Momentum Transverse Resolution

Tuesday, July 30, 2024

Supervisor:

Dr. Vadim Kolesnikov
Dra. Ivonne Maldonado
Dr. Viktar Kireyeu

Márquez Ramírez Juan Carlos
juan.marquezra@gmail.com

On the last session

- The train is working.
- Get the distribution of momentum transverse vs pseudorapidity.
- Try to get transverse moment resolution histograms.

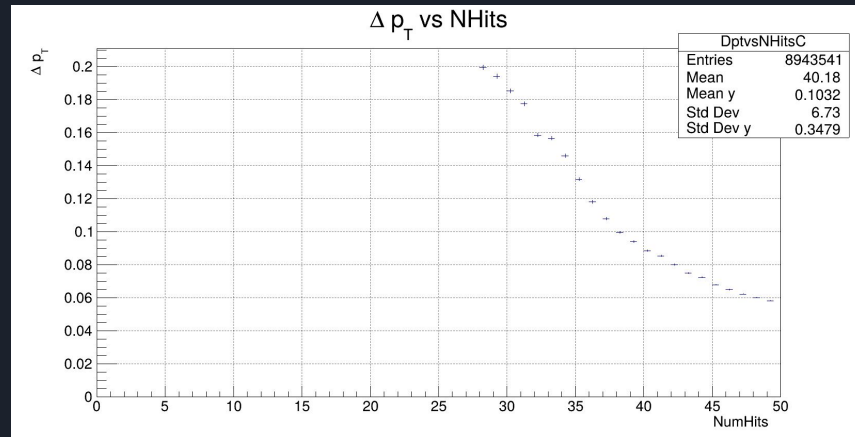# Momentum Transverse vs Pseudorapidity

