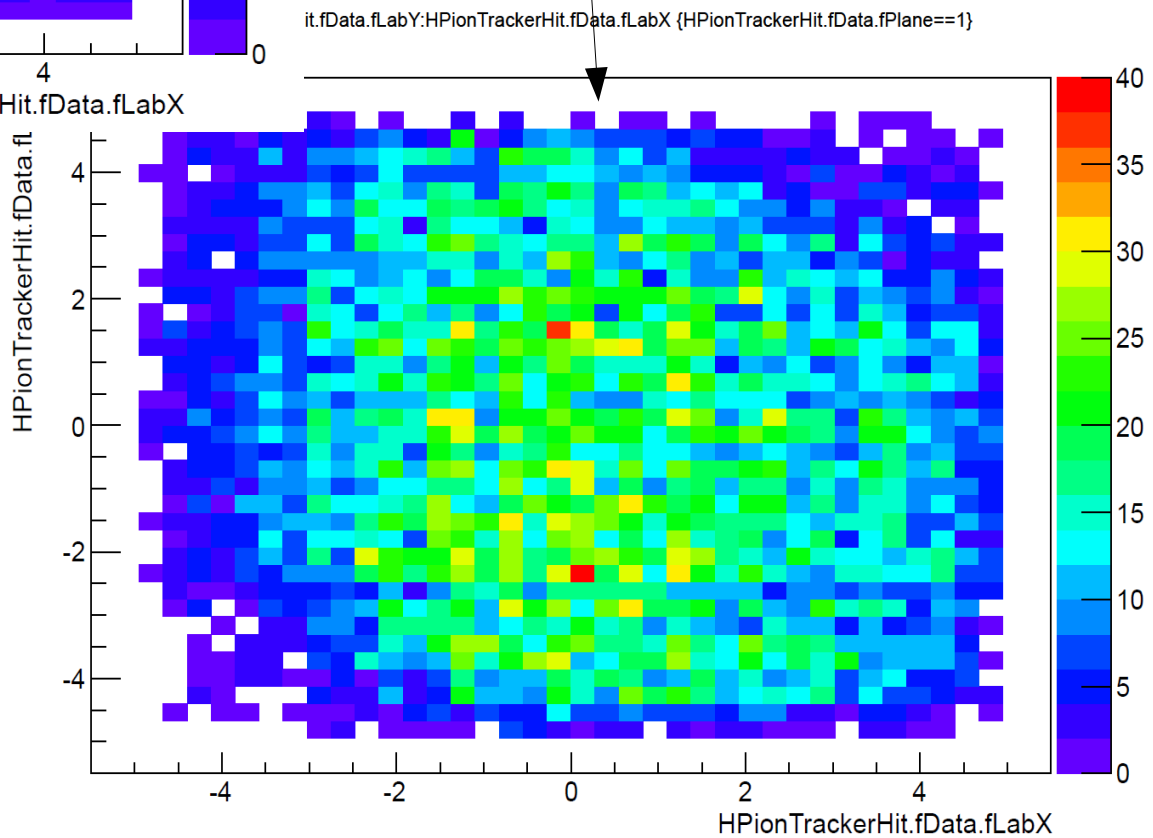


Beam Profile on Det1 & Det2



Det 1

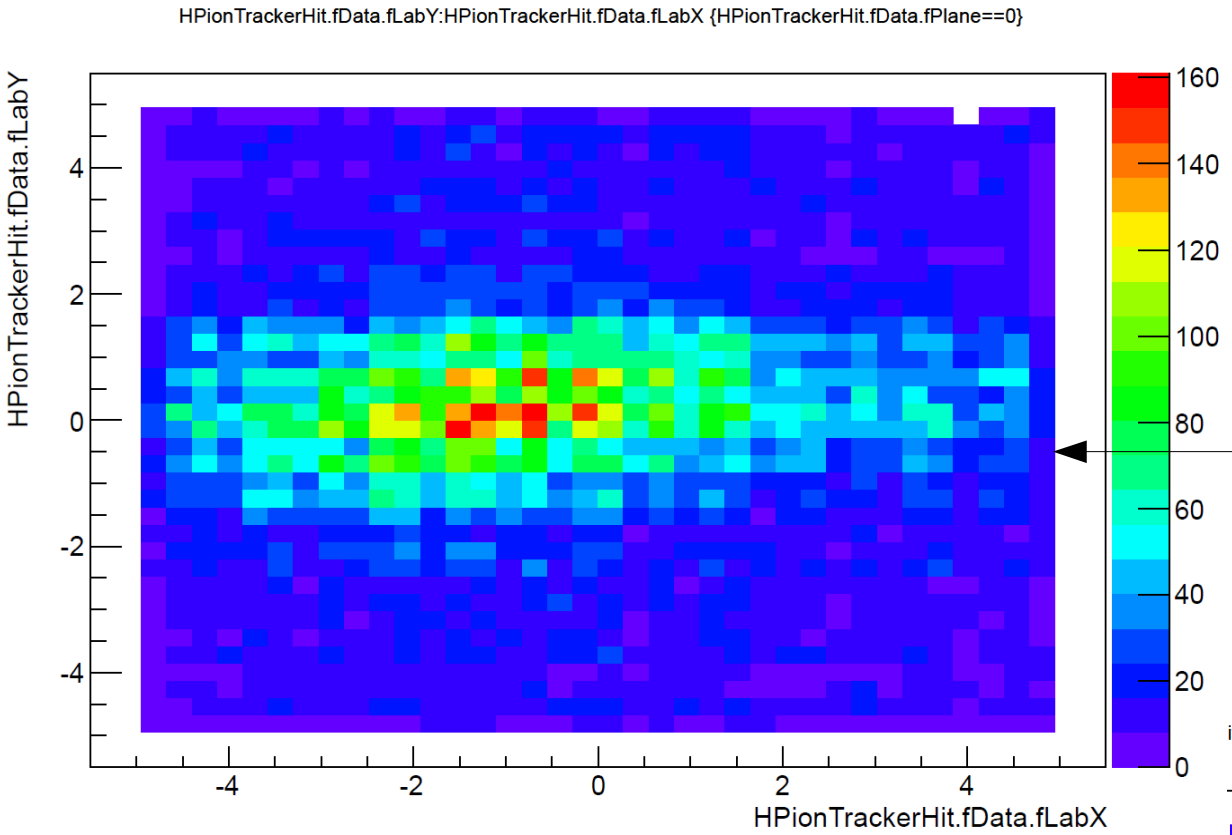
Det 2



The momentum reconstruction is more sensitive to the position at Det1 than at Det2

