Performance of CA

16 th March, 2012

- Neutrino interactions 0-7 GeV are studied.

- For freeplanes < 5 Cellular Automata is called and a vector of trajectories are obtained.

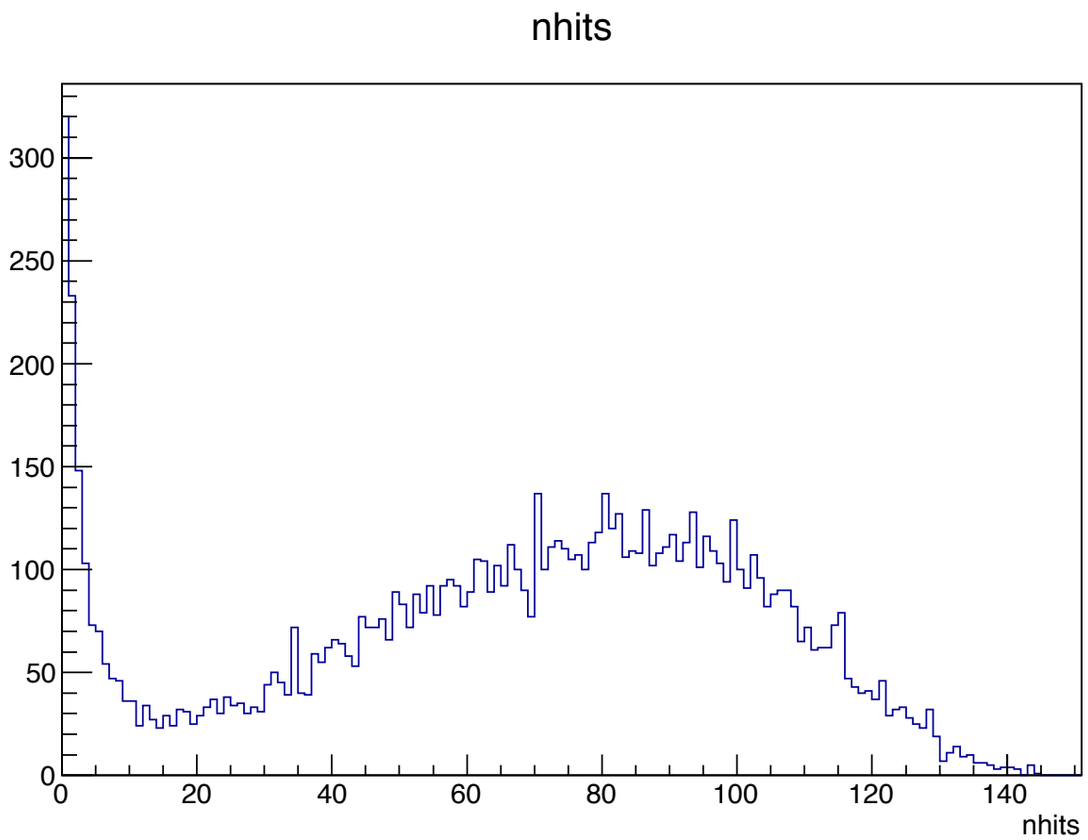
- So far the best trajectory is obtained after satisfying several rejection criteria and passed into the fitter .

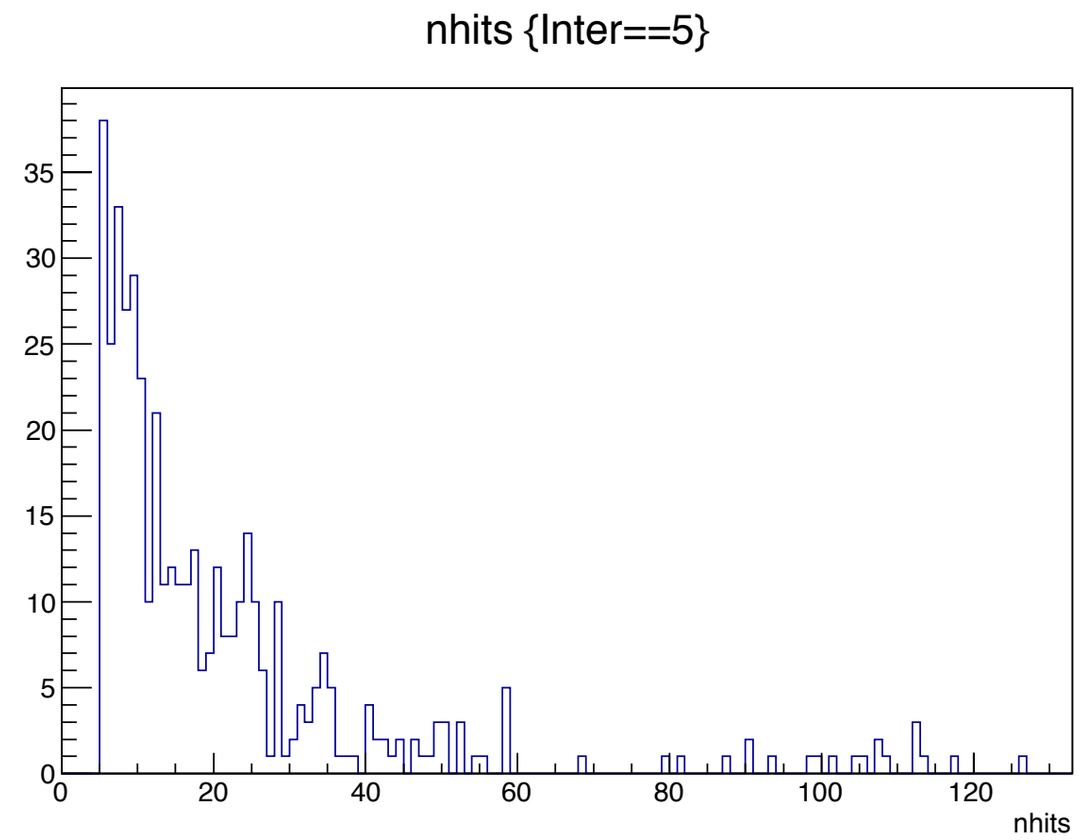
- Information about the best and second best trajectories from the vector are extracted.

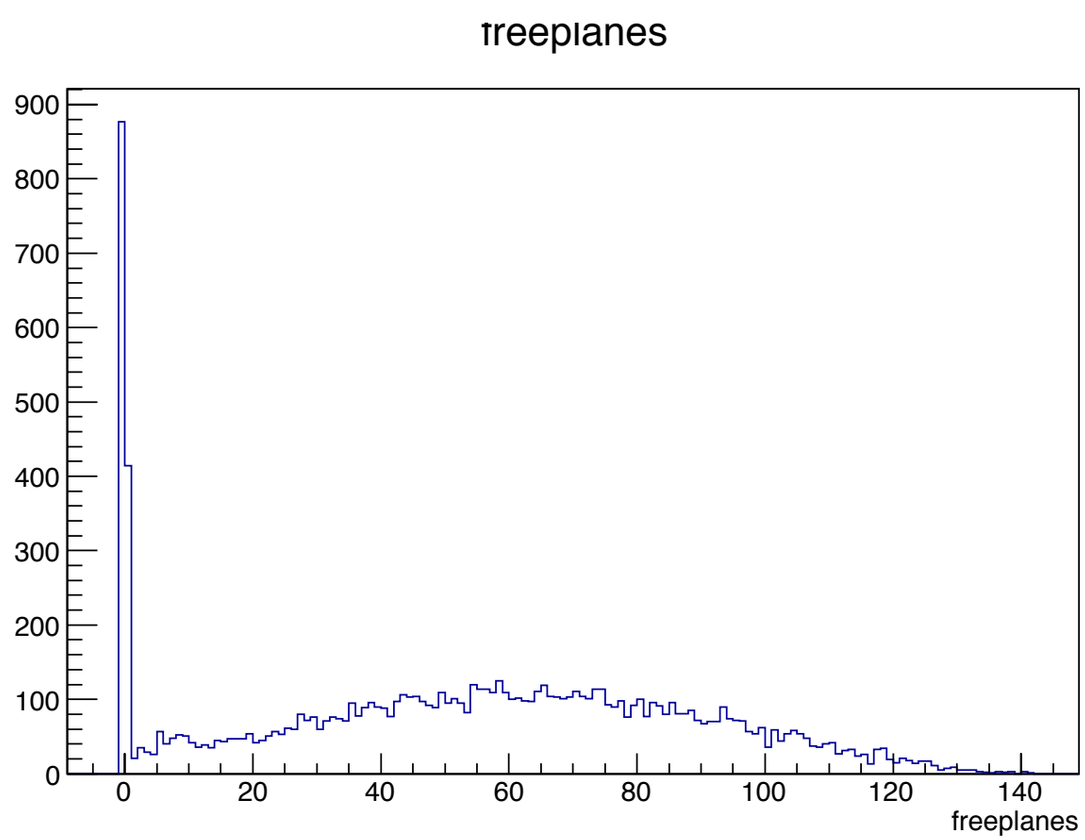
- Two approaches investigated to sort the best one from the vector; firstly, sorting by hits and secondly, sorting by length of the trajectories .

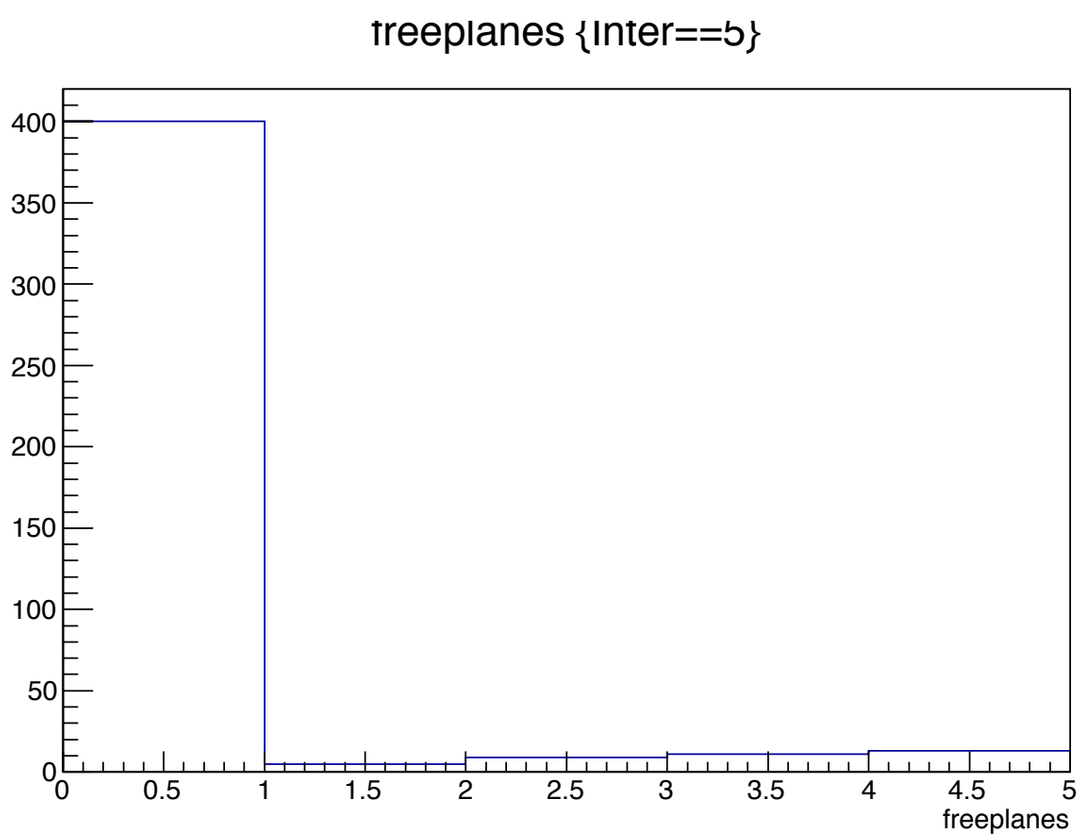
- Free planes are calculated in radial direction along with Z direction.

