pXp analysis

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Overview

1. Changes in the anaRP code: luianaRP.cc
   important: **make -f LUMakefile** to compile the code

 - fixing errors in the code
 - more reasonable binning numbers
 - included acceptance A(t,phi)
 - corrected plot titles
 - there is no repository, no CVS, so we have to share updates among us

2. Where are the ntuples ?

3. makeplot.cc important update
4. updating TOTEM dictionary (coming up version 6)

fixing errors in the code

```
//      fout<<run<<" "<<ls<<" "<<evt<<" "<<tb<<" "<<xi_proton_left<<" "
L<<" "<<ThyR<<" "<<xVtxL<<" "<<xVtxR<<" "<<HFveto<<endl;
      double xiL = xi_proton_left;
      double xiR = xi_proton_left;
        int vtxisfake = itVtx->fake;
        if(vtxisfake==0) nvtx++;
      // xi cut
      // Mmax=13000*xi_max
        histosTH1F["hxiL"]->Fill(xiL);
        histosTH1F["hxiR"]->Fill(xiR);
      if(TMath::Abs(xiL)<0.02 && TMath::Abs(xiR)<0.02);
      //  if(TMath::Abs(xiL)<0.01 && TMath::Abs(xiR)<0.01);
        histosTH1F["hxiL2"]->Fill(xiL);
```

```
double xiL = xi_proton_left;
//...Luiz
//       double xiR = xi_proton_left;
double xiR = xi_proton_right;
//   int Topol  = totemTopol[itotem];
//   double ThyL    = totemThyL[itotem];
```

```
histosTH1F["hxiR2"] = new TH1F("hxiR2","#xiR ",100,-0.1,0.1);
//  histosTH1F["hmxicut"] = new TH1F("hmxicit","M_{#pi#pi} ",massbins,0,5.);
histosTH1F["hmxicut"] = new TH1F("hmxicut","M_{#pi#pi} ",massbins,0,5.);
    // elastic approximation
    //xi selection
    double xi_proton_right = rec_proton_right->xi;
    double xi_proton_left = rec_proton_left->xi;
```

Where are the ntuples ?

As per the TOTEM Twiki web page they should be at:

/eos/totem/...

but there is no such totem/ subdirectory

Now, from the submission file: eos.t0.re.4510.txt

root://eostotem//eos/totem/data/cmstotem/2015/90m/Merged_rereco/4510/TotemNTuple_9989.026.ntuple_UATree_ReReco_259399_7_5.root

we can see that the directory /eos/totem/ is at the **eostotem.cern.ch** server

I can access those directories, please see below.
Cheers, Robert

```
[robtot@lxplus726 ~]$ eos ls /eos/totem/data/cmstotem/2015/90m/Merged_rereco/
4499
4505
4509
4510
4511
[robtot@lxplus726 ~]$ eos ls /eos/totem/data/cmstotem/2015/90m/Merged_rereco/4510/
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_0_1.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_0_6.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_0_7.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_1_2.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_1_5.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_1_7.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_1_8.root
TotemNTuple_9980.000.ntuple_UATree_ReReco_259399_2_5.root
```

this is not working as well ! CERN personnel is going to fix it !