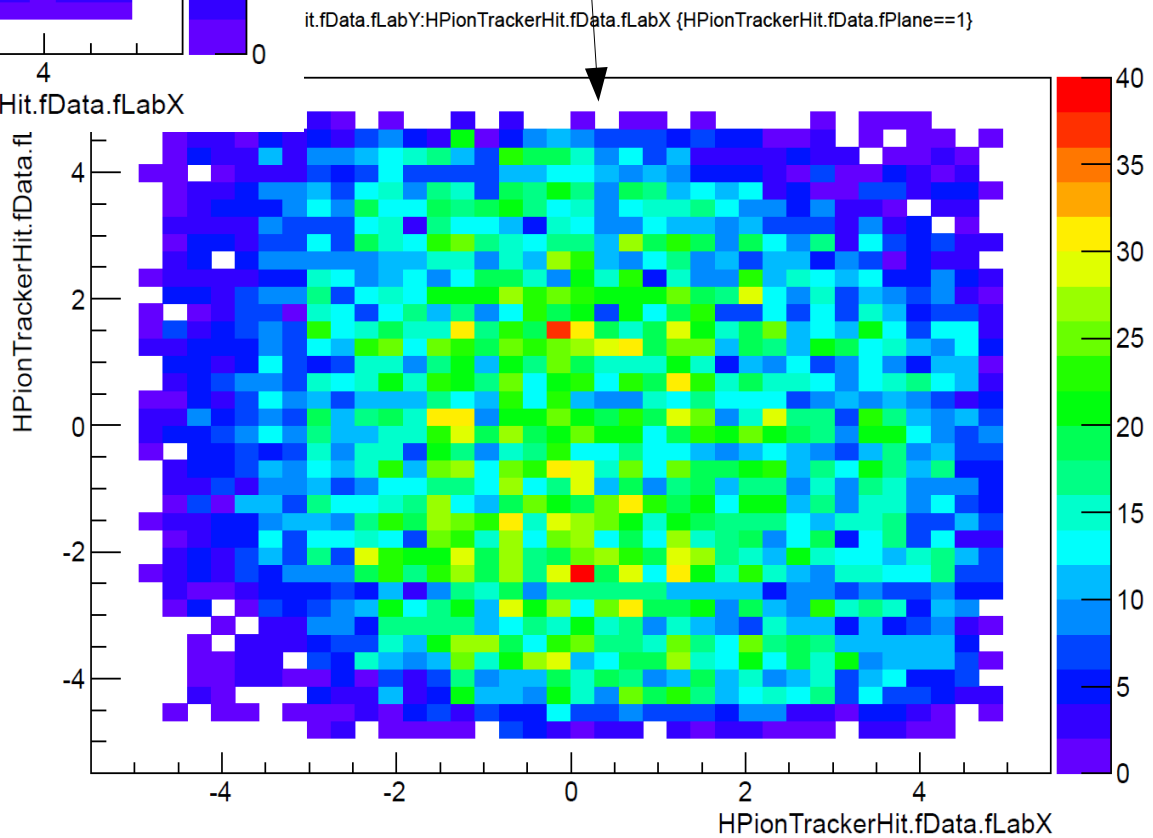
A scan was performed on 16 different areas of the Det1 looking at the momentum reconstruction and at the predicted position at Hades

