

Quality Assurance of particle collision simulation in MPD detector

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Outline

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- ▶ **3. What we need to use program for?**
- ▶ **4. How to use it?**
- ▶ **5. Results**

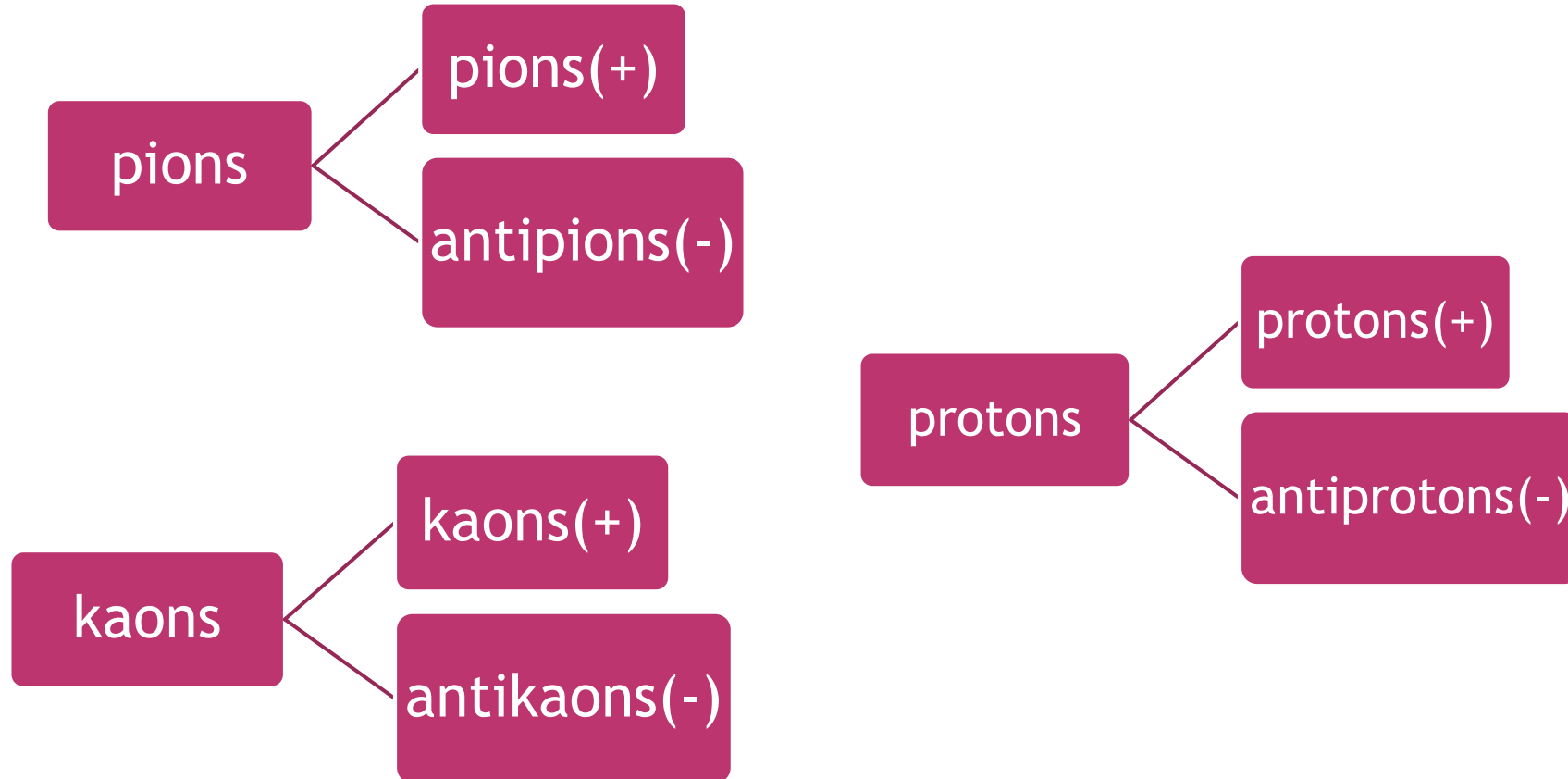
Assignments

- ▶ 1st version: loading data from .root file on my PC and then creating histograms based on this data
- ▶ 2nd version: loading data from .root file on cluster system and creating histograms

