FIRST REPORT OF ACTIVITIES AT CERN.

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Homeworks at CERN:

- Learn to use ALIROOT.

- Work in the last tests of ACORDE.

1. Learn how to run PYTHIA generator.

- GENERATION
- pp collisions at: $\sqrt{s}$ = 900 GeV and $\sqrt{s}$ = 14 TeV.
- Process type: kPyMb (Minimum bias).
- Number of events: 10000

- GENERATE THE FOLLOWING PLOTS:

$$\frac{dn}{dP_T} \text{ vs. } P_T \qquad \frac{dn}{d\eta} \text{ vs. } \eta$$

n : Number of primary charged particles.
η : pseudorapidity
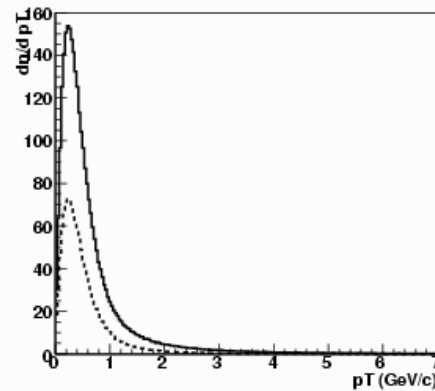P_T : Transverse Moment

- Make some comparisons.

Upper plots: Comparison considering all charged particles produced by collision.

bottom plots: Comparison considering pions + produced by collision with pseudorapidity: $-1 \leq \eta \leq 1$.
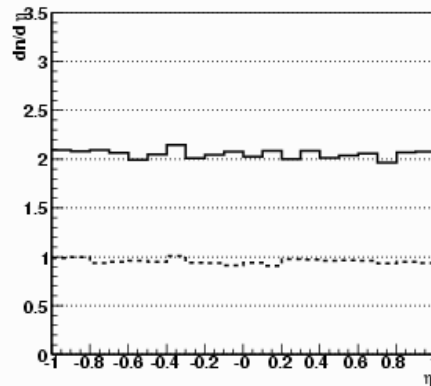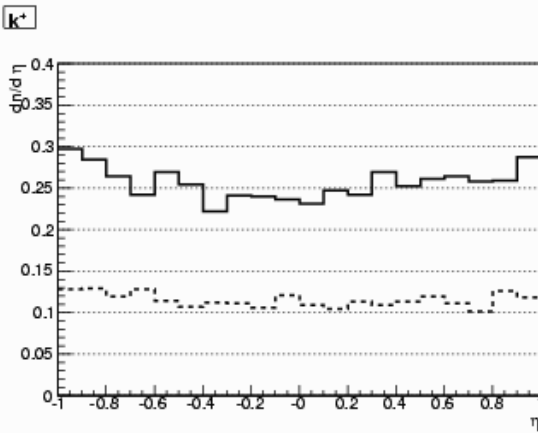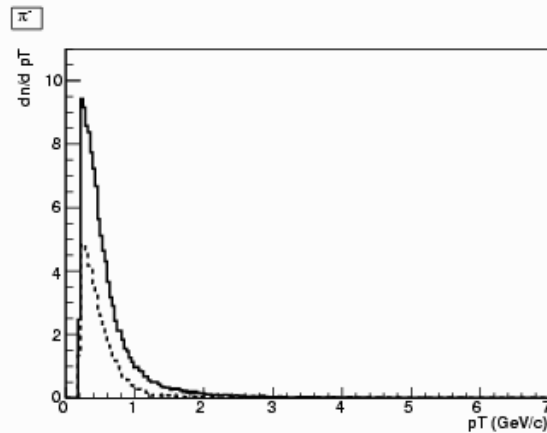
Upper plots: Comparison considering kaons + produced by collision with pseudorapidity: $-1 \leq \eta \leq 1$