Beam Profile on Det1 & Det2



Det 1

Det 2



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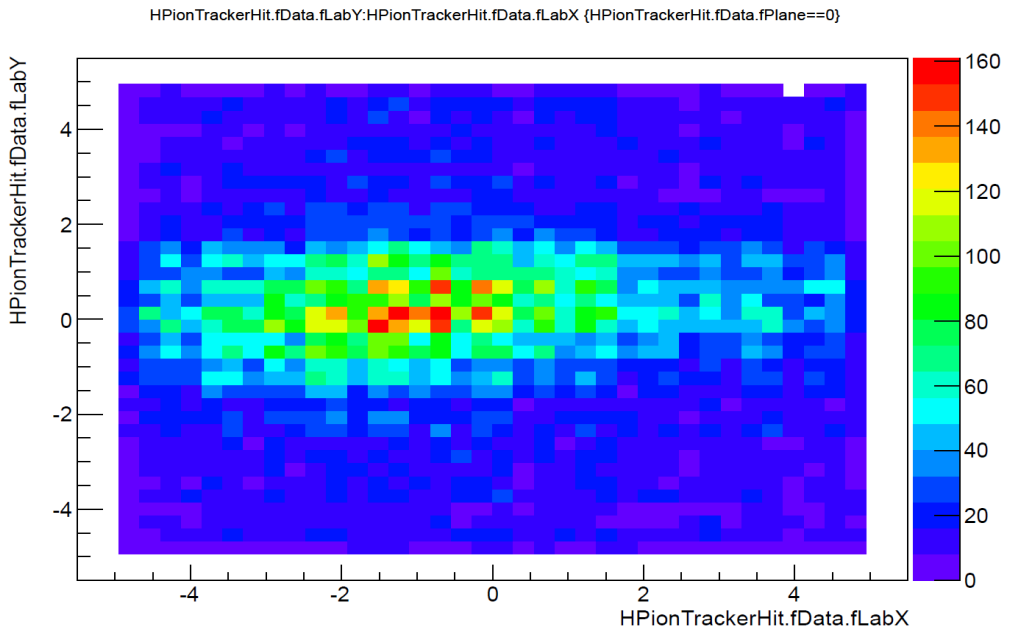