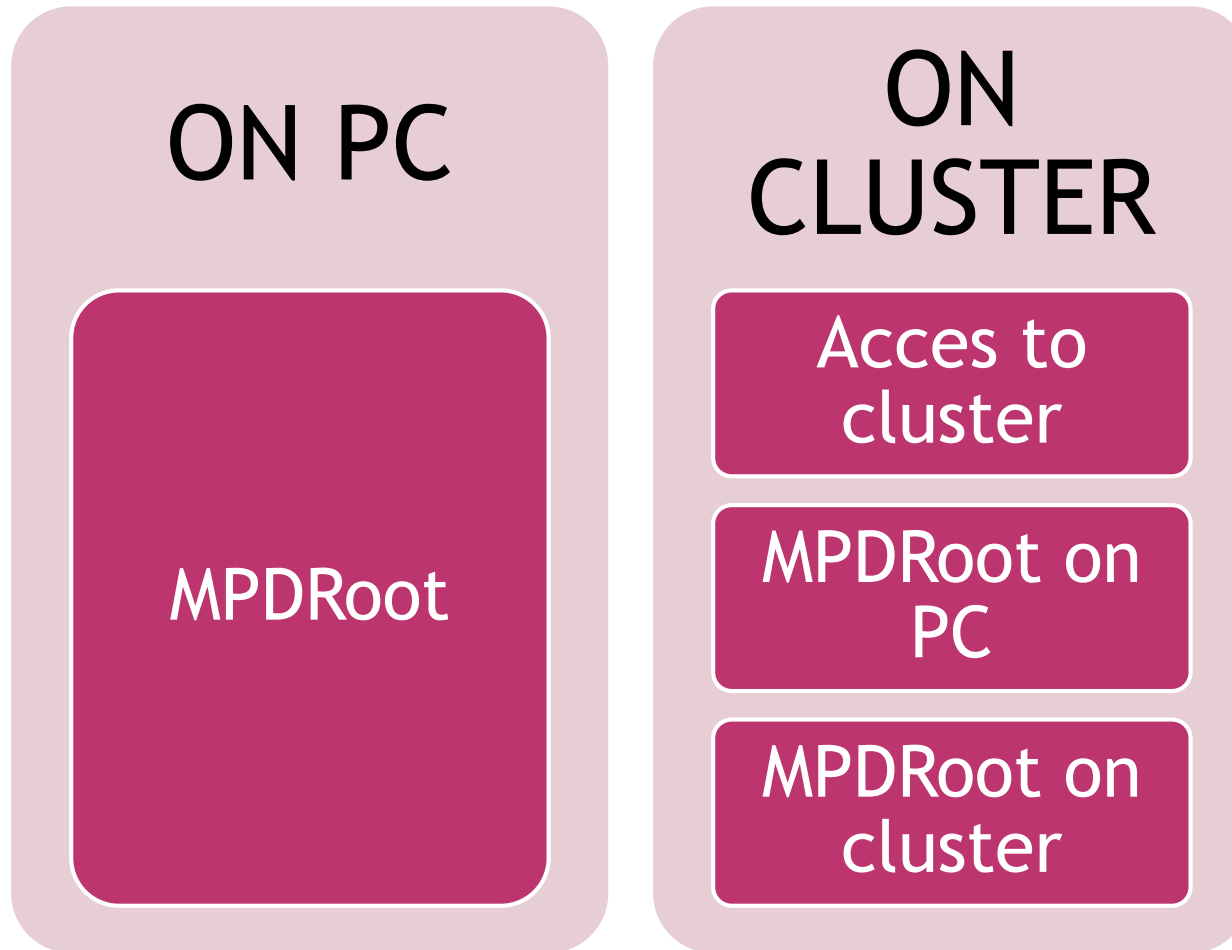
Specifics - what histograms?

- ▶ multiplicity of collisions
- ▶ transverse momentum
- ▶ pseudorapidity
- ▶ polar angle
- ▶ pseudorapidity and polar angle

Specifics - particles



What we need to use it?



How to use it on PC?

choose .root file by modifying macro code

run program on Root by command „root readDST.C” in terminal

```
void readDST(TString in = " ~/Pulpit/test/mpddst.root") {
```

```
ja@ja-Lenovo-G50-70 ~/Pulpit/tests $ root readDST.c
root [0]
Processing readDST.c...
Number of events in DST file = 200
Real time 0:00:30, CP time 22.910
```

How to use it on PC?