Distribution of Hits and Free Planes :



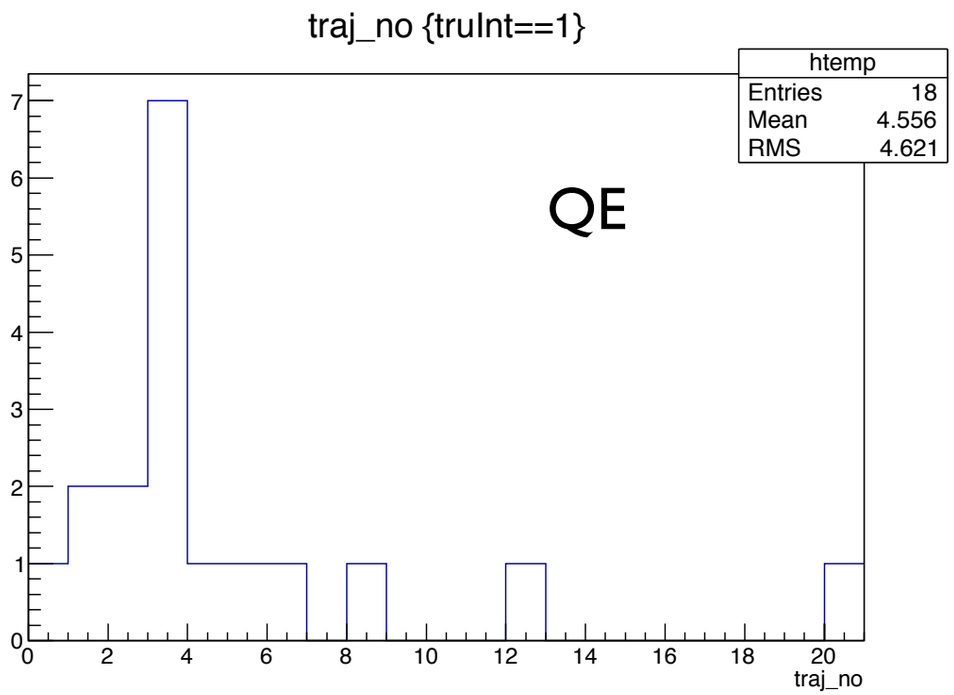


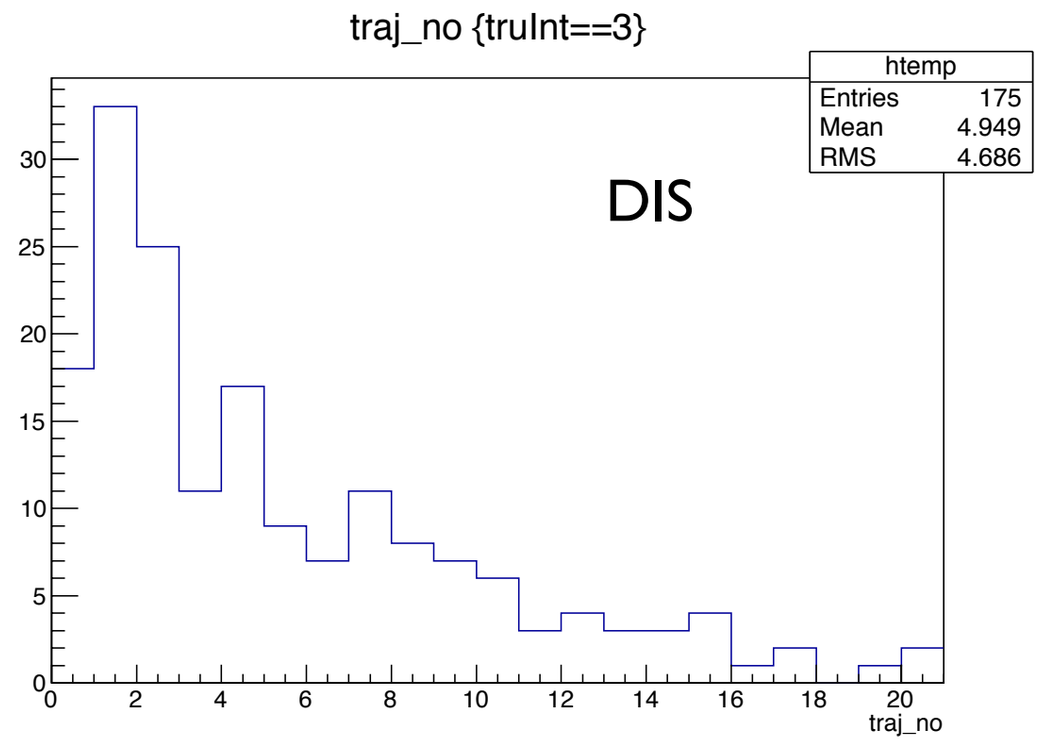


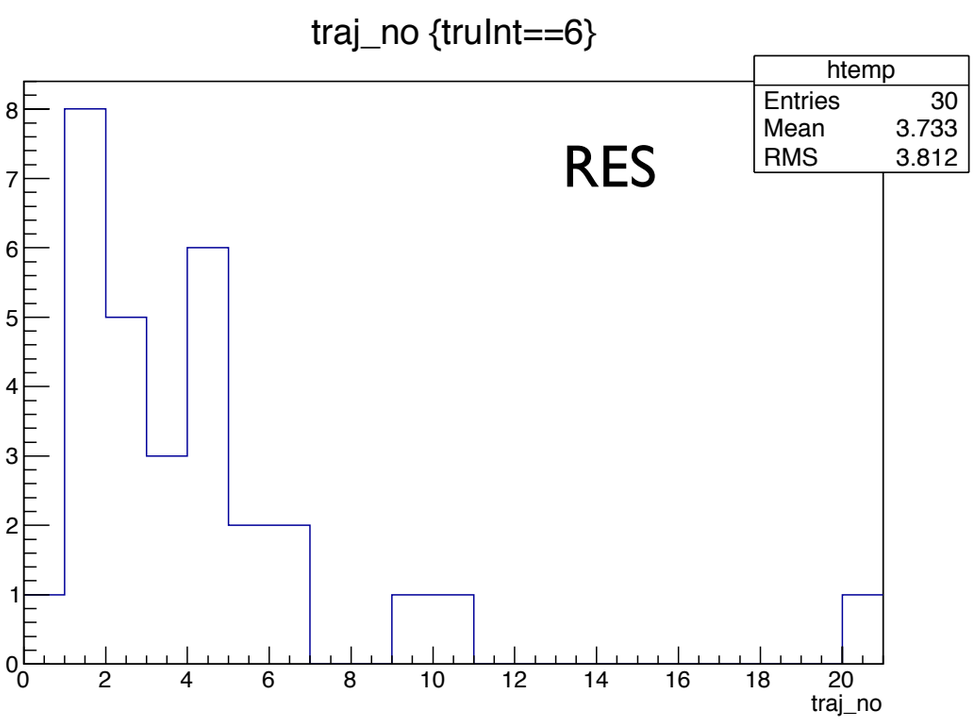


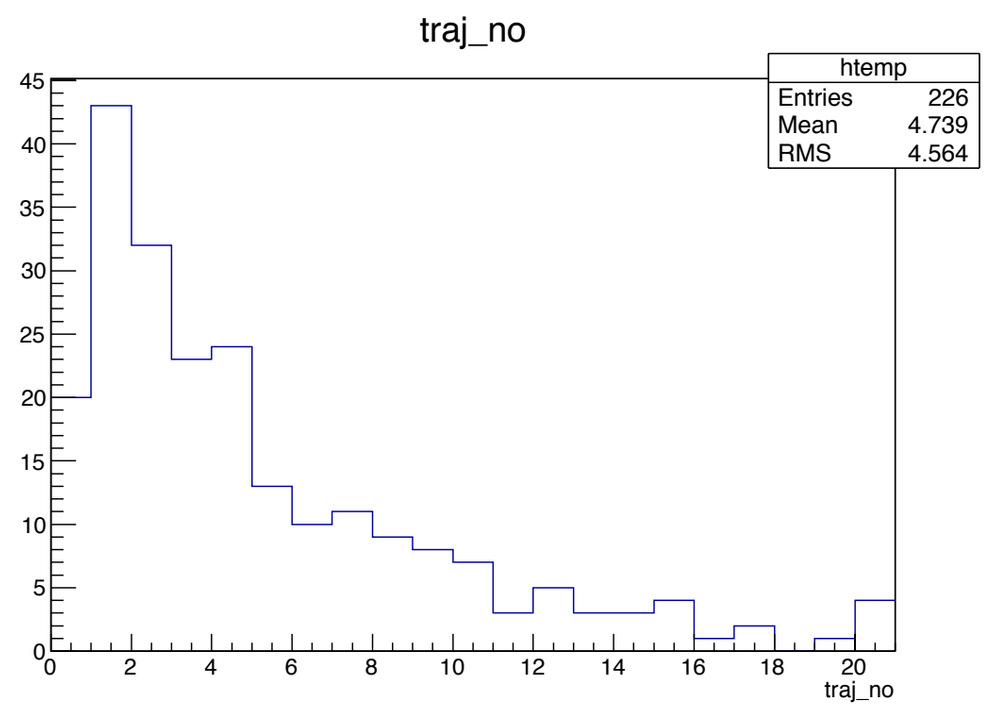
Number of trajectories for different interaction types :