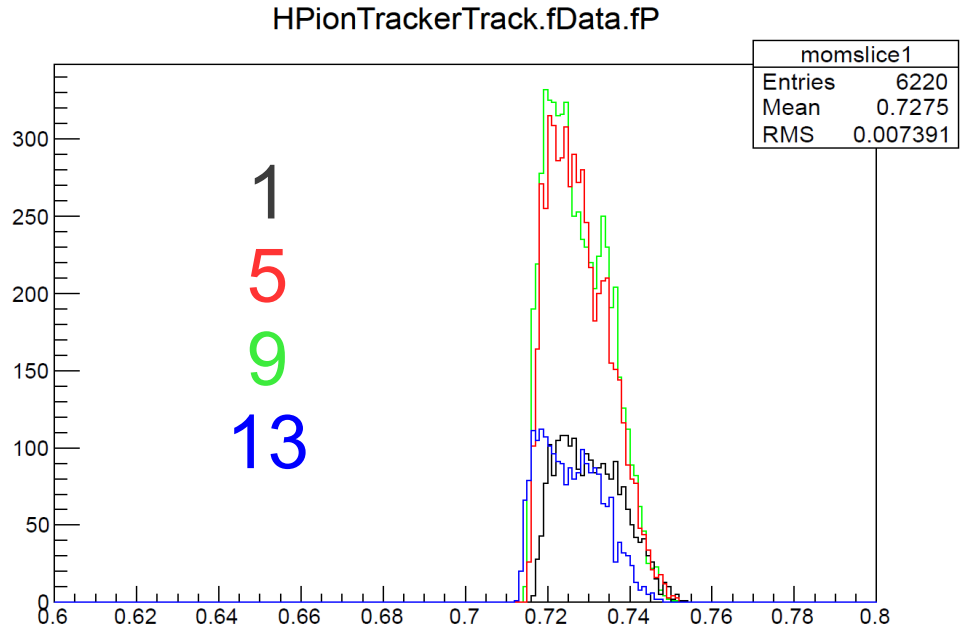
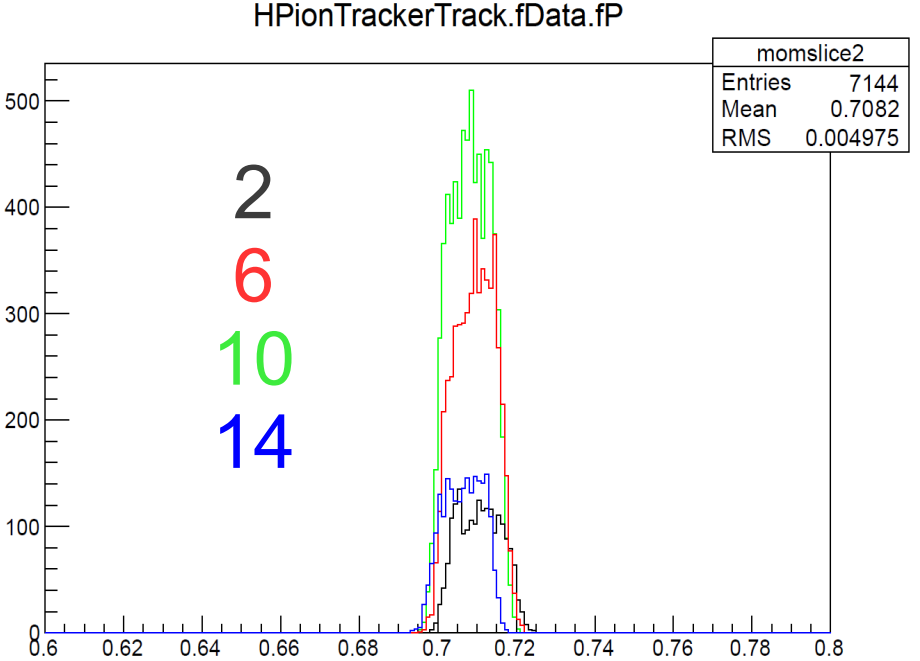
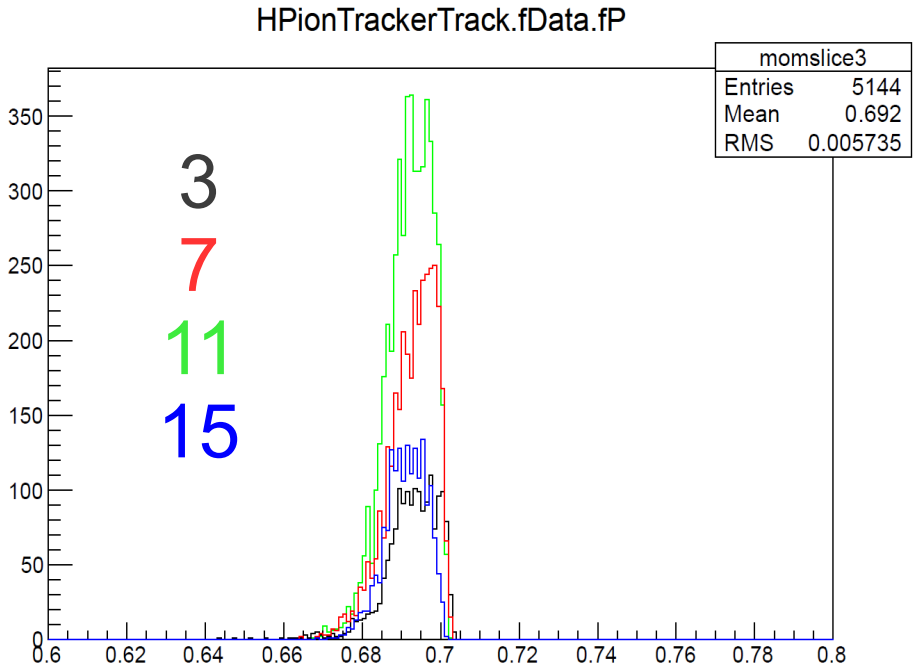