Now histograms are saved in file
`basicHistograms.root`

How to take a look on histograms?


run the file in Root

use TBrowser or
function Draw()

```
ja@ja-Lenovo-G50-70 ~/Pulpit/tests $ root basicHistograms.root
root [0]
Attaching file basicHistograms.root as _file0...
(TFile *) 0x2854df0
root [1] new TBrowser
(TBrowser *) 0x31175e0
root [2] pt_pions->Draw()
Info in <TCanvas::MakeDefCanvas>:  created default TCanvas with name Canvas_1
```

How to use it on cluster system?

choose .root files by changing it in macro code (modify TString in, Int_t Begin and Int_t end)



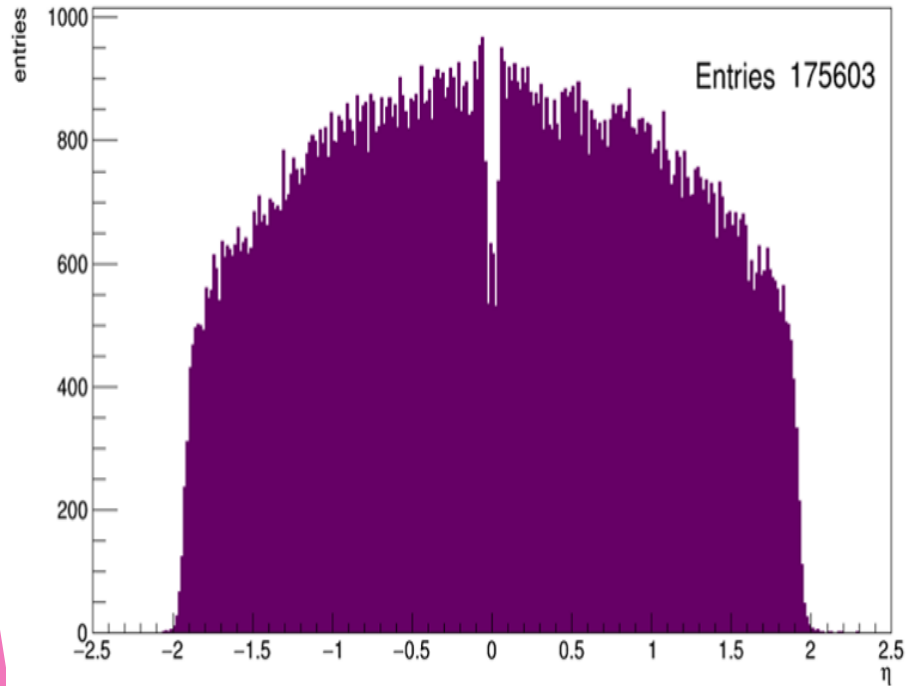
run macro on Root by command „root readDST.C” in terminal and then „idDST()”



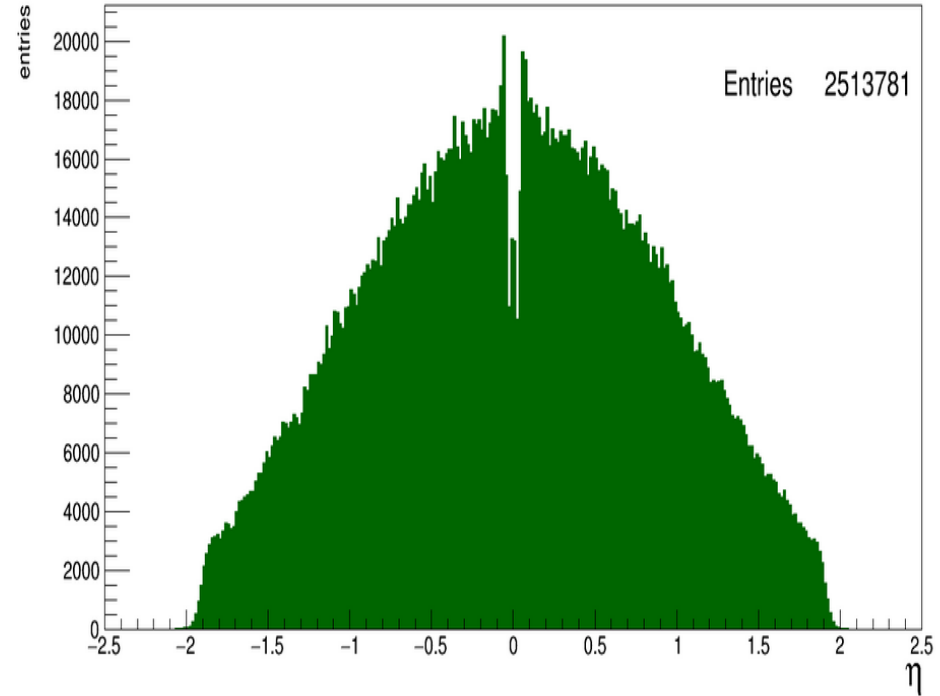
load file basicHistograms.root to your PC to look at it