bottom plots: Comparison considering pions - produced by collision with pseudorapidity: $-1 \leq \eta \leq 1$
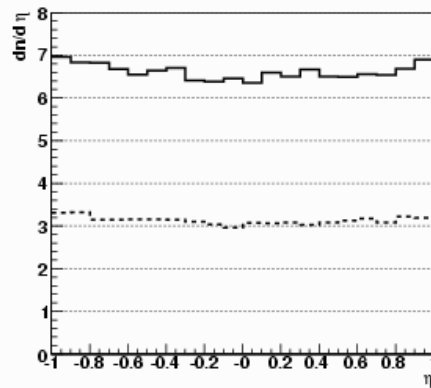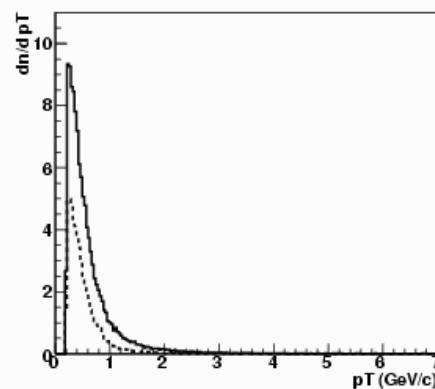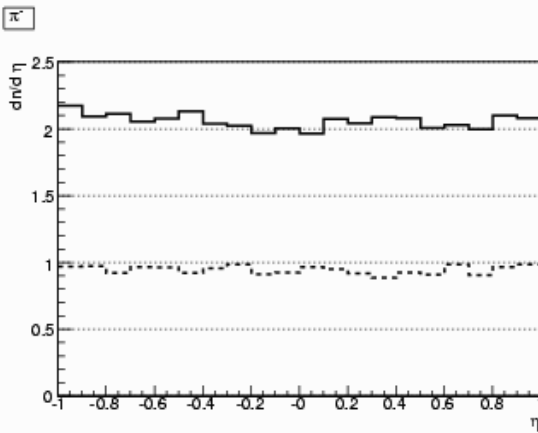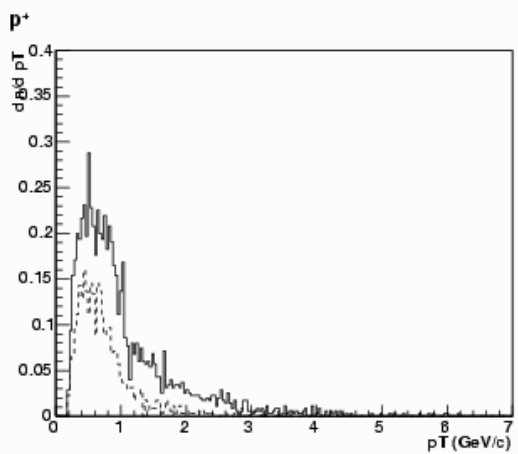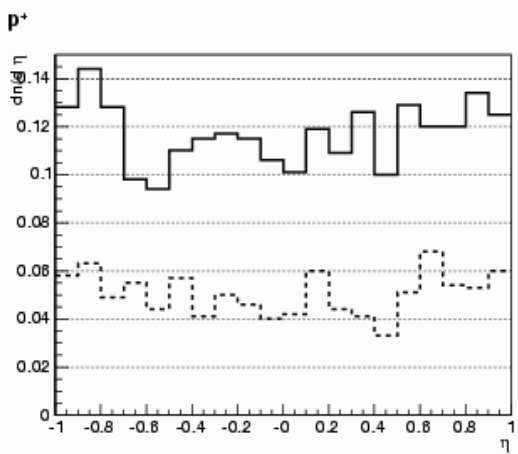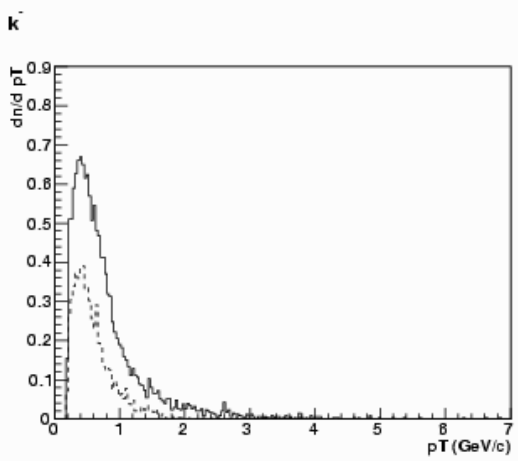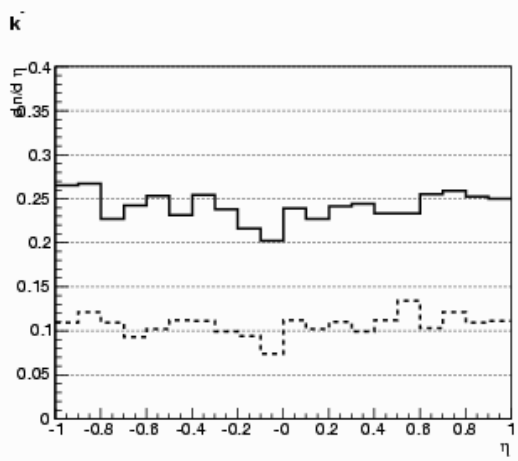