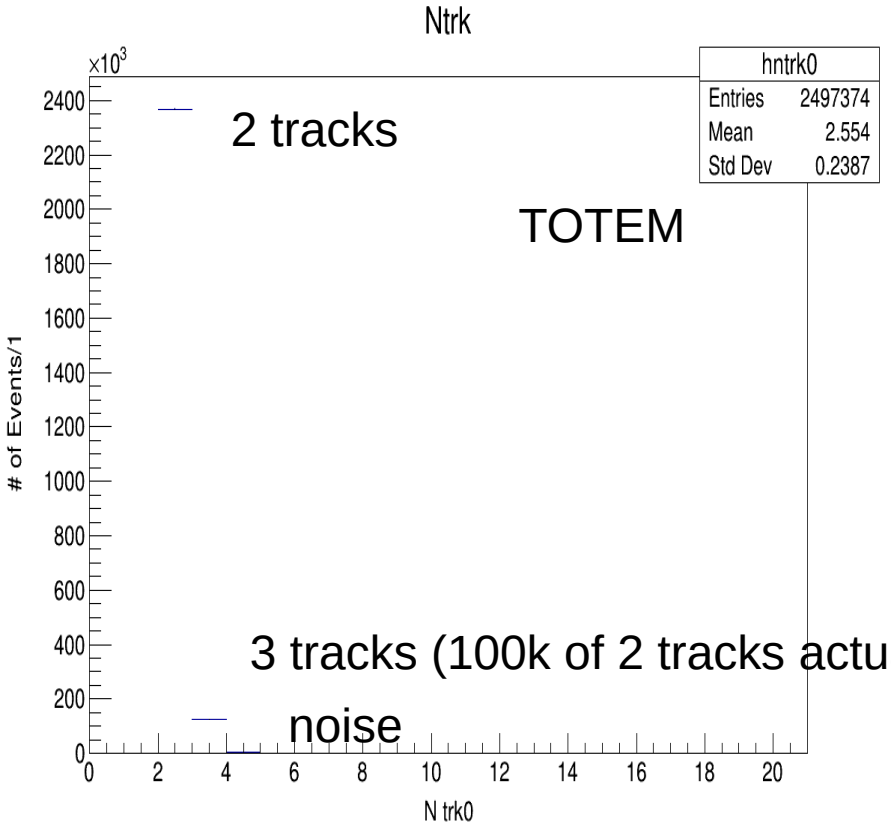
Task-B

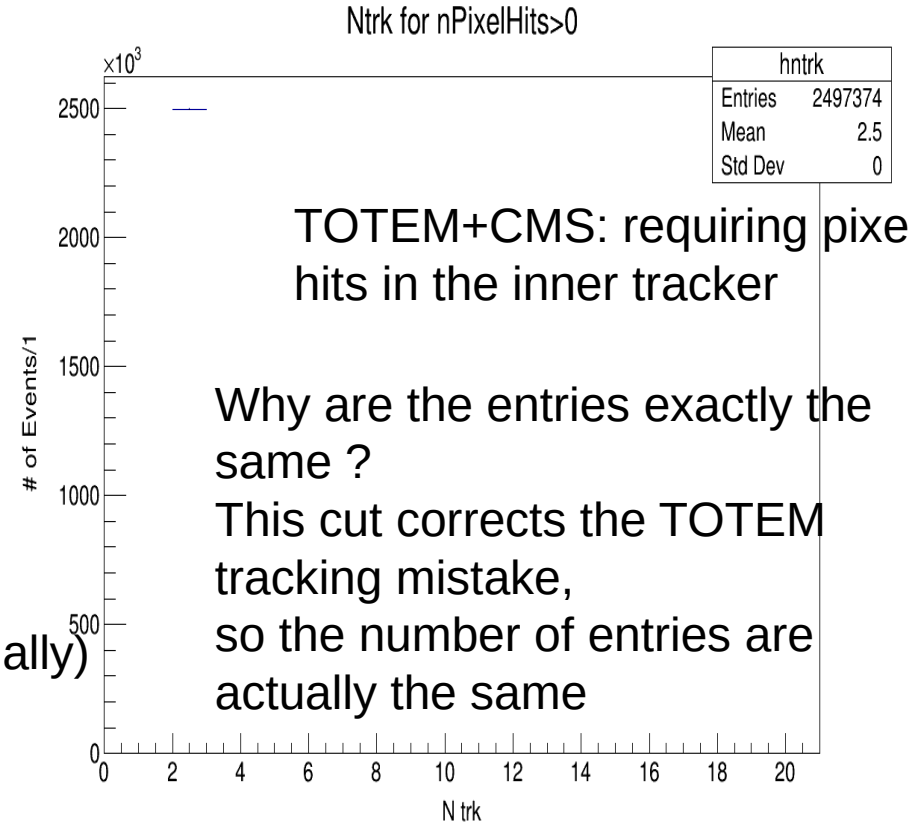
Central track plots (these do not depend on particle type so ignore dE/dx identification):

Count how many are +- (Q = 0) and ++ and - - (useful for background information) and select Q = 0. (?) pi+pi-, K+K-, pp-bar

Plot distributions for Q = + and Q = - separately of
pT (probably 0 – 4GeV/c is fine)
eta (-3 to + 3 – we will likely select -2.5 to + 2.5 for definiteness) → rapidity y
phi (0 - 2pi or -pi to +pi, whatever).