Results

pseudorapidity - protons 4GeV

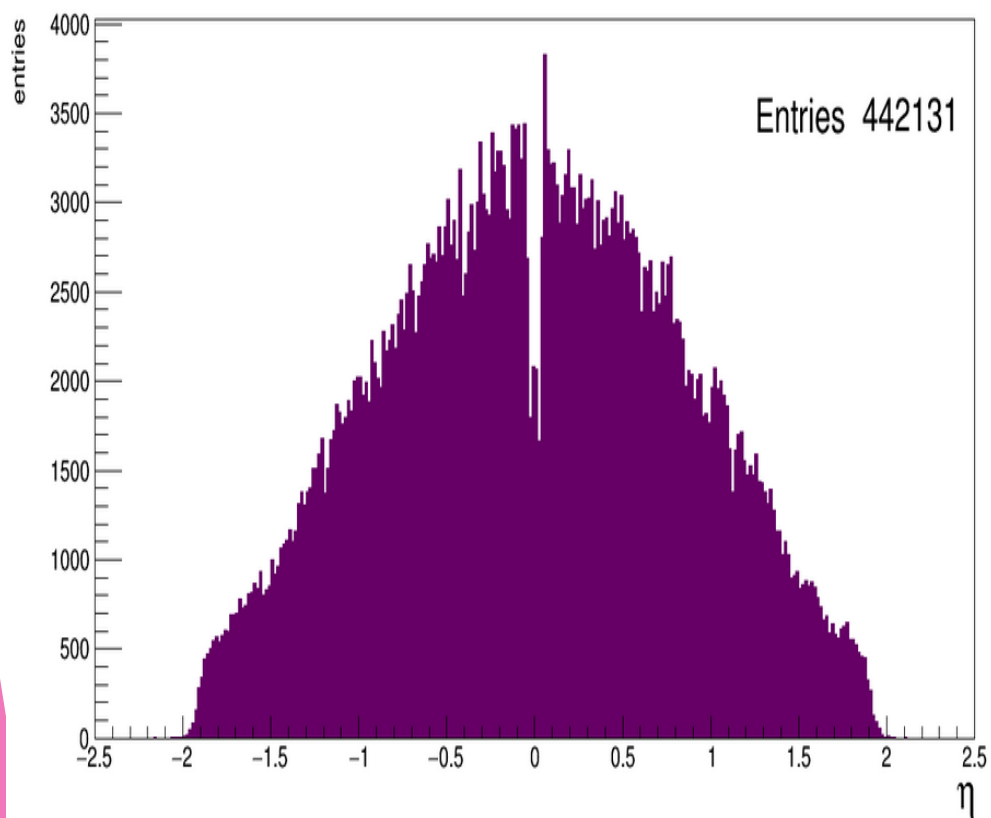


pseudorapidity - kaons 4GeV

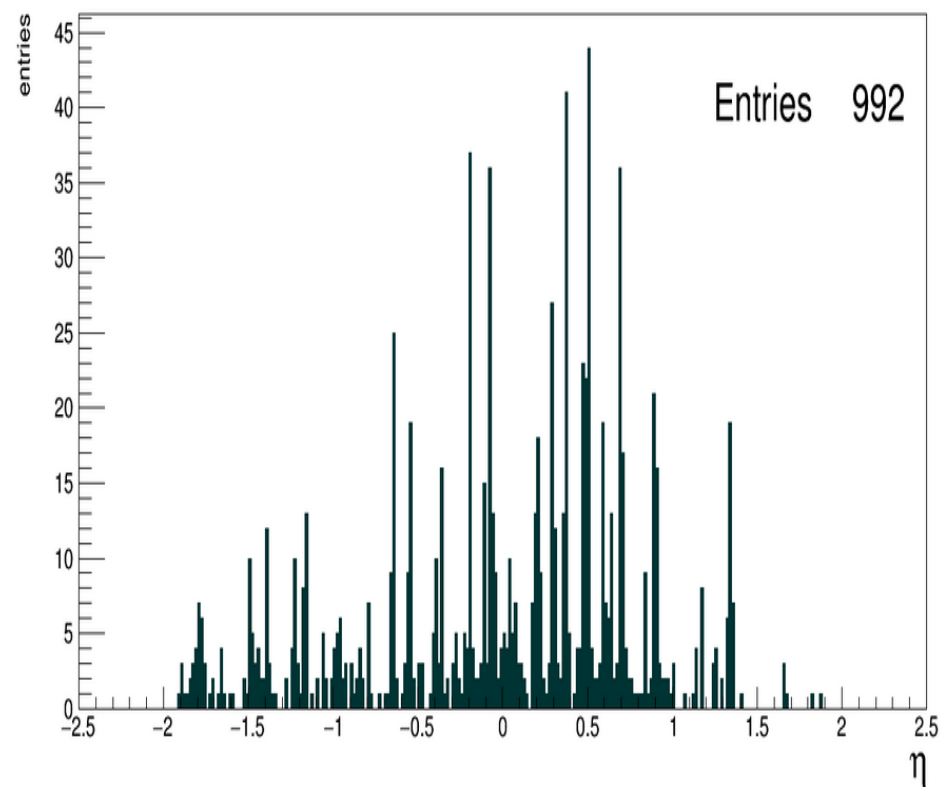