In the last session I got the Momentum Transversal Monte Carlo vs Pseudo speed and Reconstruction vs Pseudo speed. Now all new histograms I have just run 50,000 events.
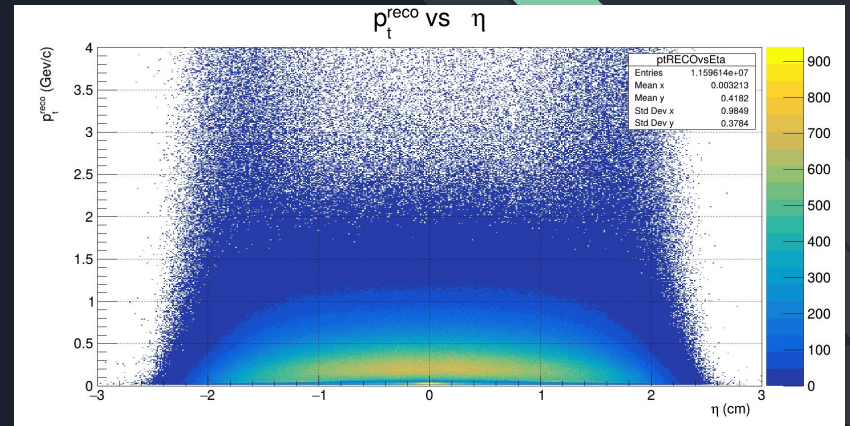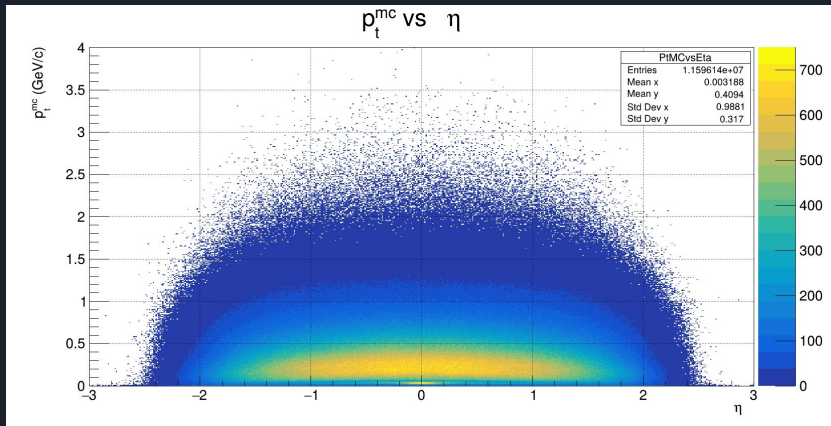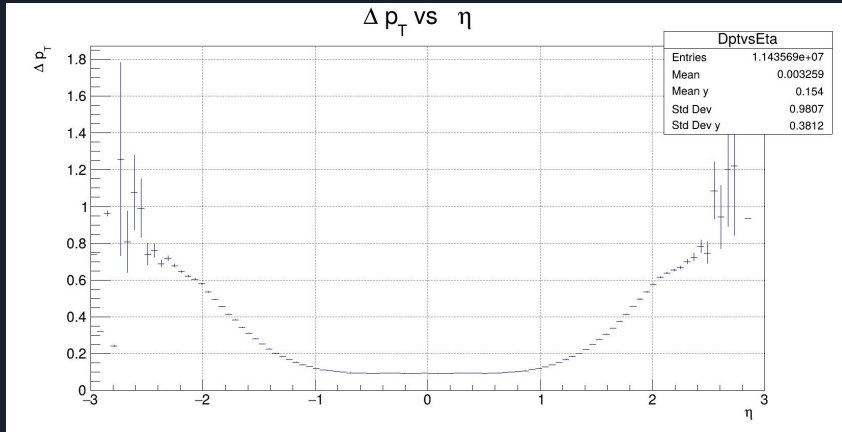
TProfile of the Numbers of Hits
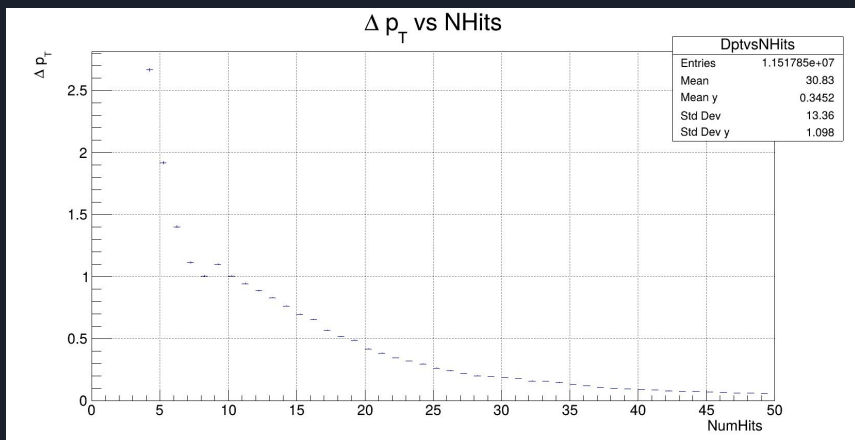
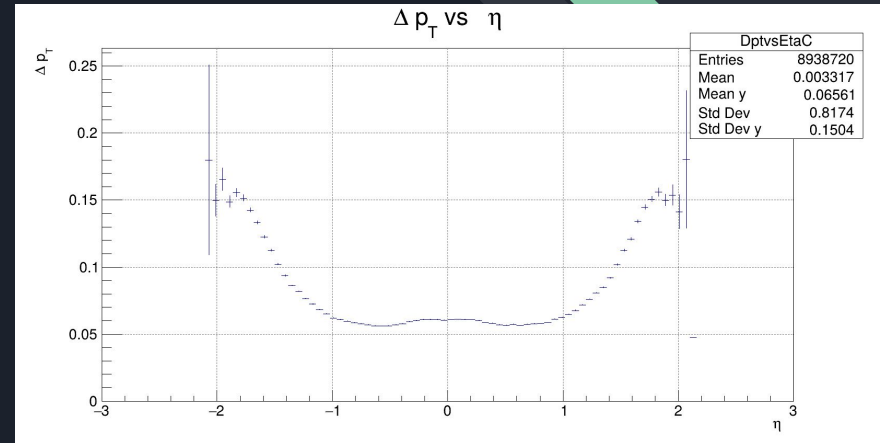We cut the Number of Hits on 27. Now we have the 20% of error.