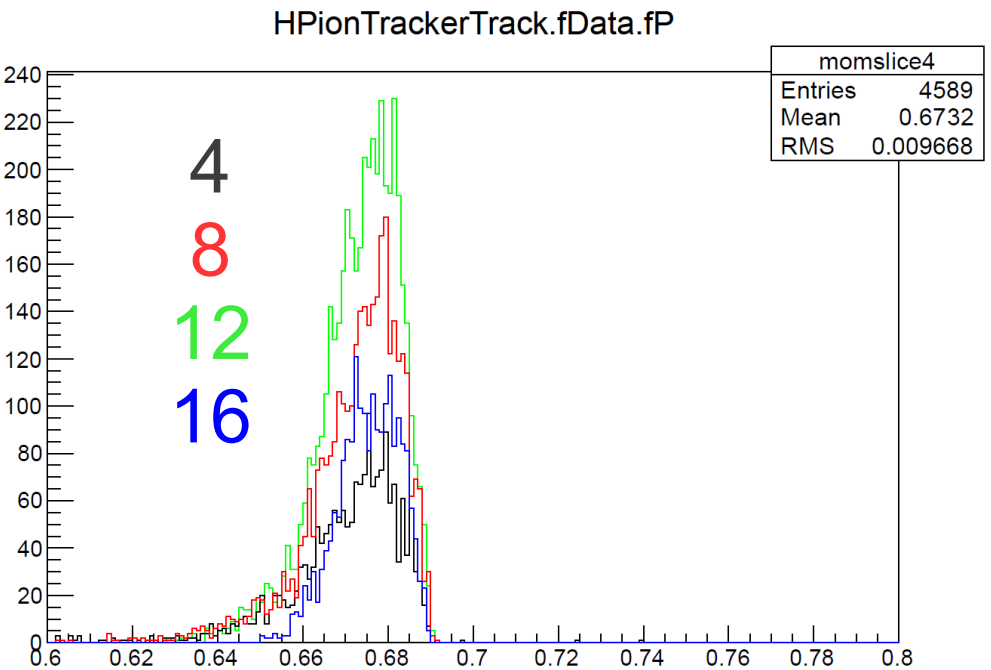
Position Scan on Det1

X scan on Det 1: Momentum reconstrution