Results

pseudorapidity - antikaons 4 GeV

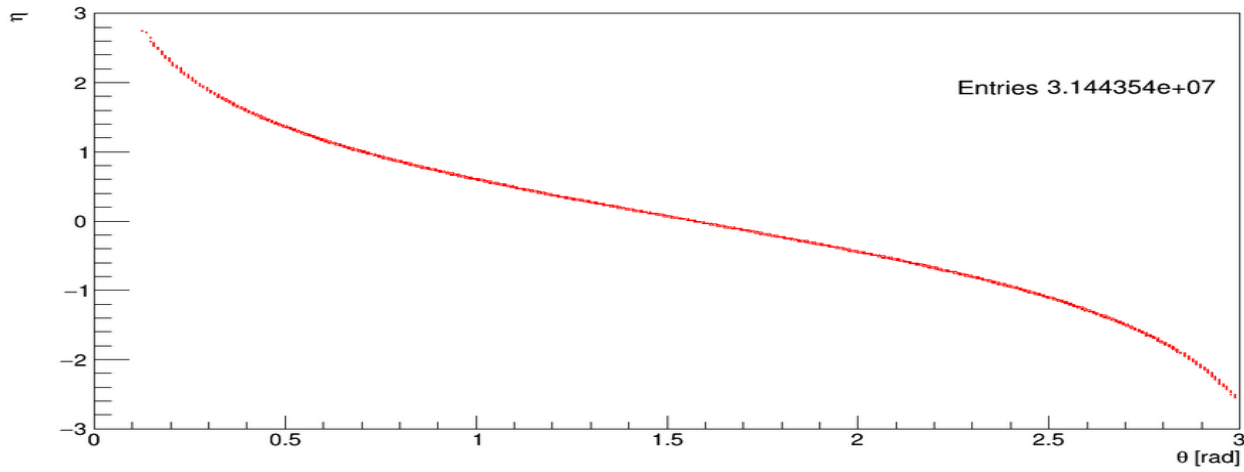


pseudorapidity - antiprotons 4 GeV