PseudoRapidity

Before the cut on the Number of Hits, we have points with error of 100%

After, the number of cuts at 27, we can see that in the range of -2 to 2. We have information with error less than 20%
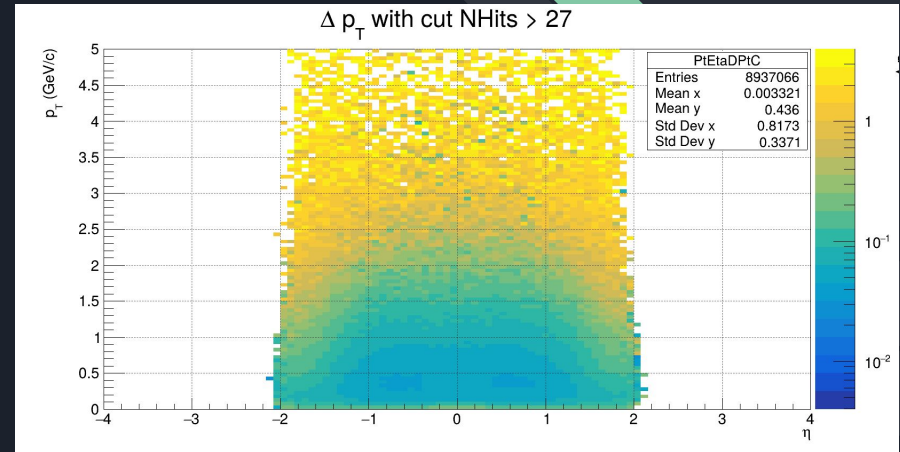
Momentum Transverse Resolution