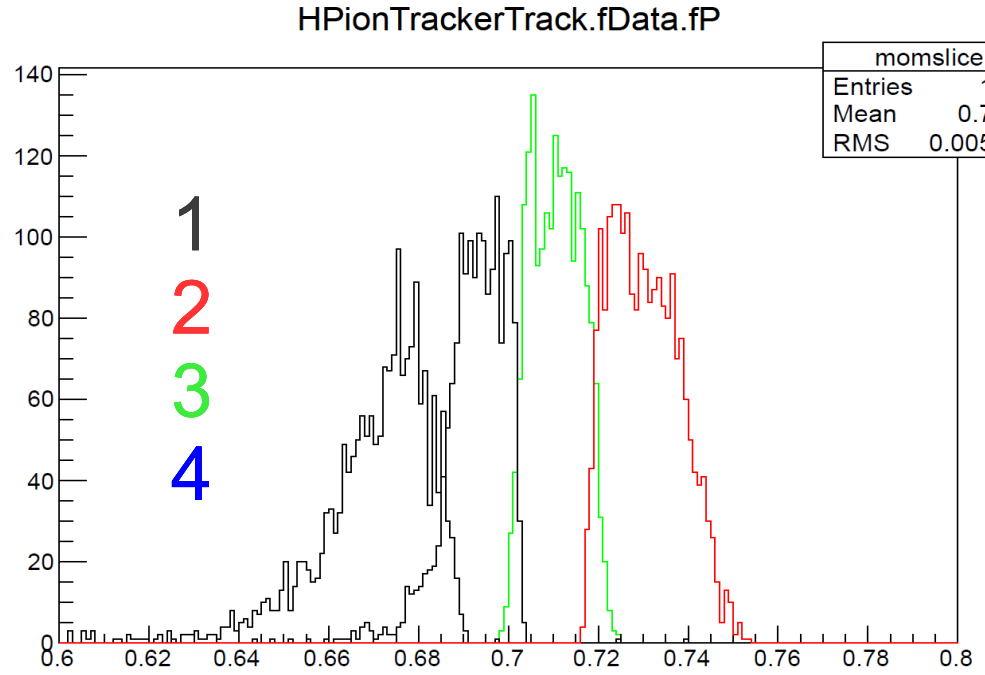


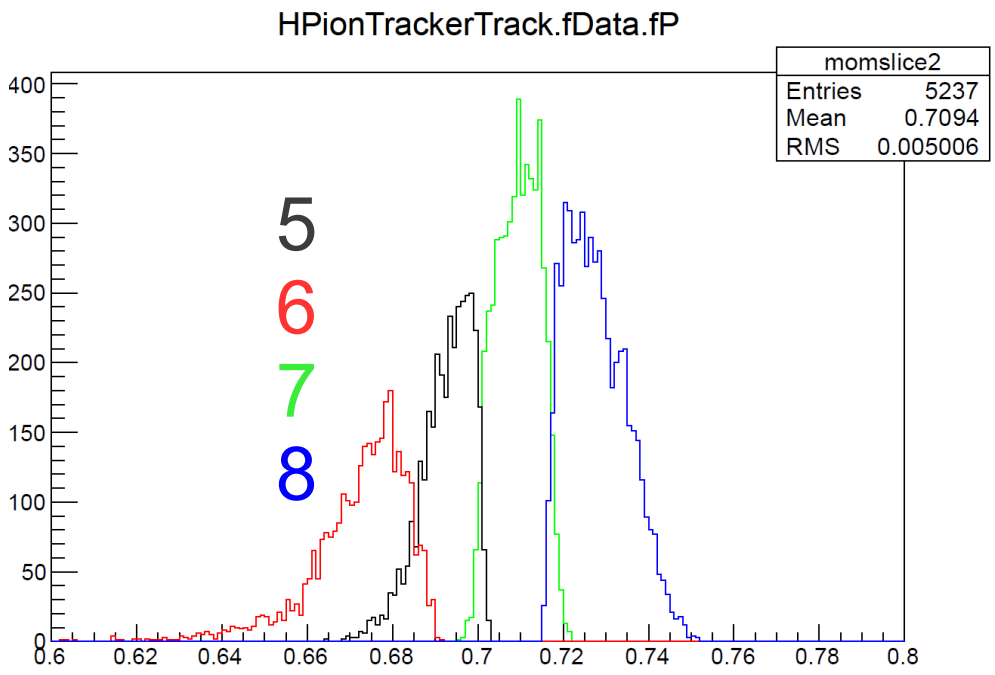


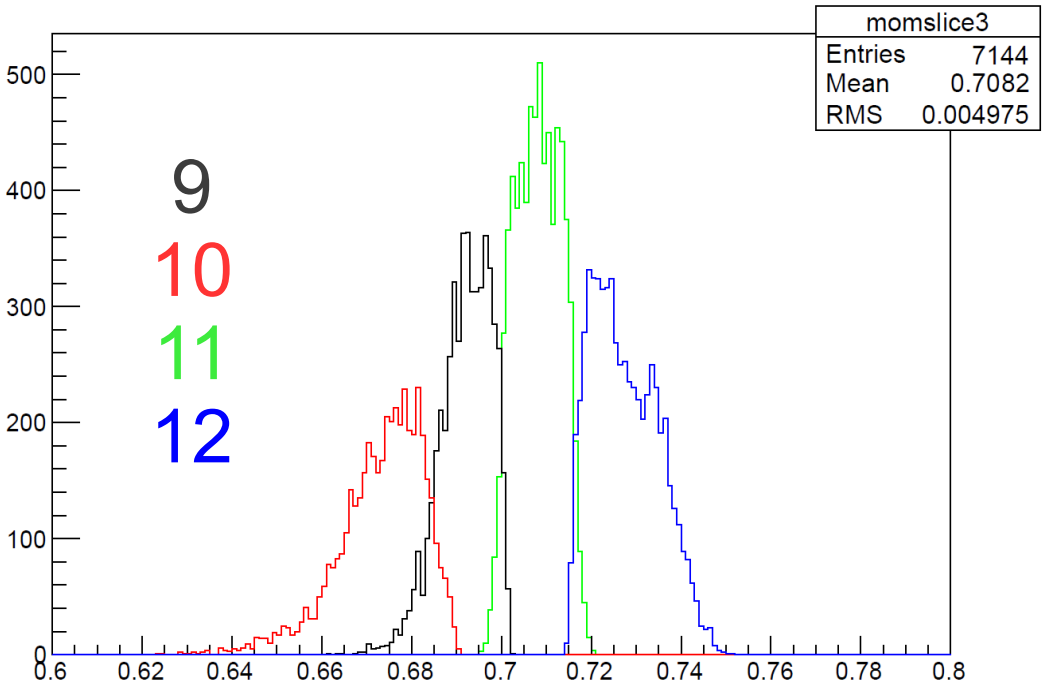