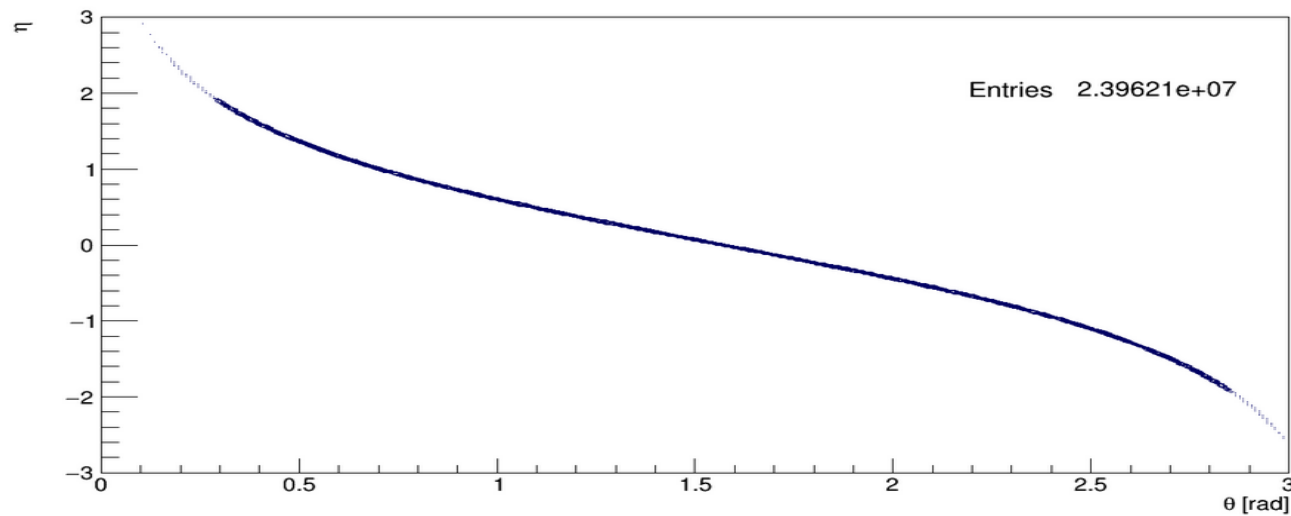


Results

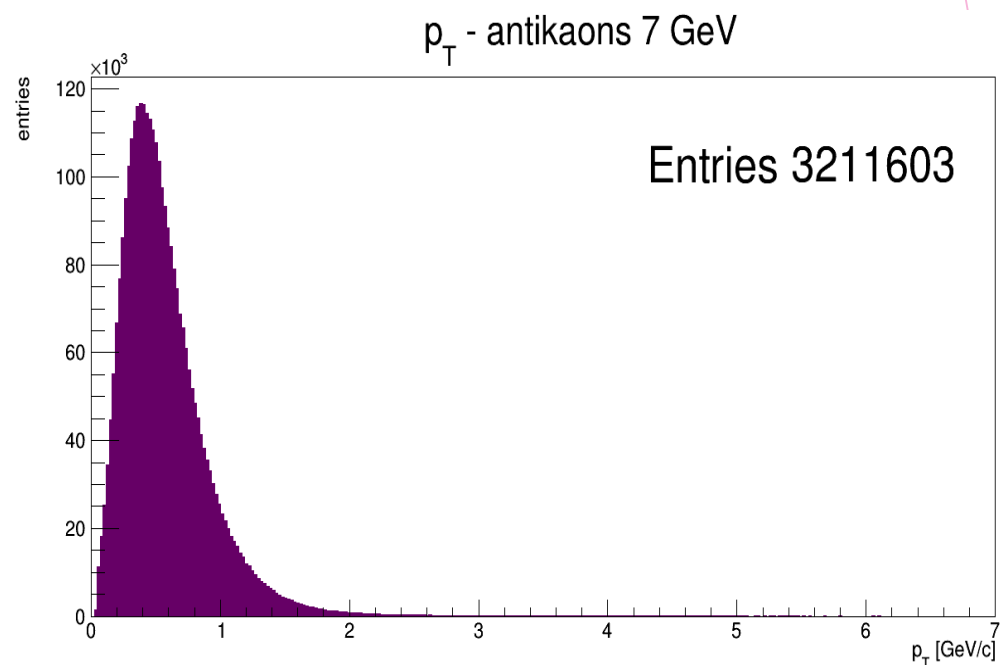
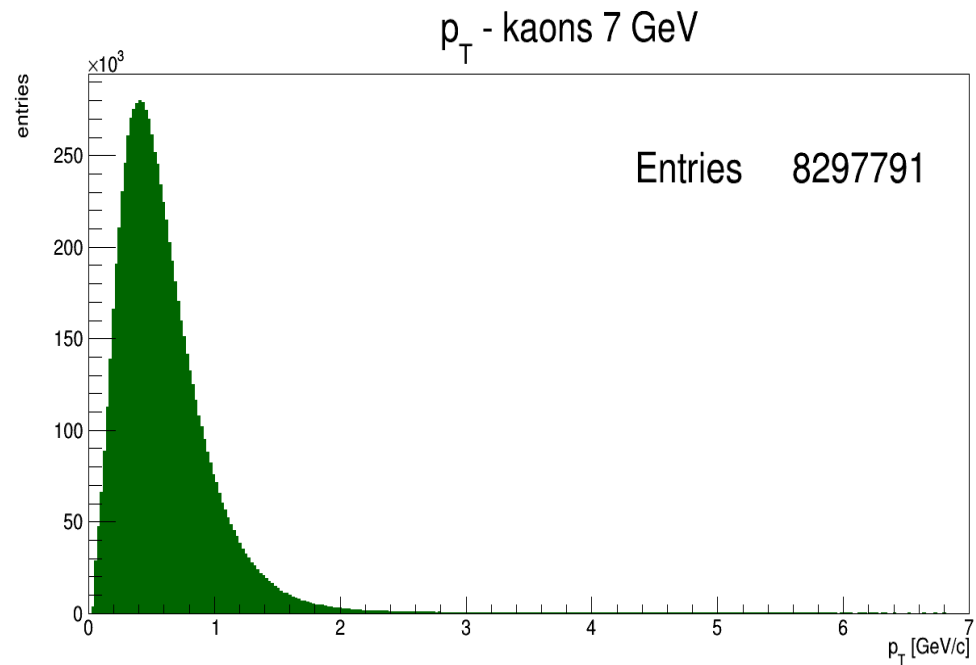
$\eta(\theta)$ - antipions 4GeV