traj_no is size of the vector from CA

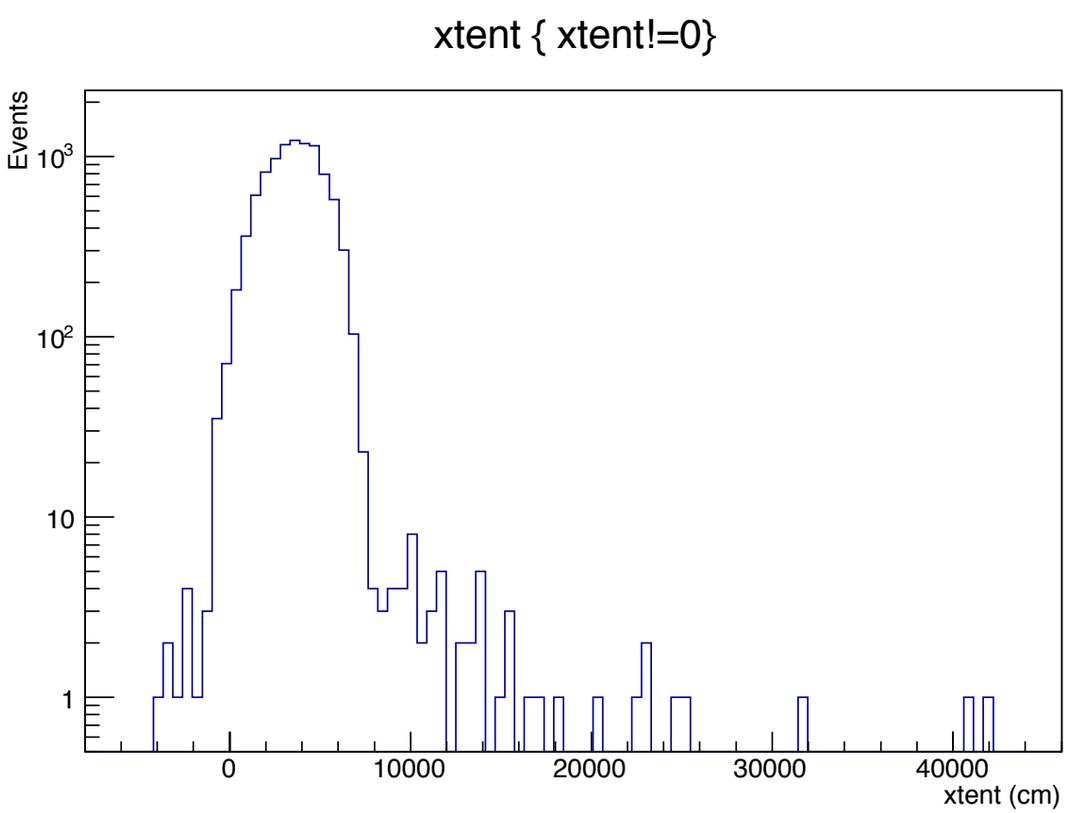


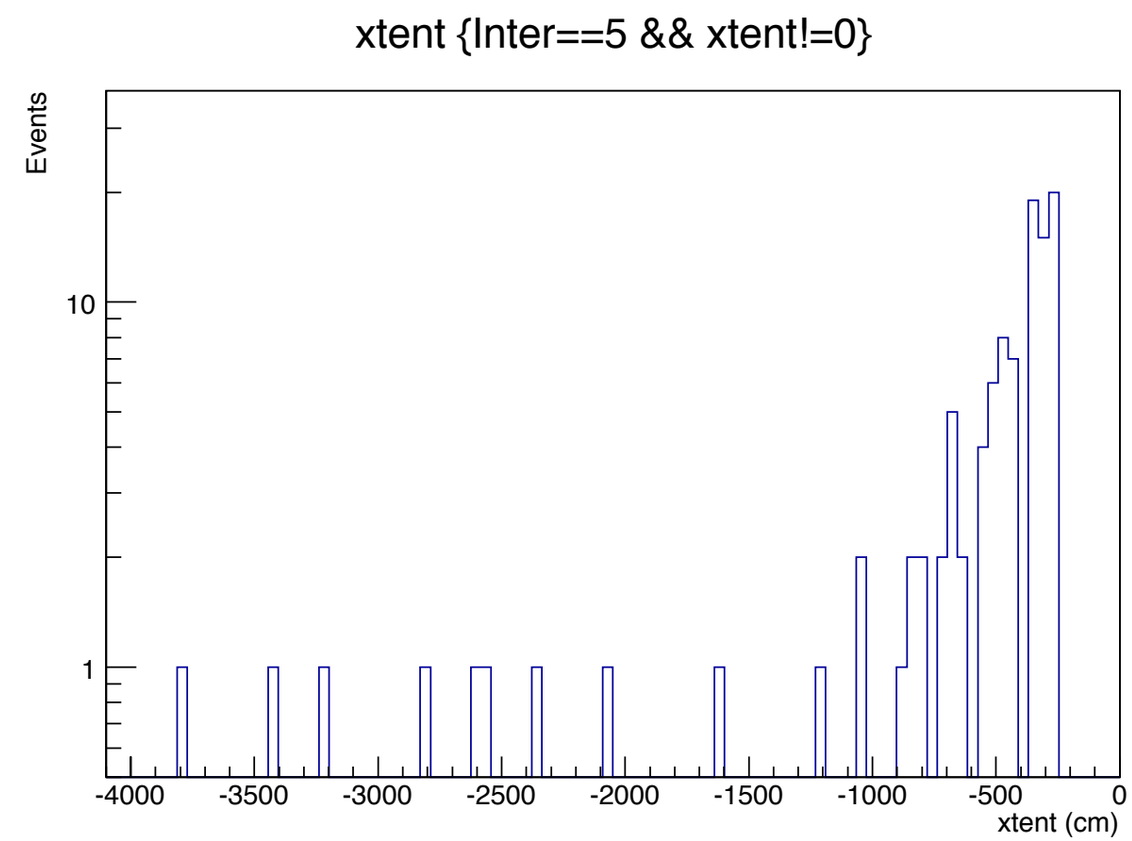






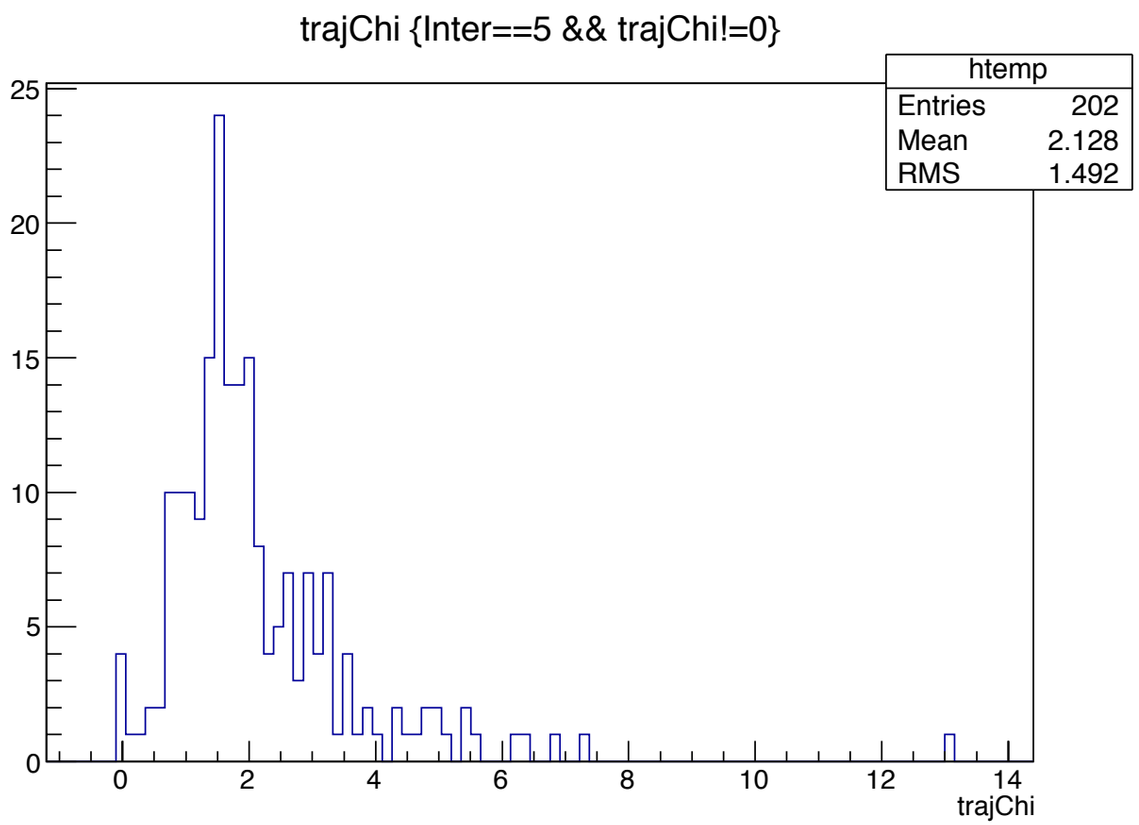
Extent of the tracks:

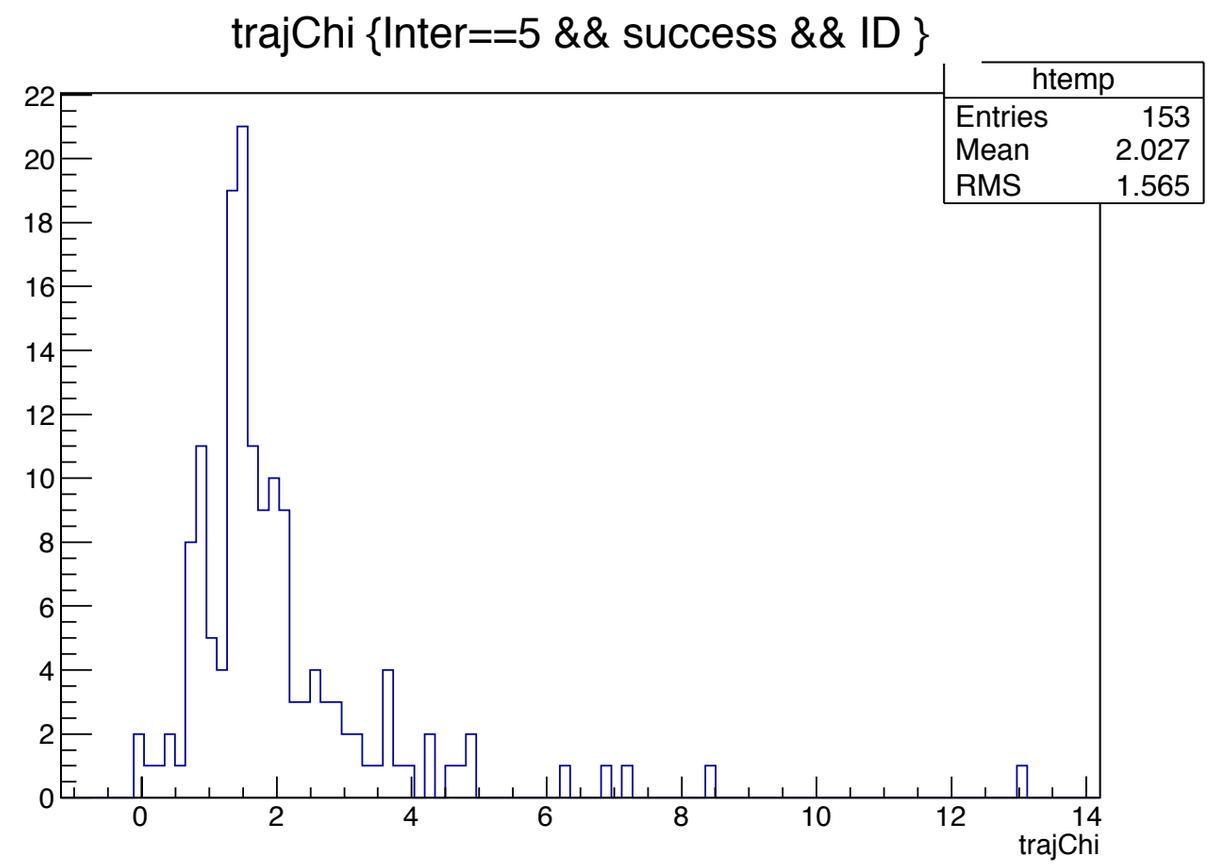




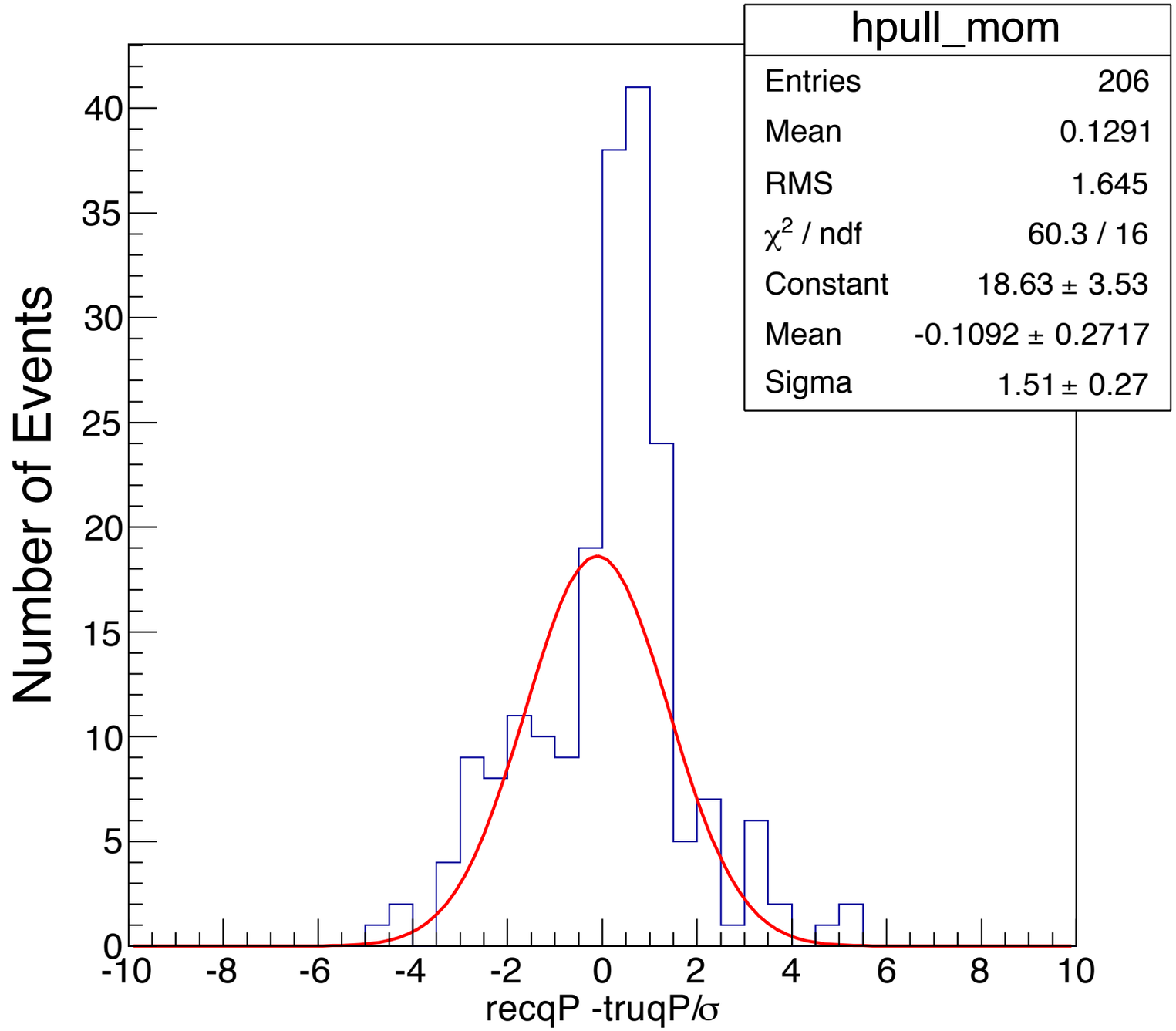
- Extent of CA tracks are negative because they are calculated in opposite direction than that of the incremental Kalman Filtering.

Track Quality :





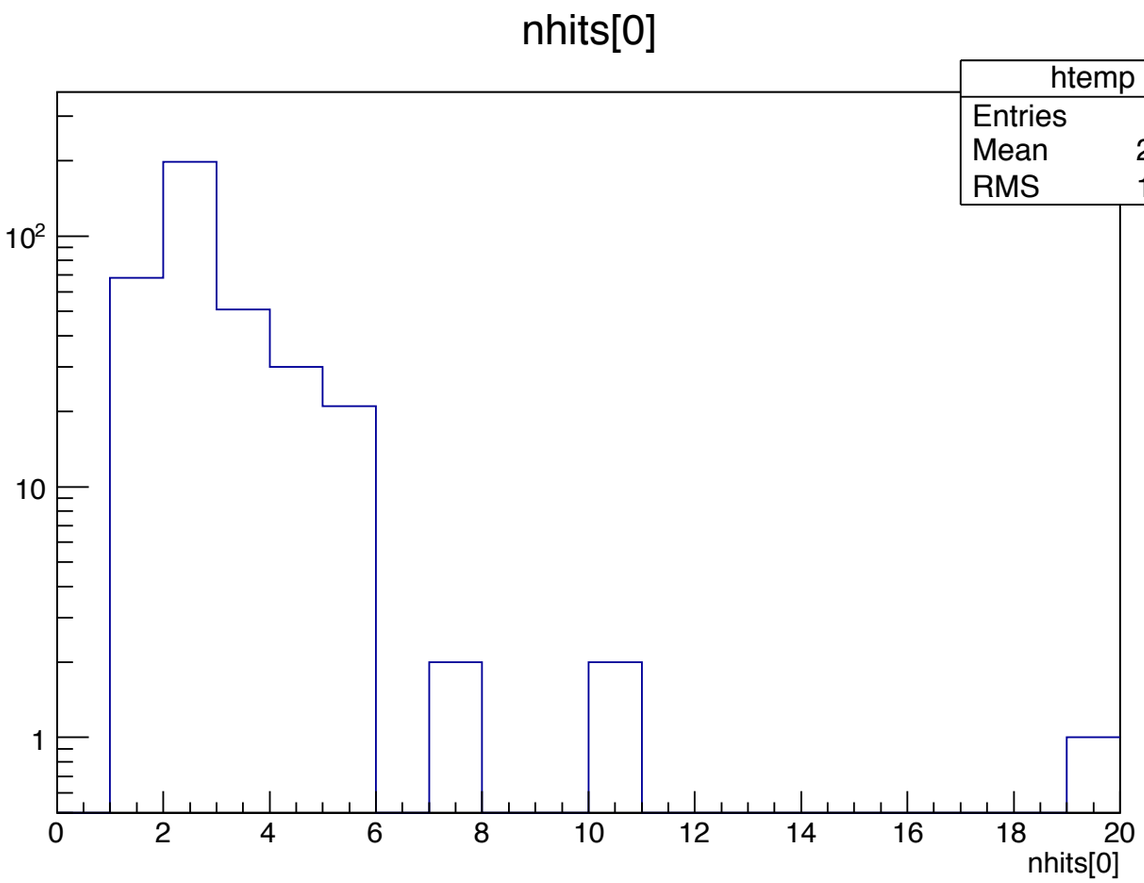
Momentum Pull :

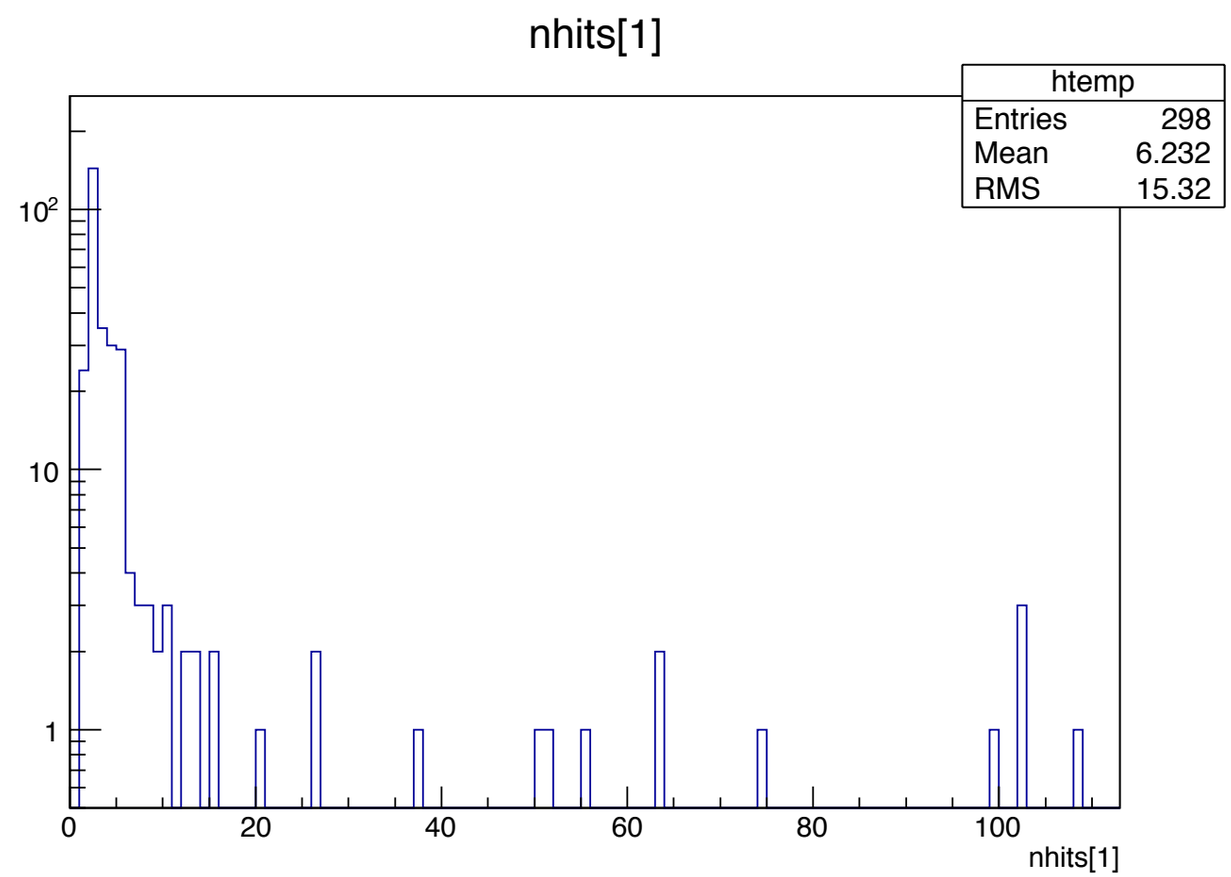


Best trajectory is obtained after several rejection criteria of low hits, max chi2 and max coincidence