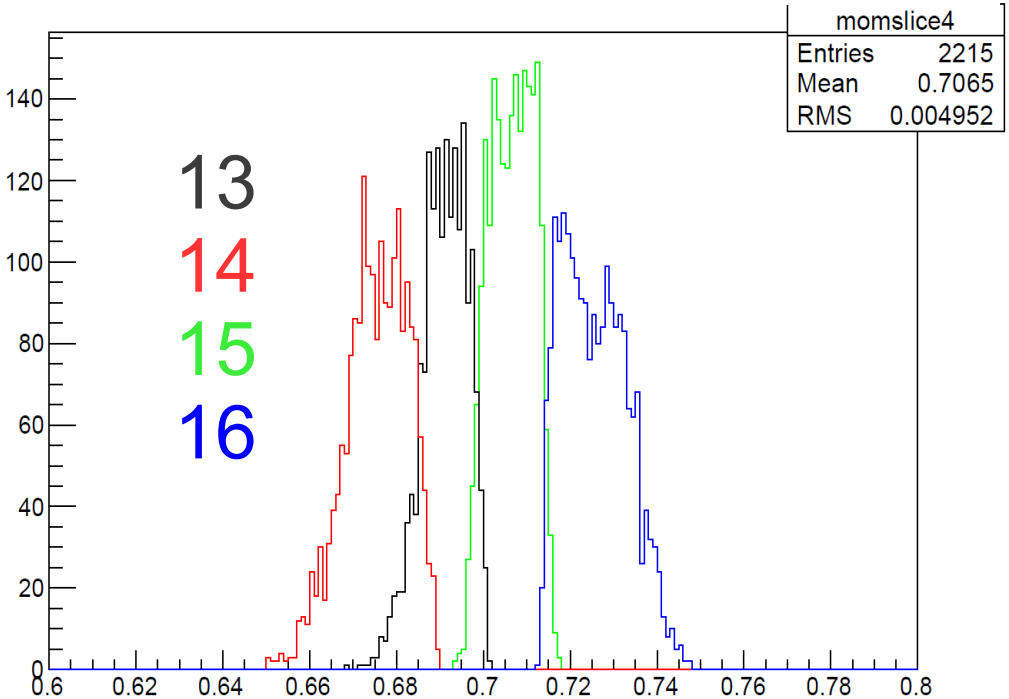


Y scan on Det 1: Momentum reconstrution

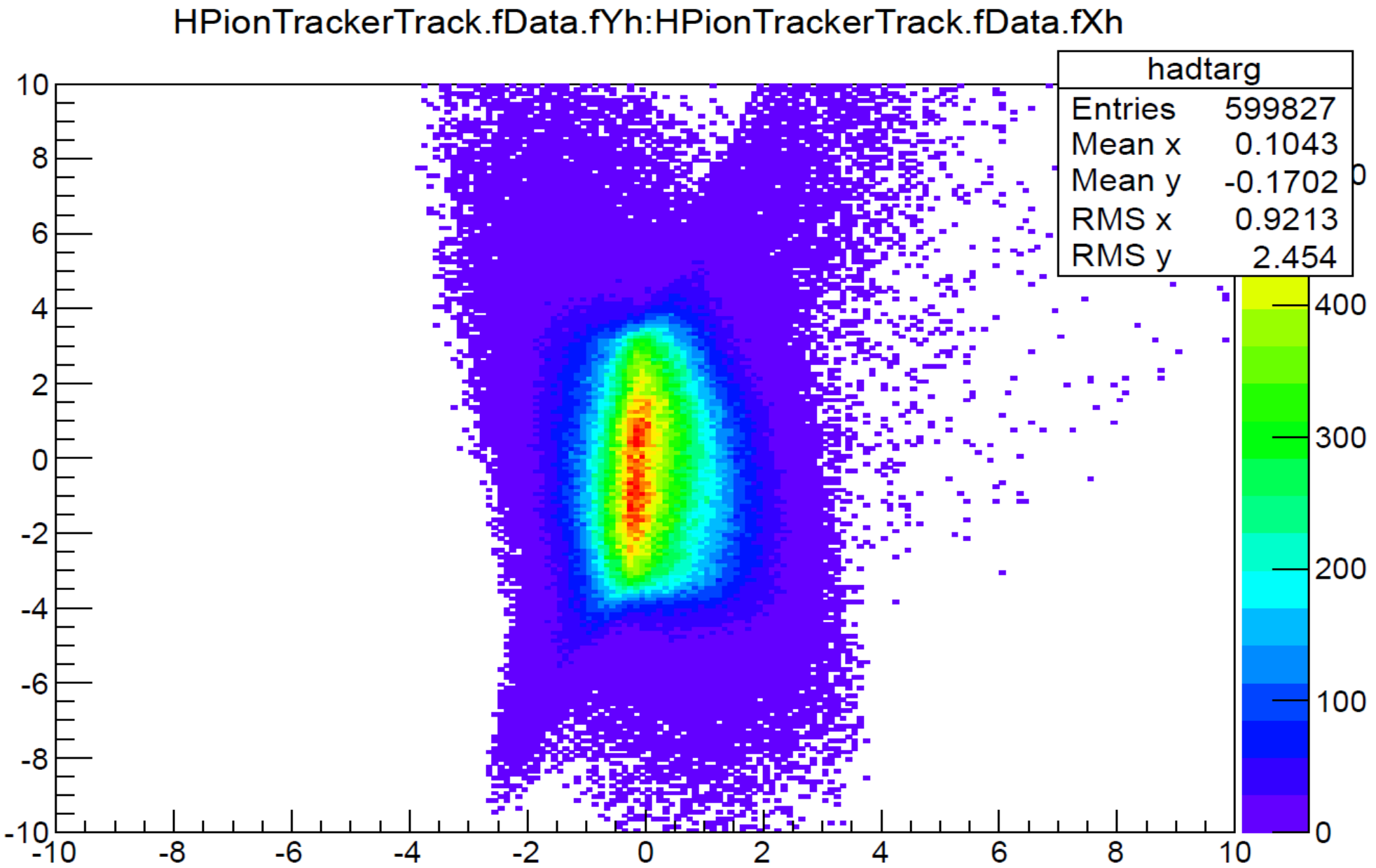