14 TeV

900 GeV

$-1 \leq \eta \leq 1$

Upper plots: Comparison considering kaons - produced by collision with pseudorapidity: $-1 \leq \eta \leq 1$
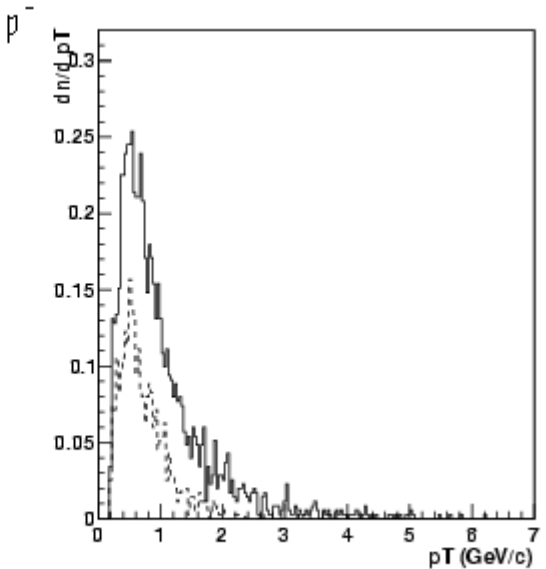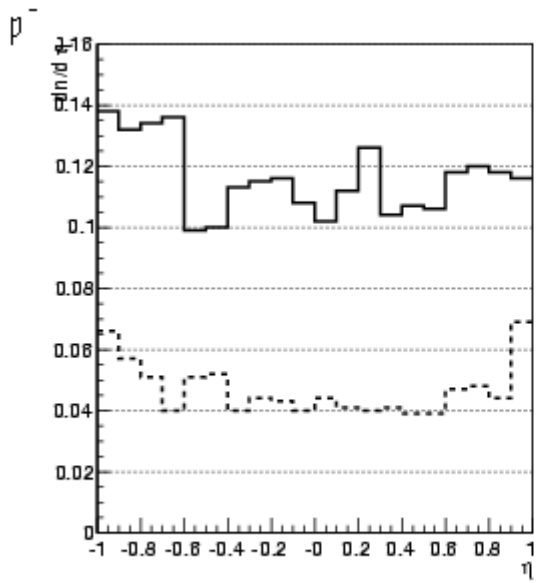
bottom plots: Comparison considering protons + produced by collision with pseudorapidity: $-1 \leq \eta \leq 1$