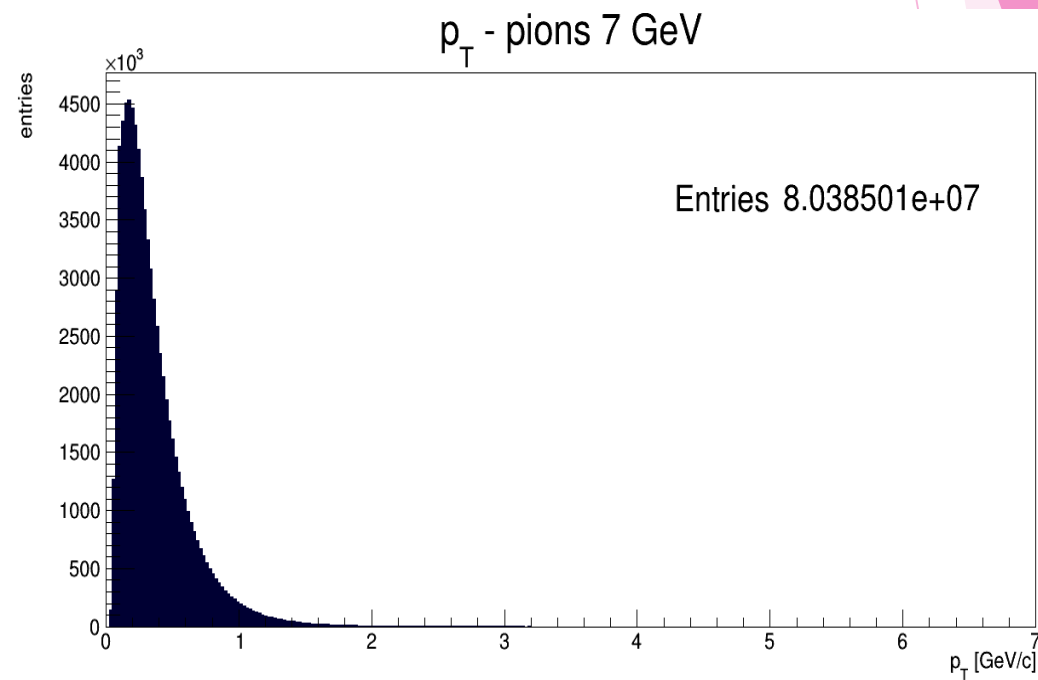
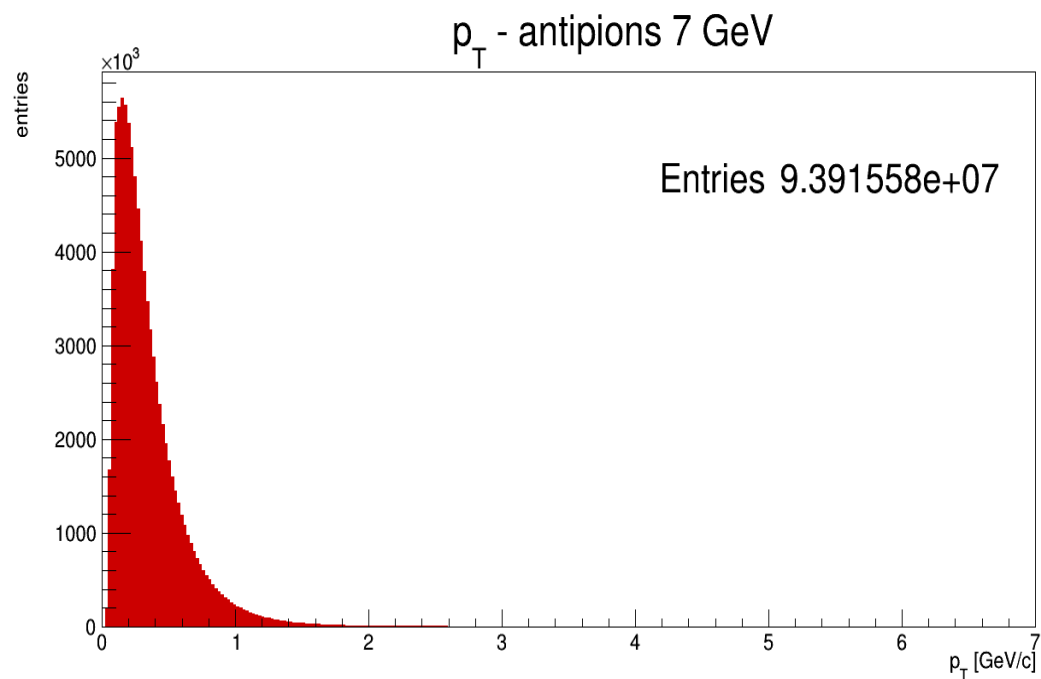
$\eta(\theta)$ - pions 4 GeV