Multiplicity – 2-track events (reduced2) only – except run#9998

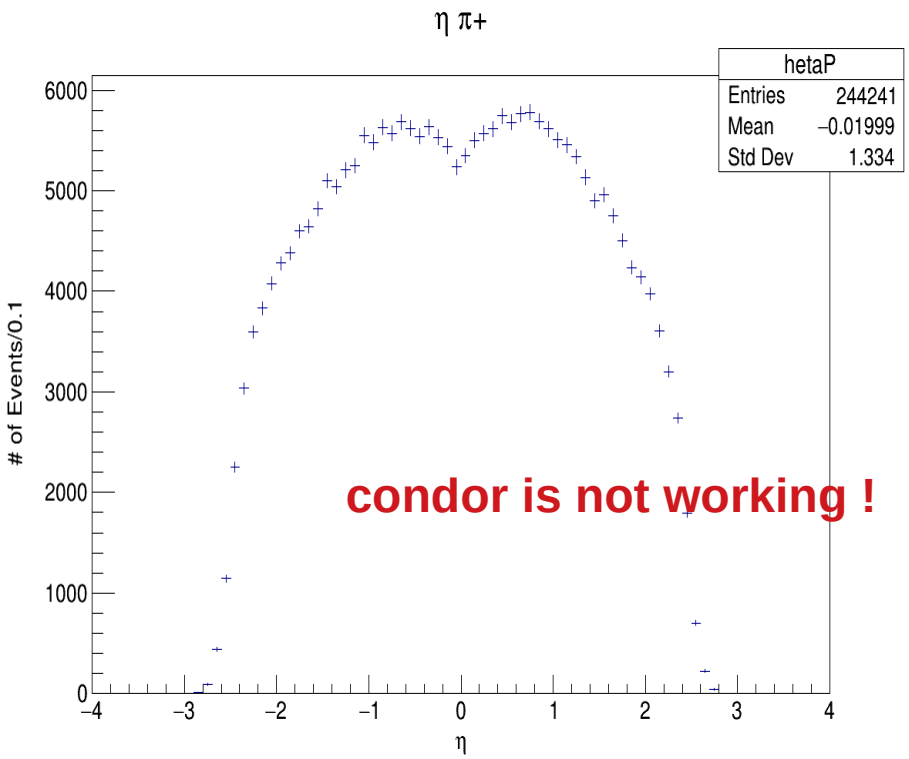