——————— 14 TeV

– – – – – 900 GeV

$-1 \leq \eta \leq 1$

Comparison considering protons - produced by collision with pseudorapidity: $-1 \leq \eta \leq 1$
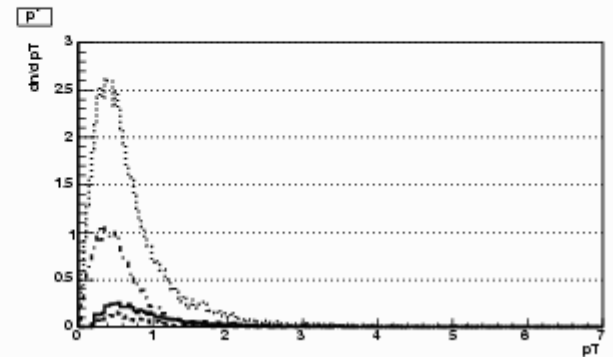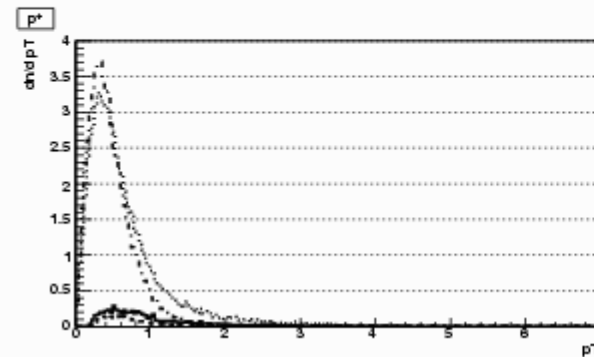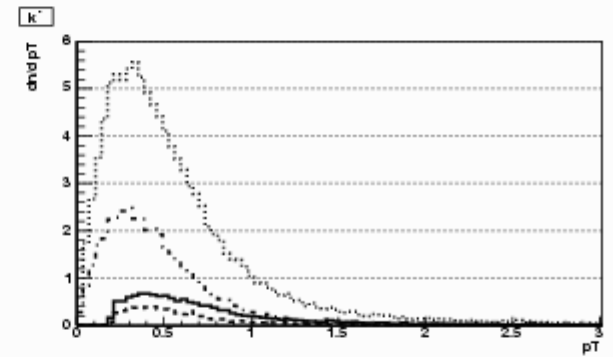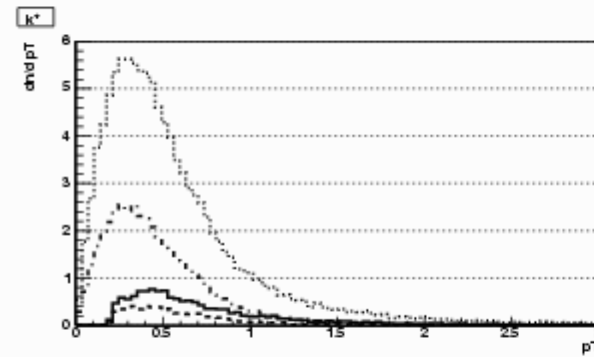

14 TeV

900 GeV

$-1 \leq \eta \leq 1$

$-1 \leq \eta \leq 1$

All η
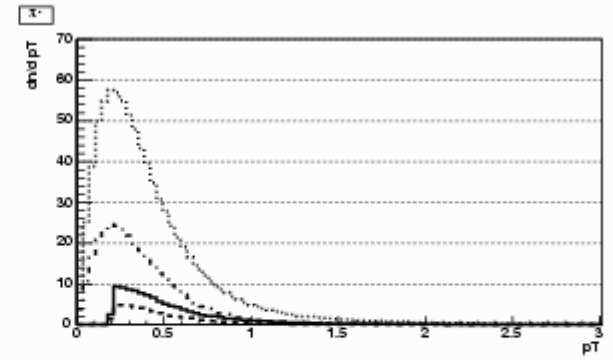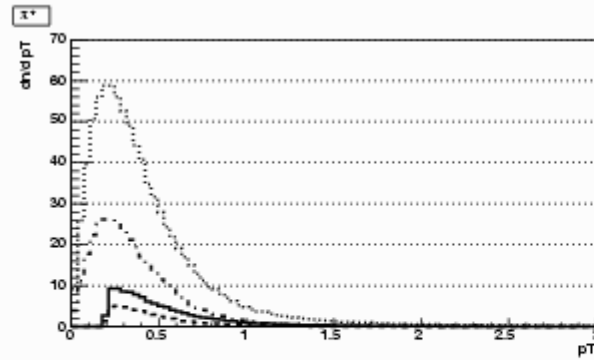
For pions, kaons, protons generated by collision, these plots show the ratio:

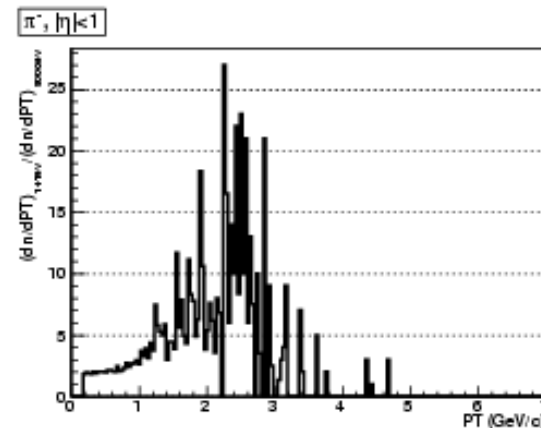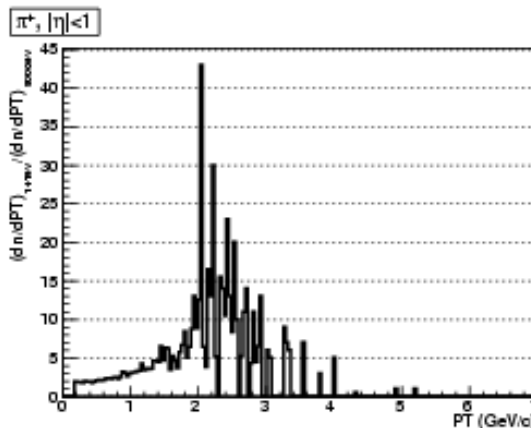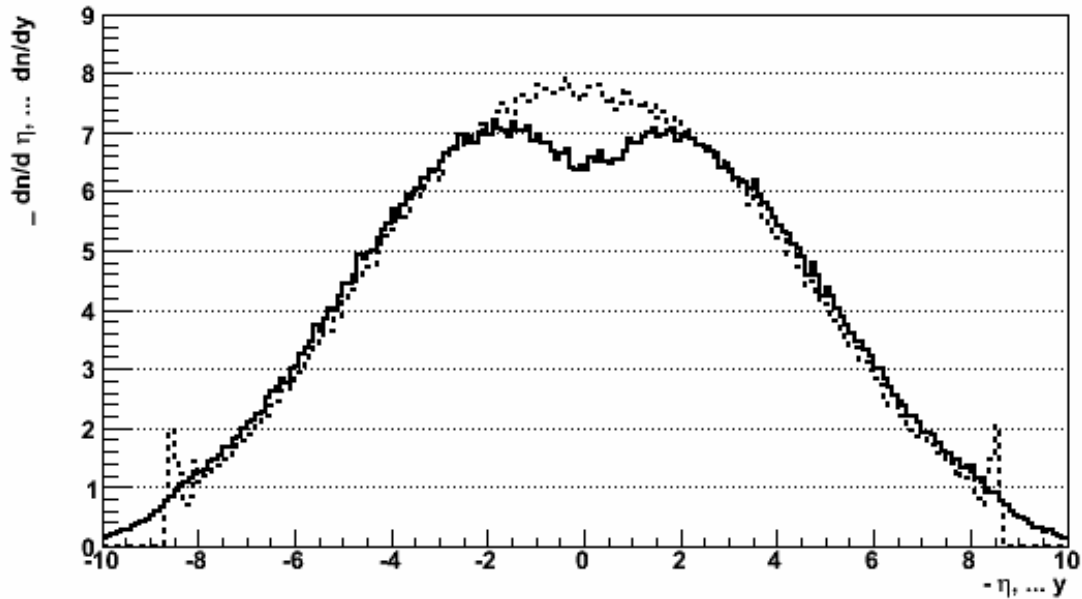$$\left(\frac{dn}{dP_T}\right)_{14\ \text{TeV}} \Big/ \left(\frac{dn}{dP_T}\right)_{900\ \text{TeV}}$$
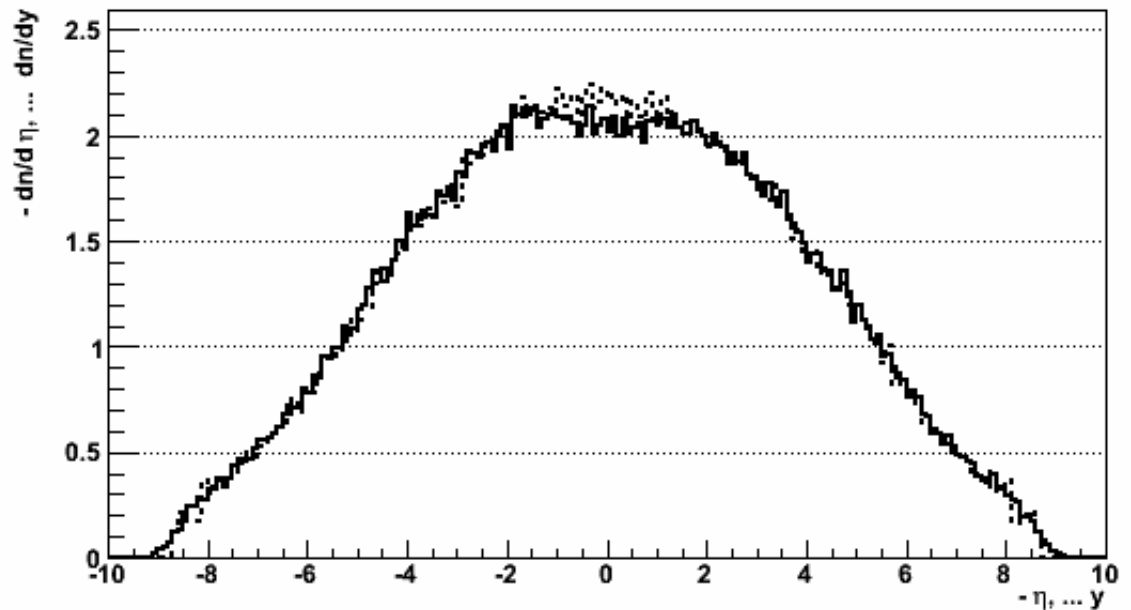
With the cut: |η|≤1
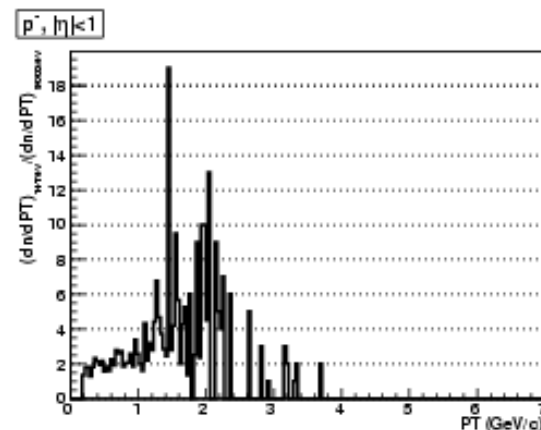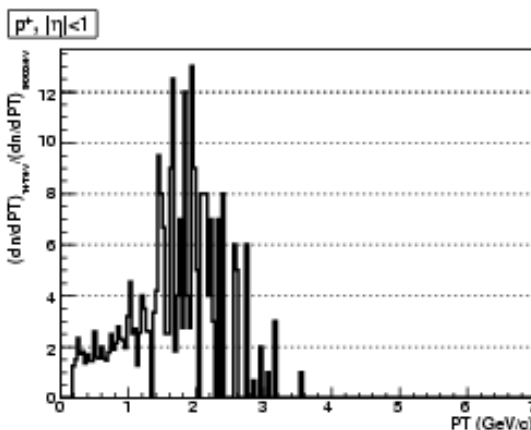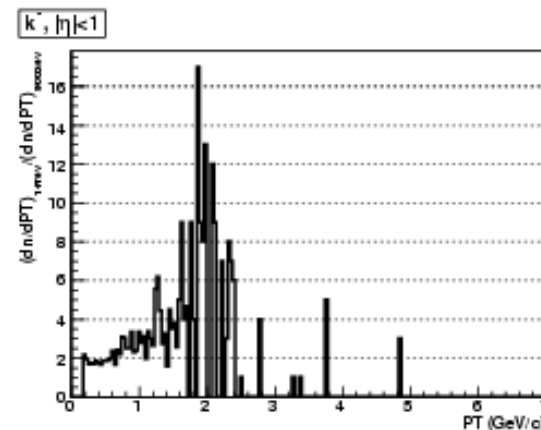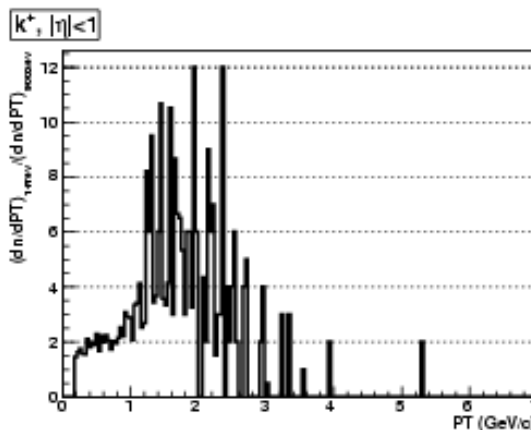
Comparation between rapidity and pseudorapidity.

Report of ACORDE activities:

- I am collaborating in the detection of problems of ACORDE.

- I am learning to use the DAQ system.

Next work:

- Recontruct the same events and make comparation between generated and reconstructed data.

- Next week Revol will give me a concret physics problem.