We cut the Number of Hits to 27. We cleaned up the information a little. However, we still have too much noise and now let's analyze where we can make a cut in DCA
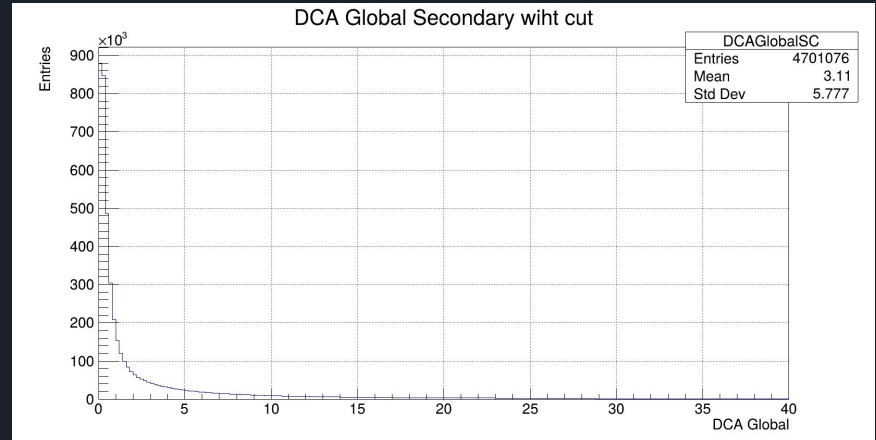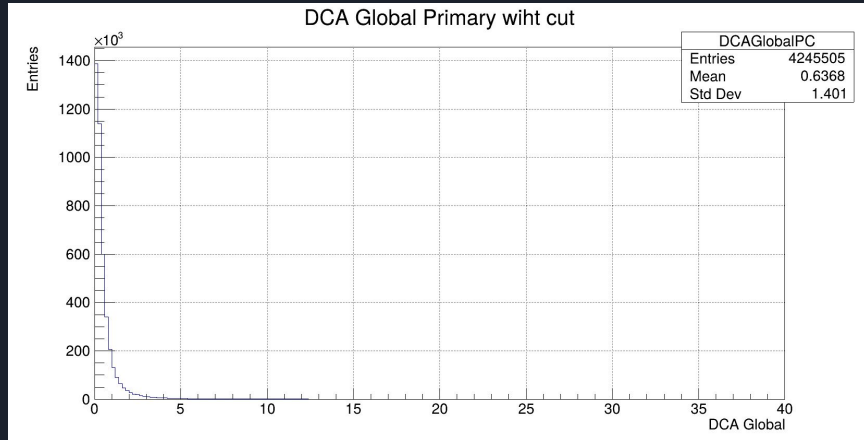
Before the cut on 27 NHits
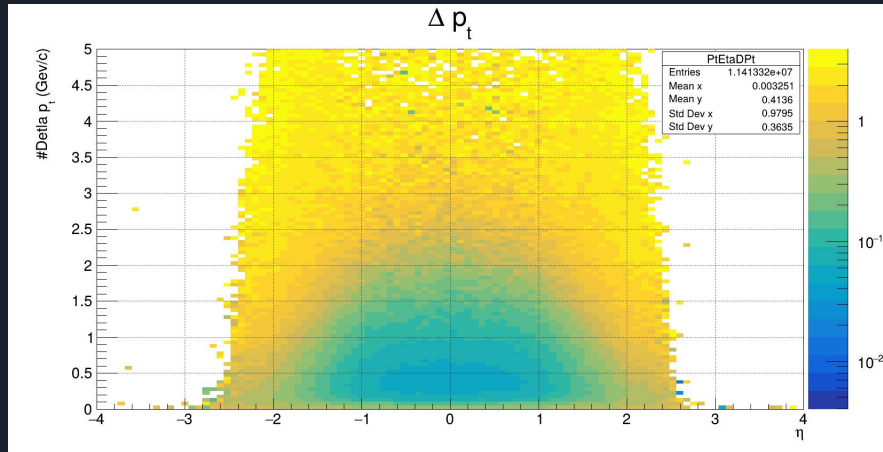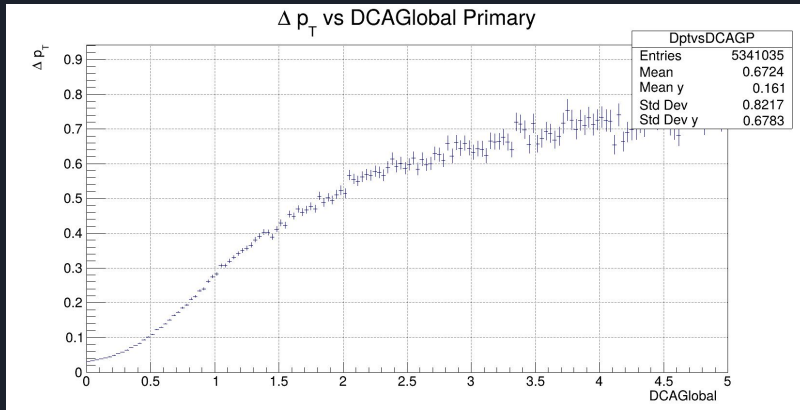
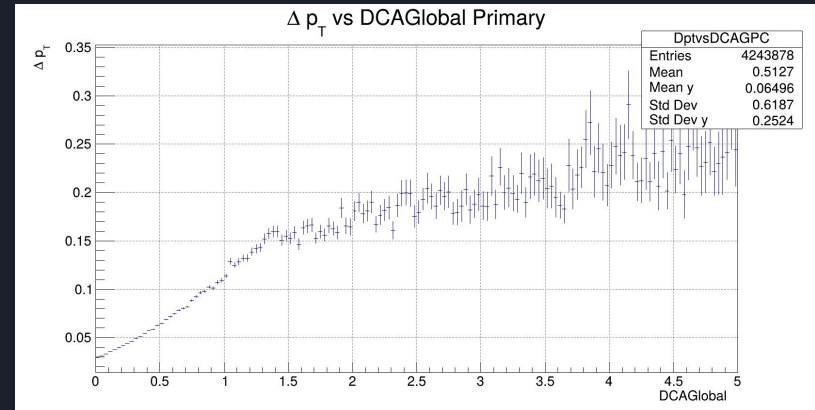After the cut on 27 NHits