Have a look into the best and second best tracks

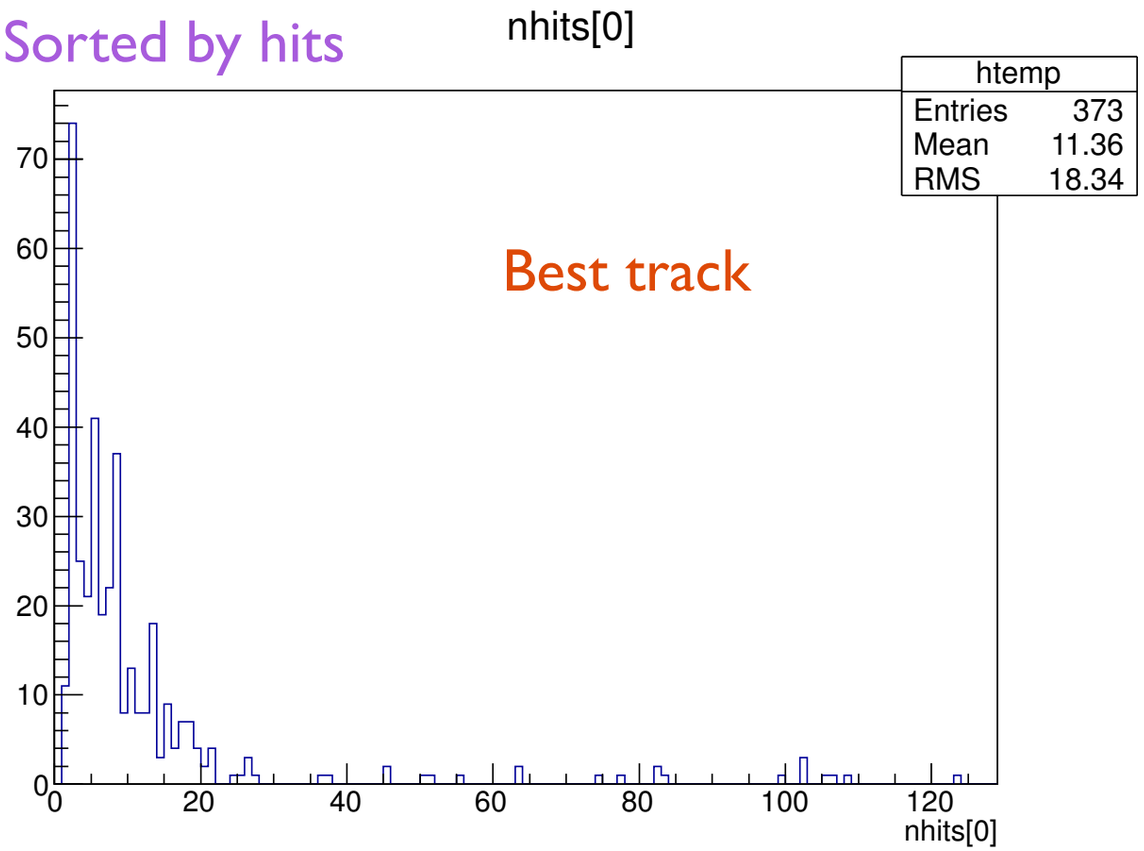
Hits distribution:

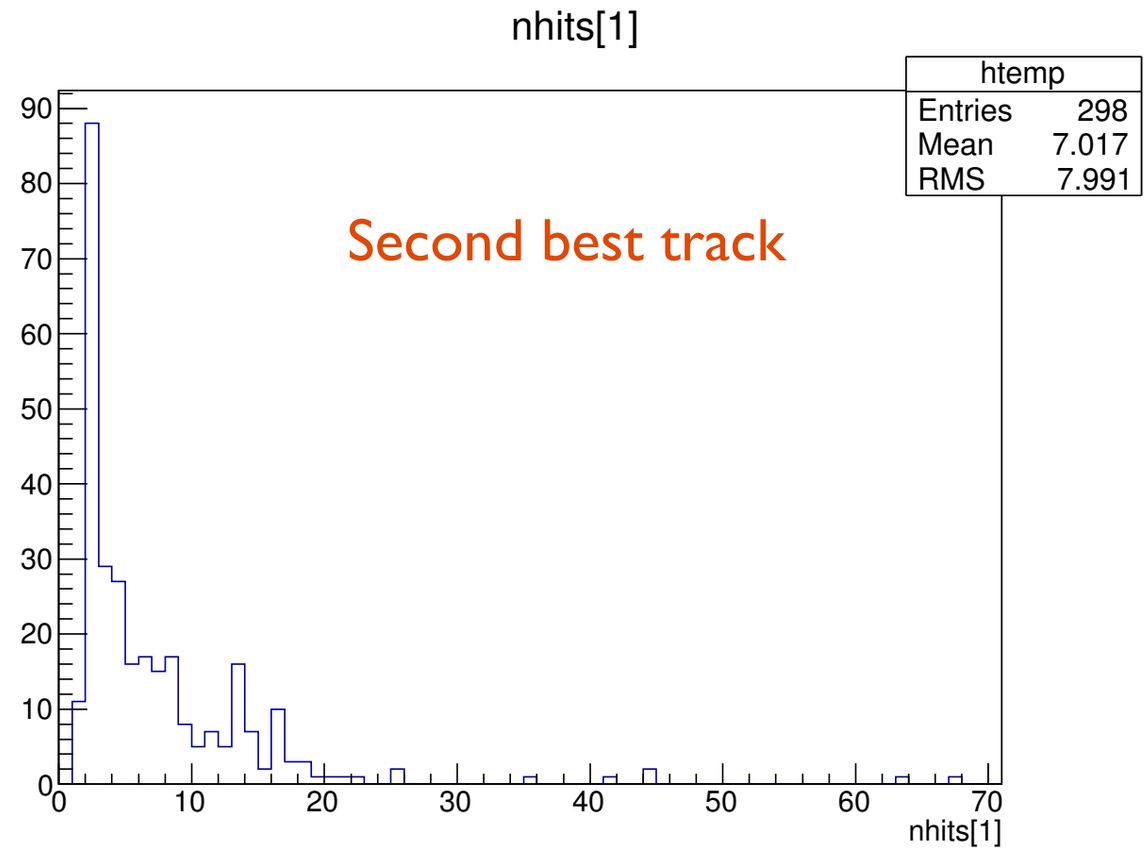




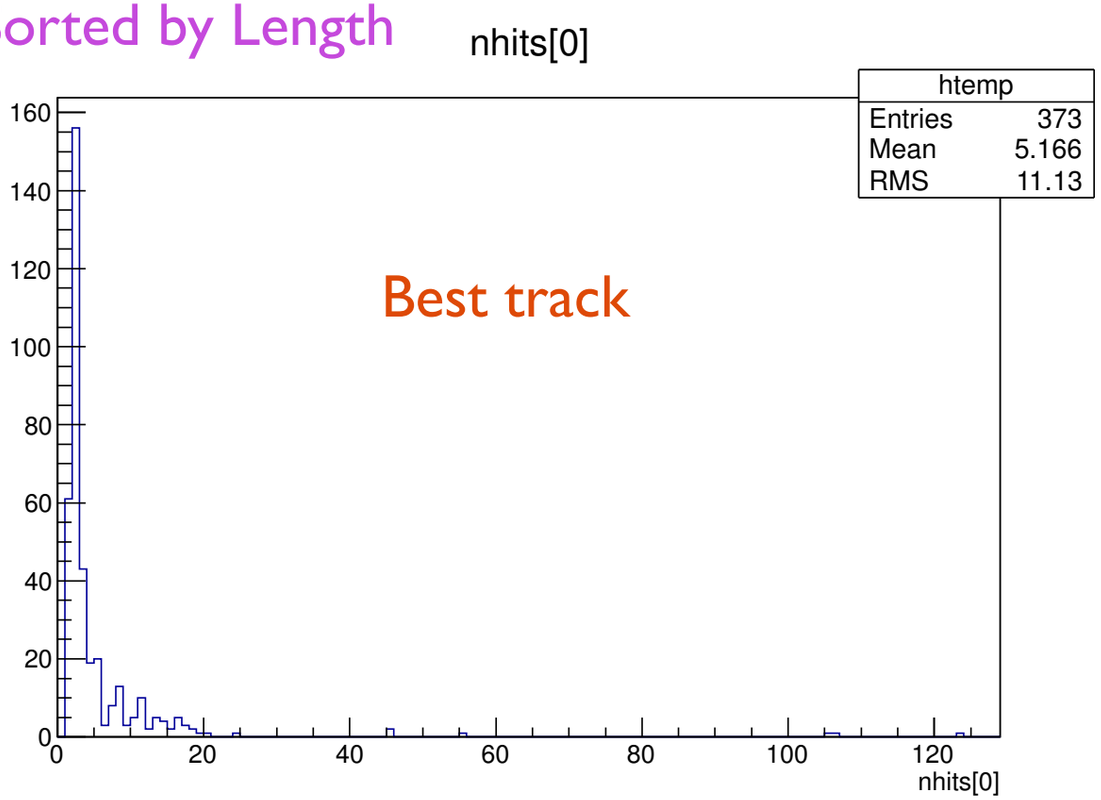
Number of Hits:

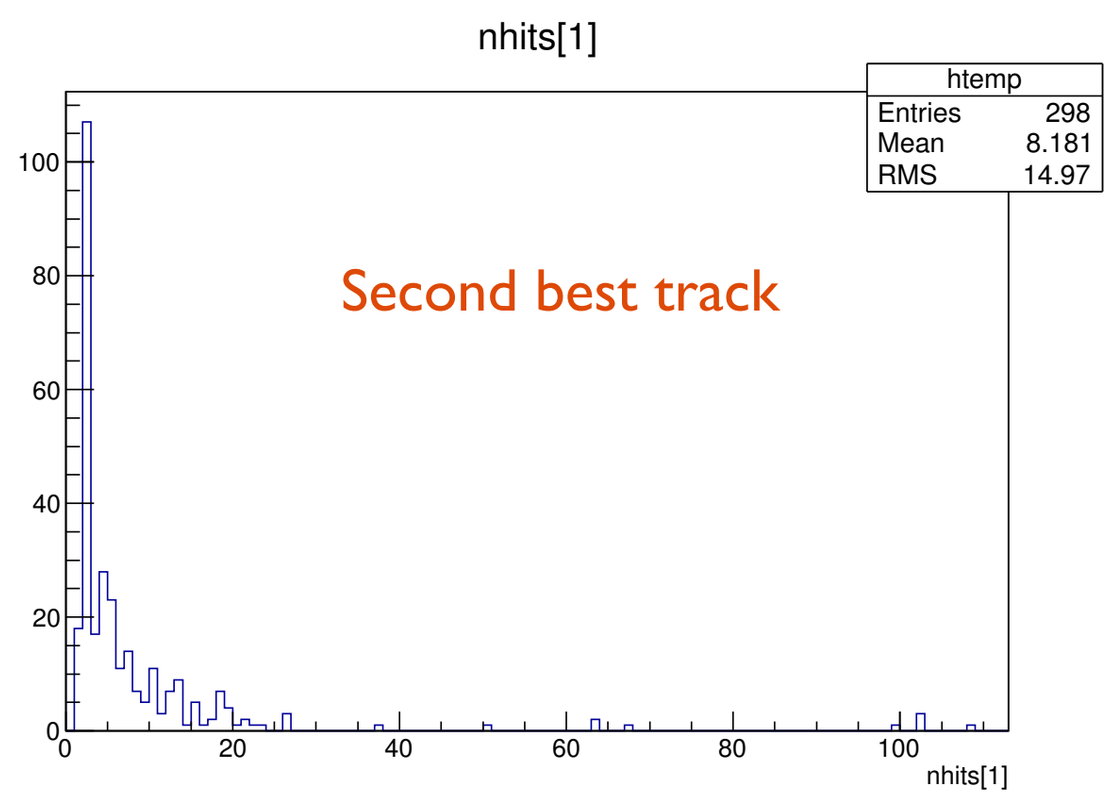
I. Sorted by hits





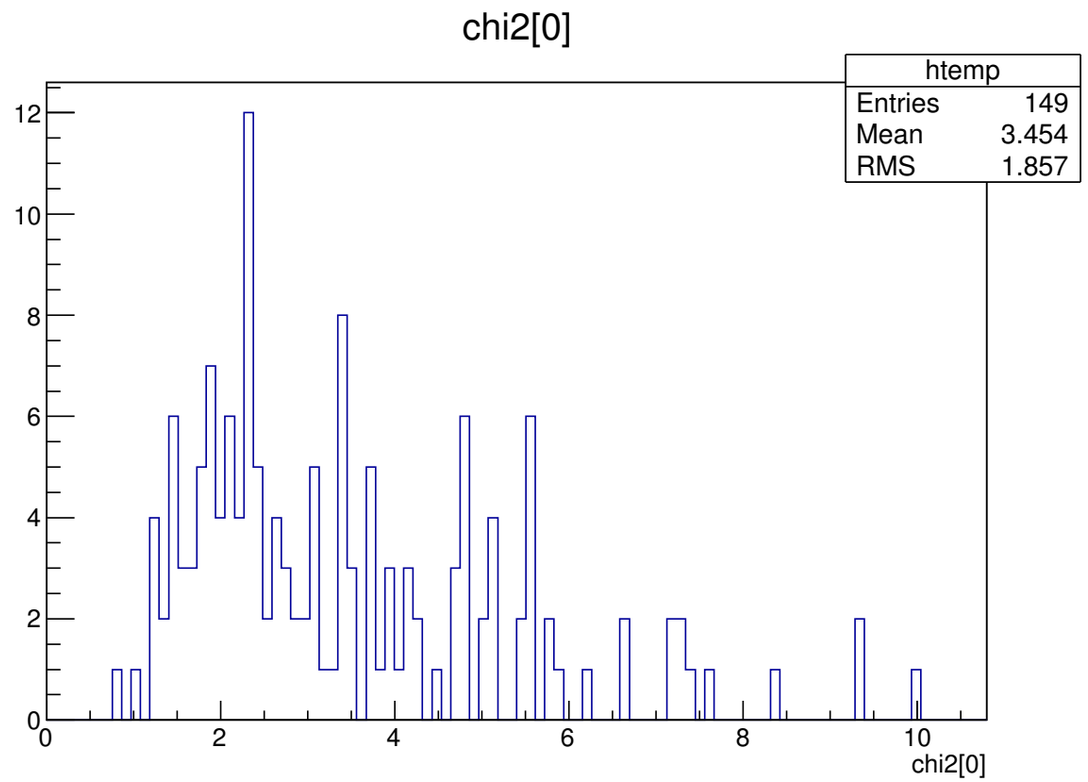
II. Sorted by Length

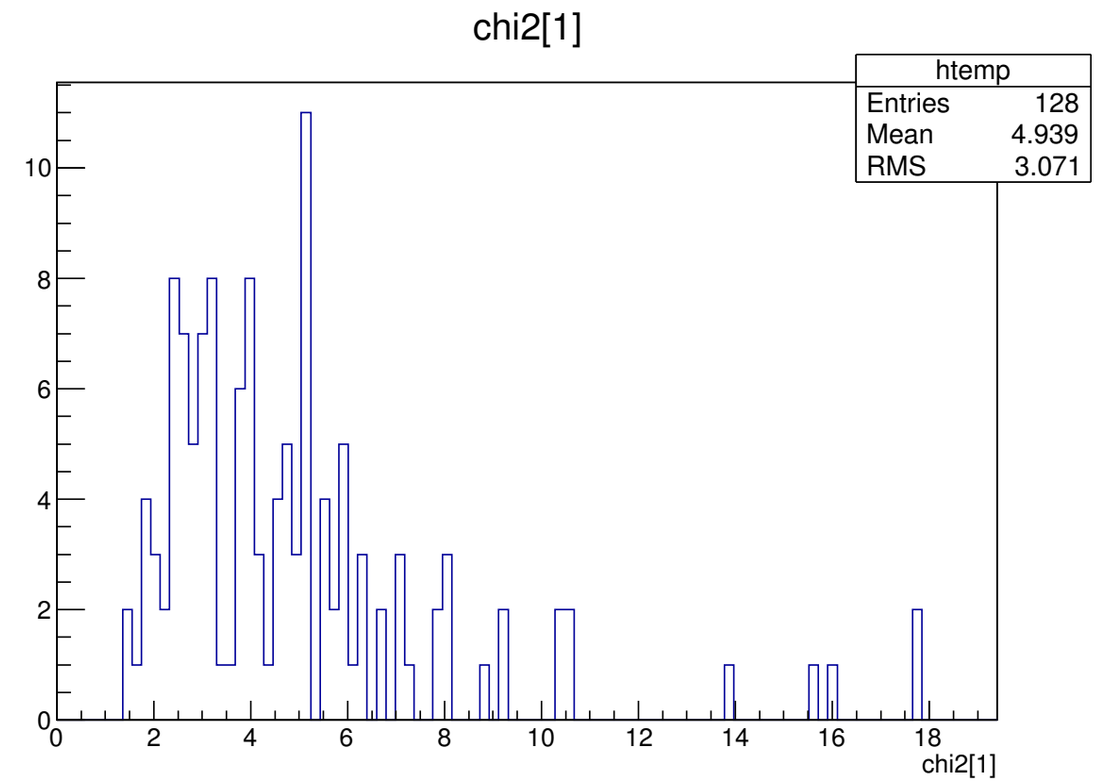


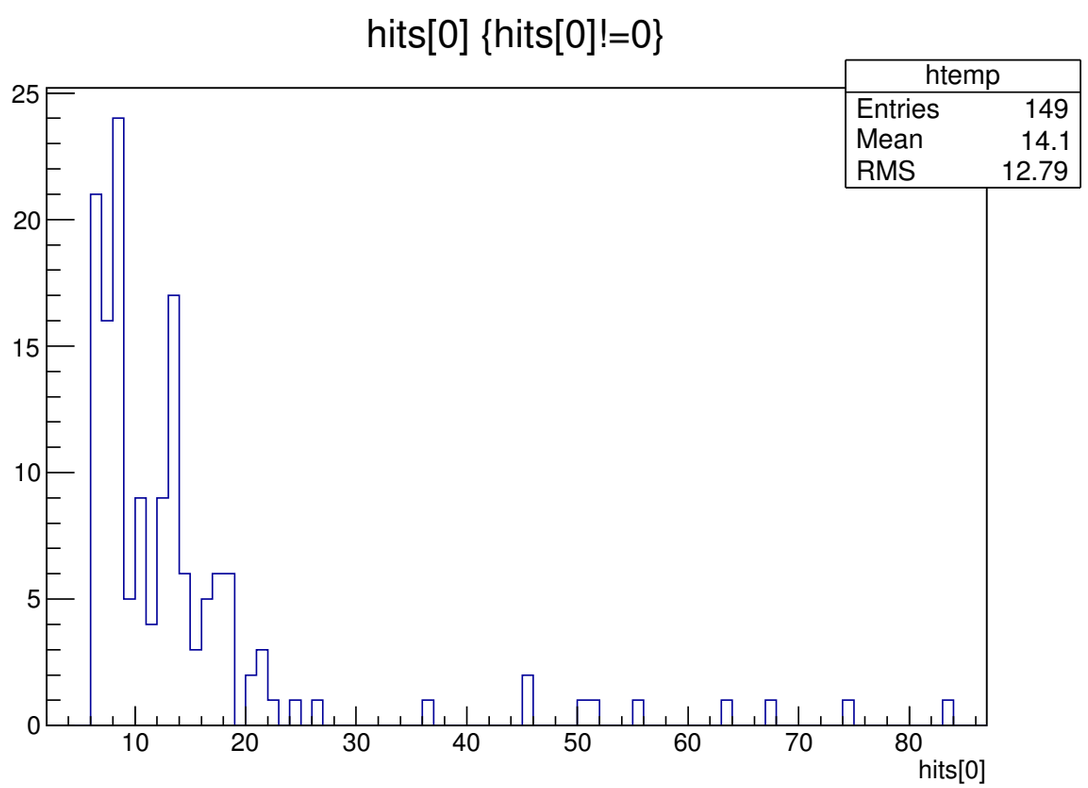


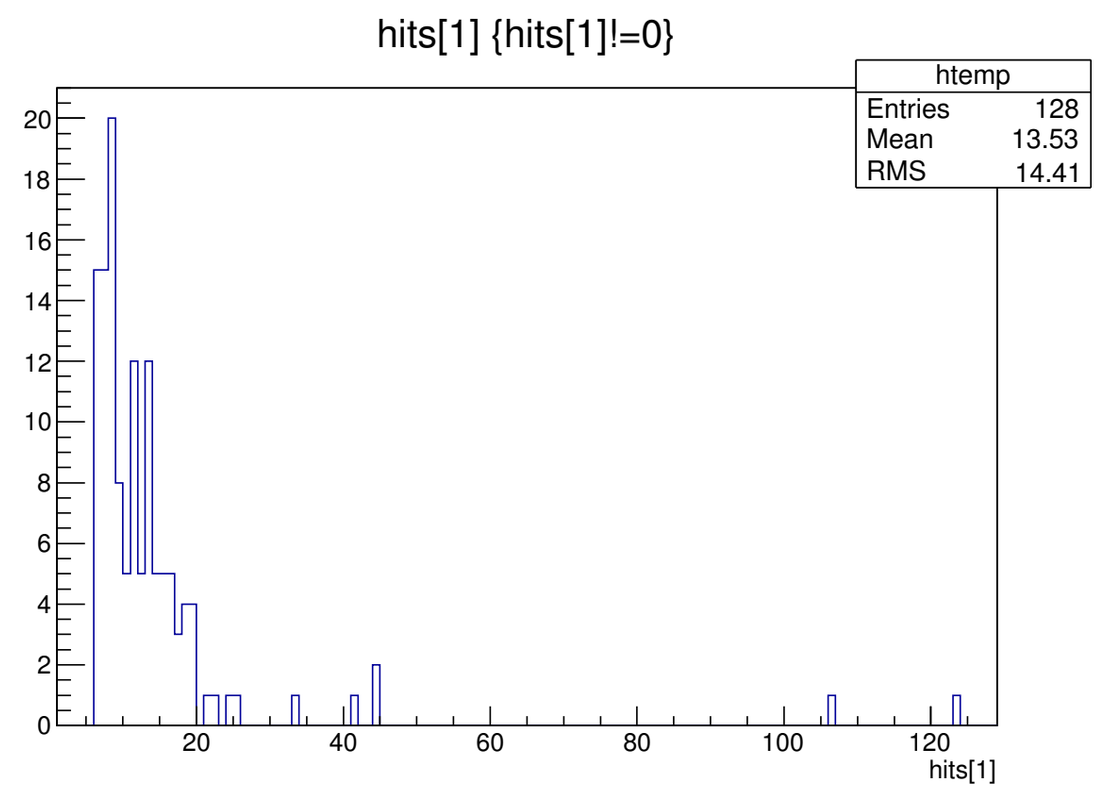
Tracks are sorted depending on number of hits