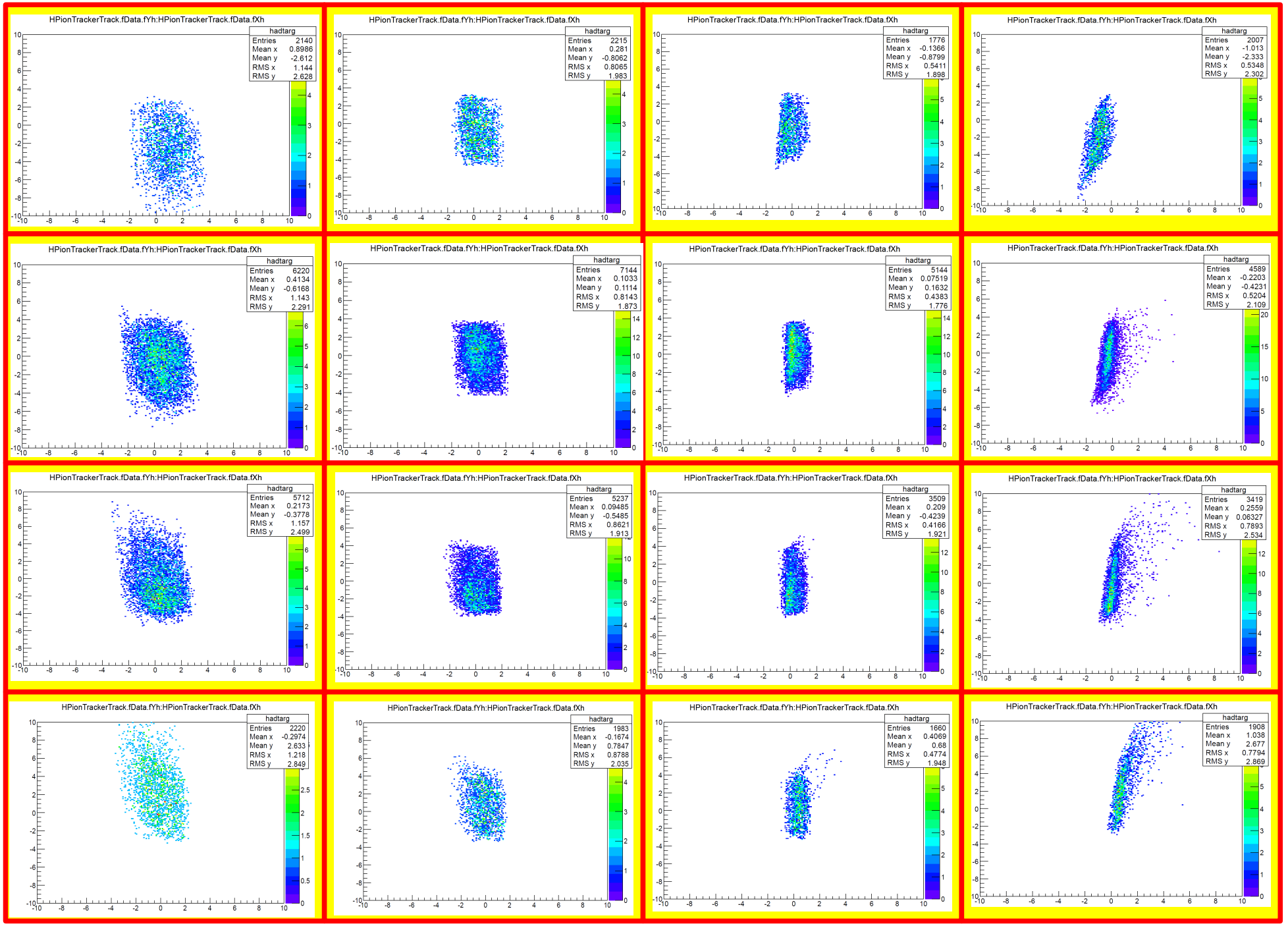








Predicted hits on the Hades target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