Results

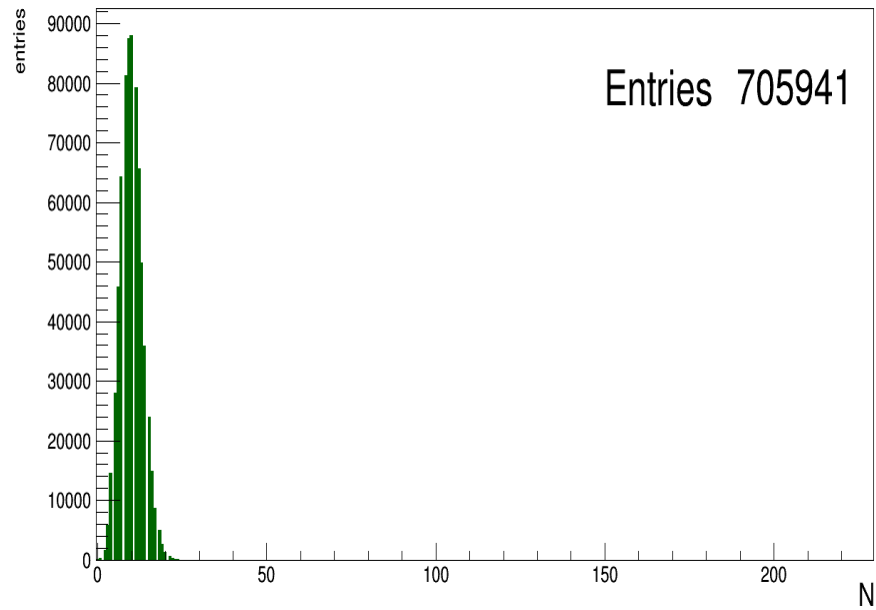


Results

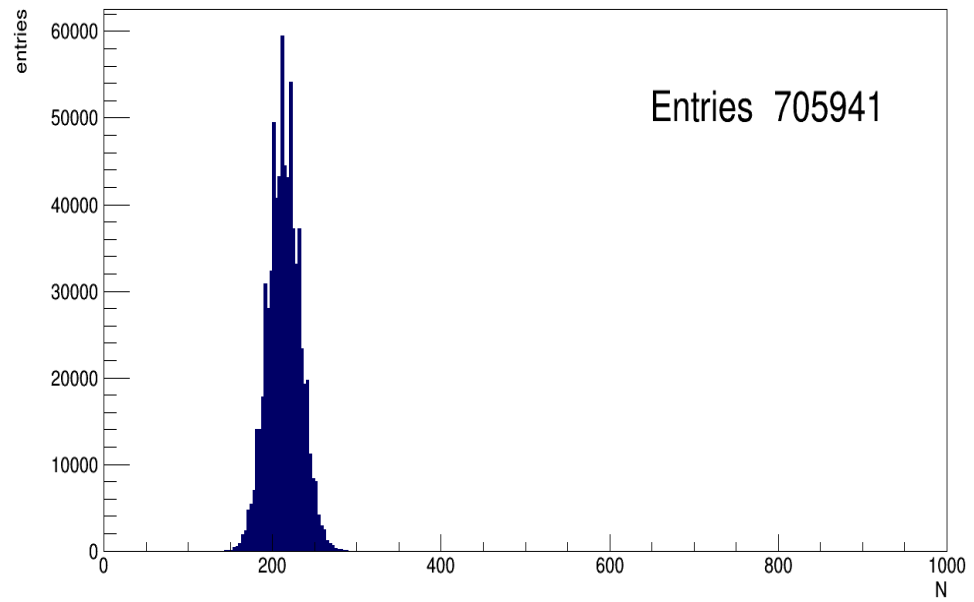


Results

multiplicity - antikaons 9 GeV



multiplicity - pions 9 GeV



Thank you for
your attention