First and second fitted tracks :

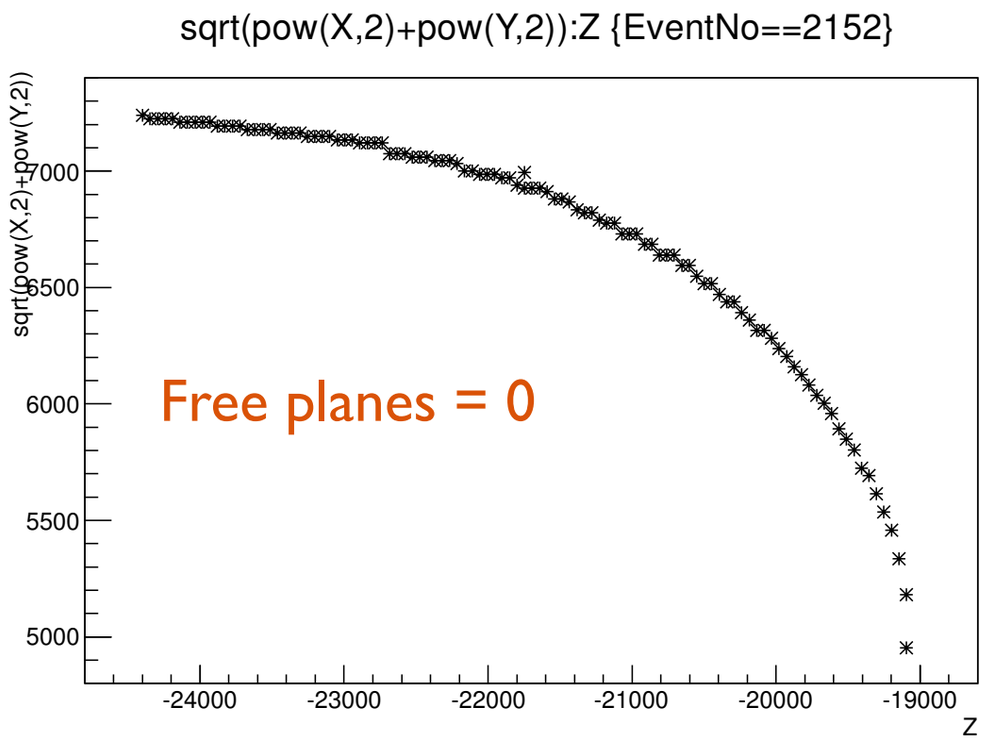


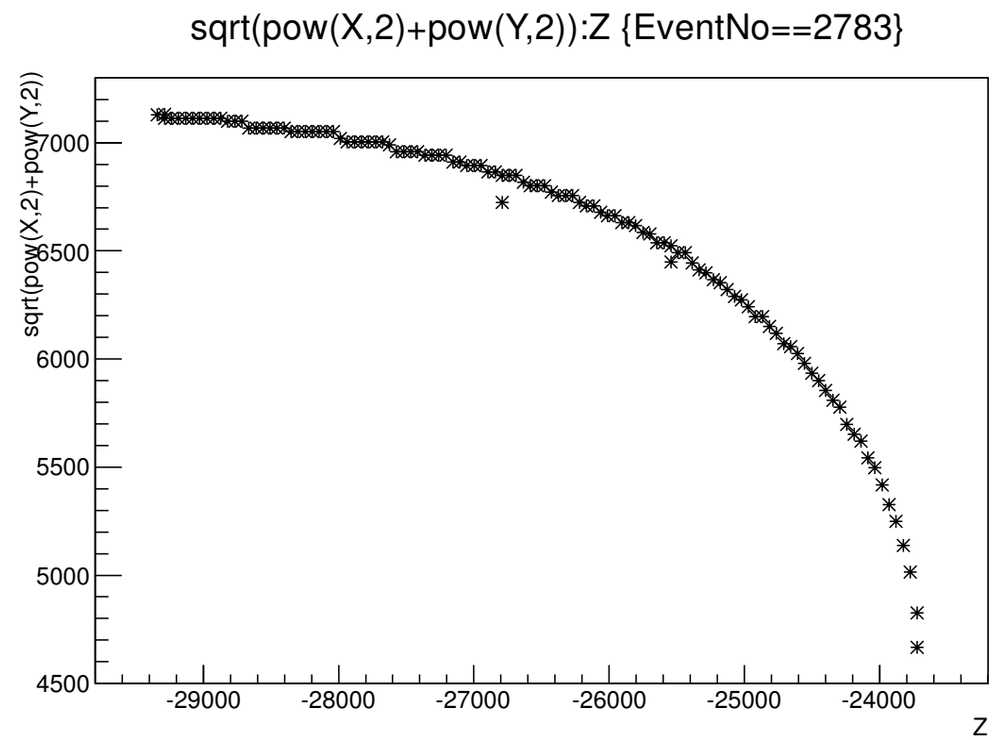


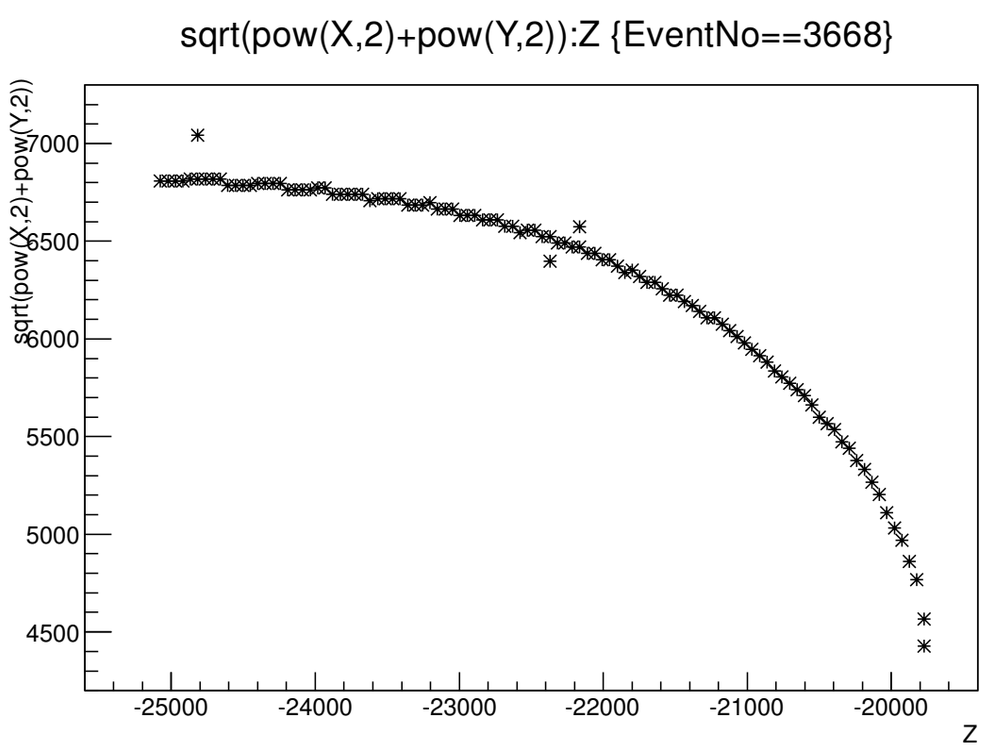




To avoid some unwanted CA events :