DCA Global for Primary and Secondary

TProfile of DCA Global for Primary

Before the cut on 27 NHits
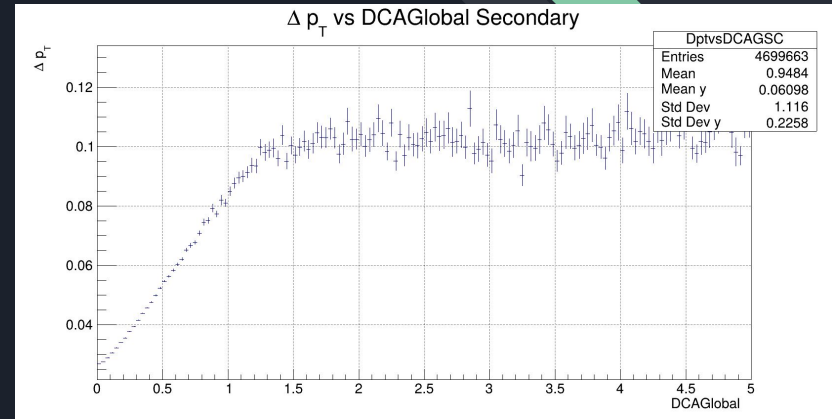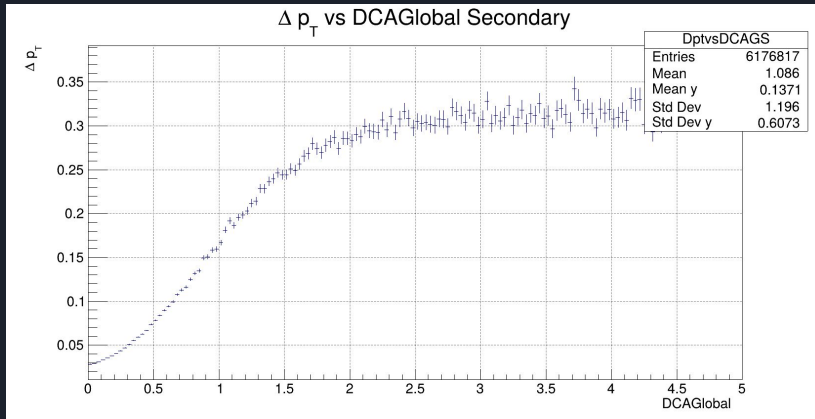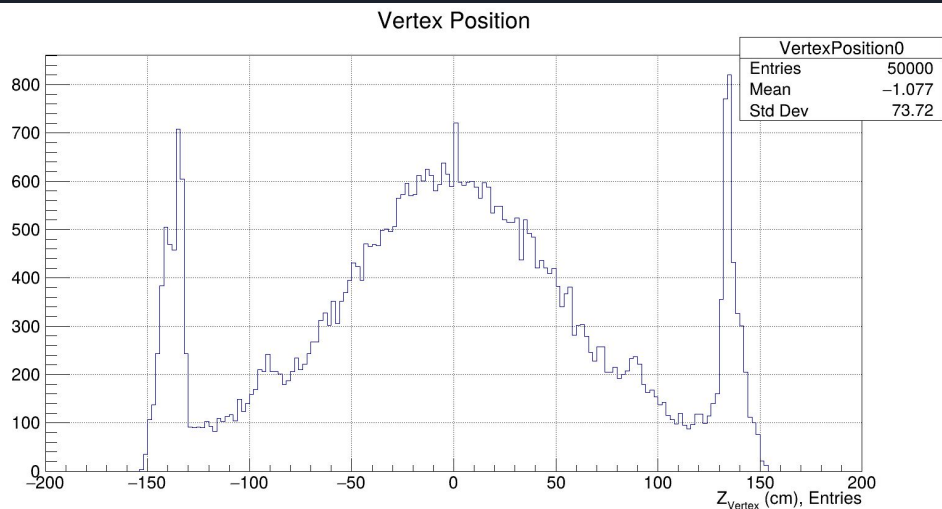
After the cut on 27 NHits

TProfile of DCA Global for Secondary

Before the cut on 27 NHits

After the cut on 27 NHits

Vertex Position

We look at the position of the principal vertex to find out where it could make a cut.
At the moment we can see that we can make a cut in the range of -130 to 130.

Summary

- We Running only 50,000 events.
- Make the first cut on the Number of Hits.
- we observe the behavior of how DCA Global evolves with and without cut.

The Nexts Steps

- Running more information.
- Make a cut on DCA Global.
- Make a cut on Vertex Position.