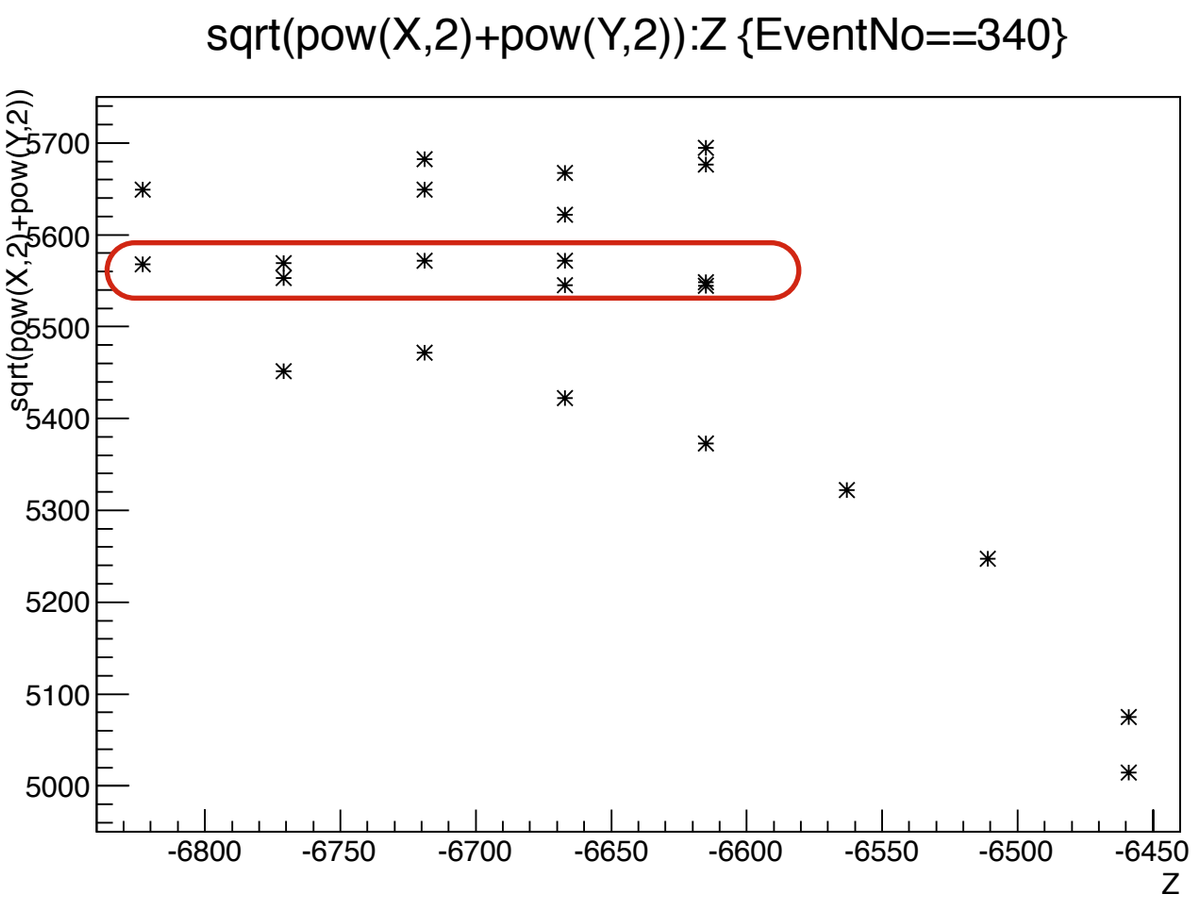


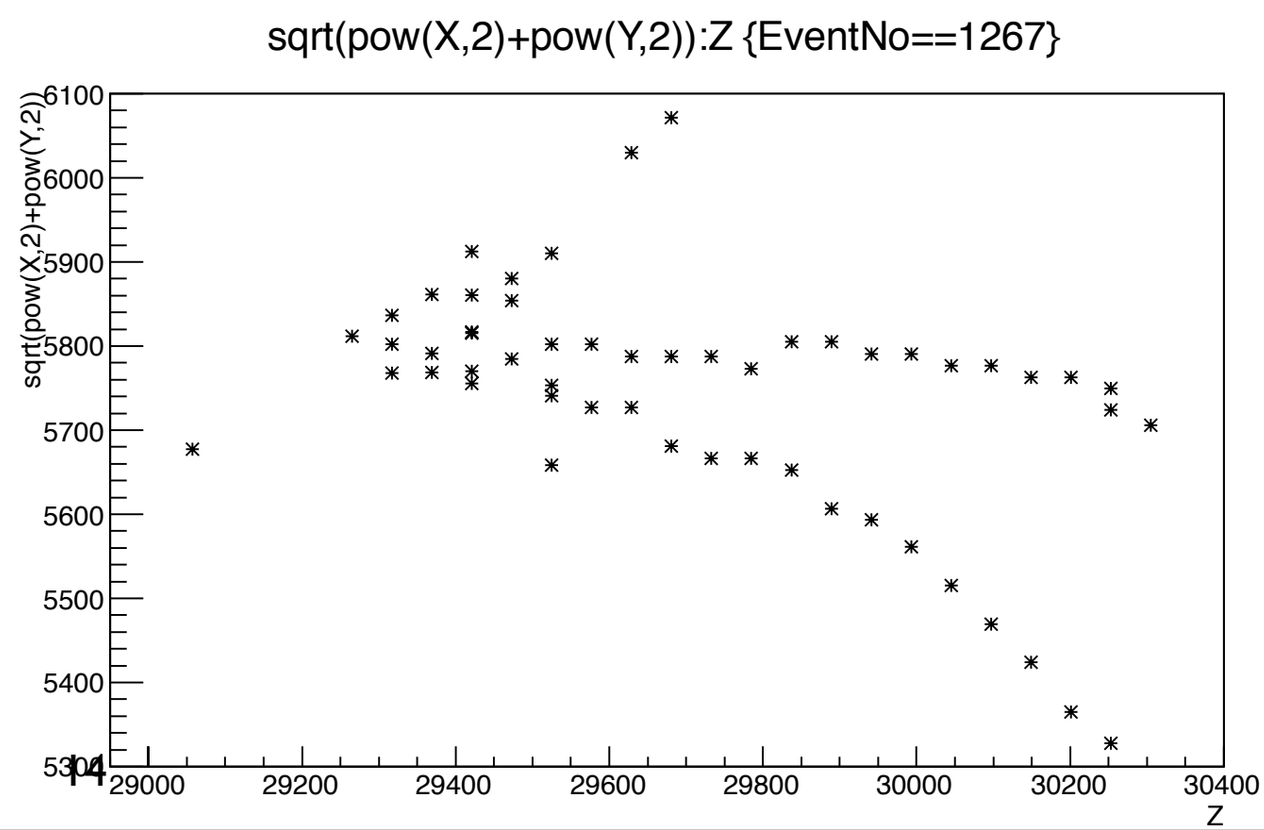


- Free planes are calculated along radial direction .

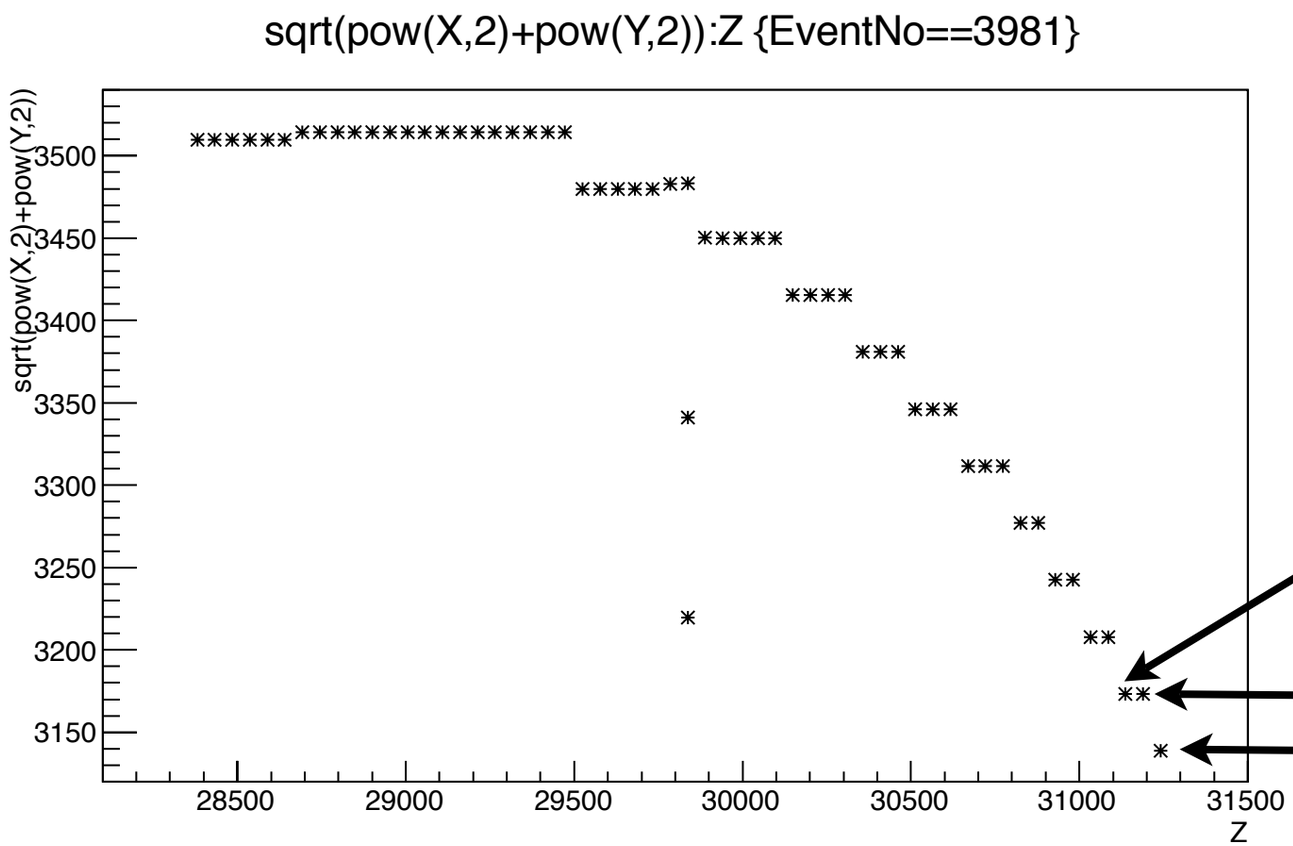
- Chosen which one is larger to check whether less than minimum seed hits .

Now for this type of events :



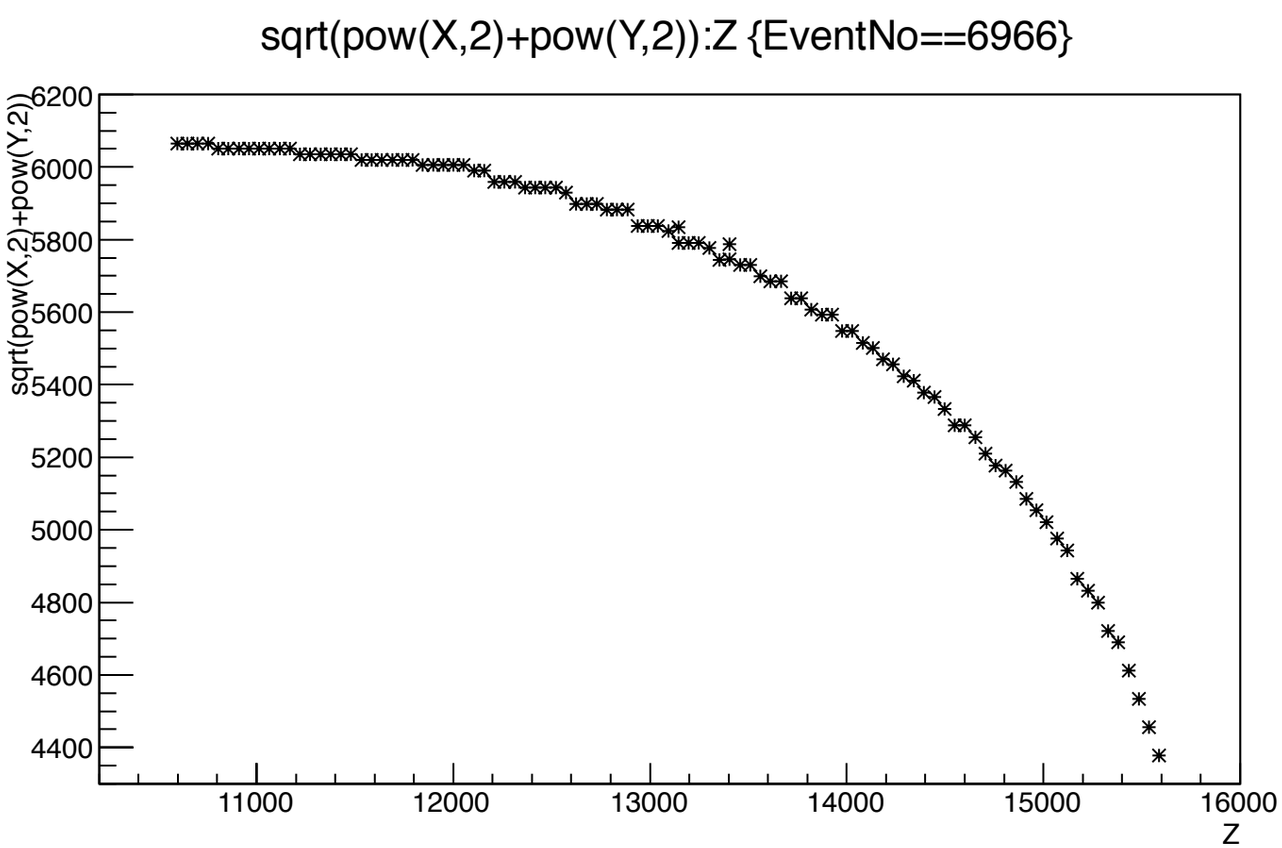


Why Cellular Automata ?



Free plane along Z is zero

z = 31137 cm

z = 31189

z = 31241