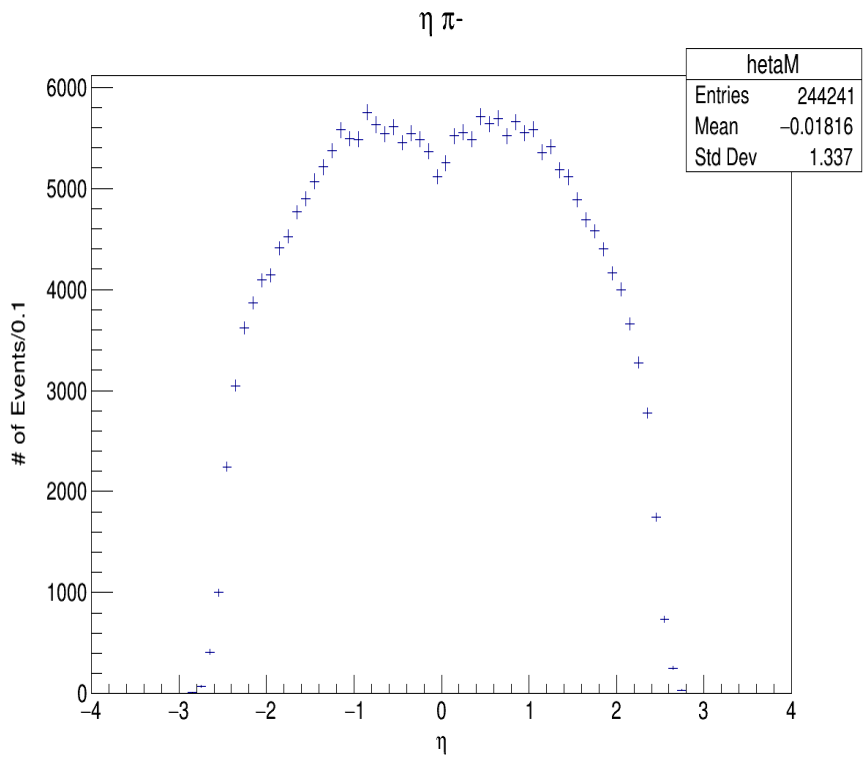
coming up...rapidity y

y = ½ ln (xiR/xiL)

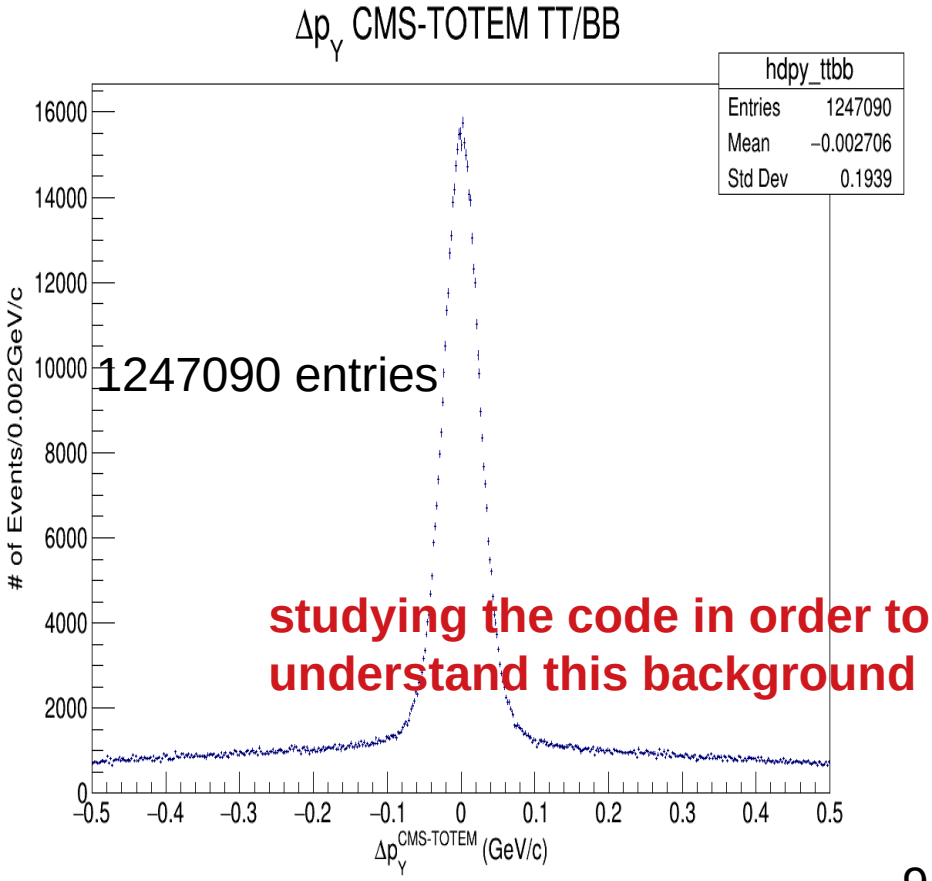
2-track events only

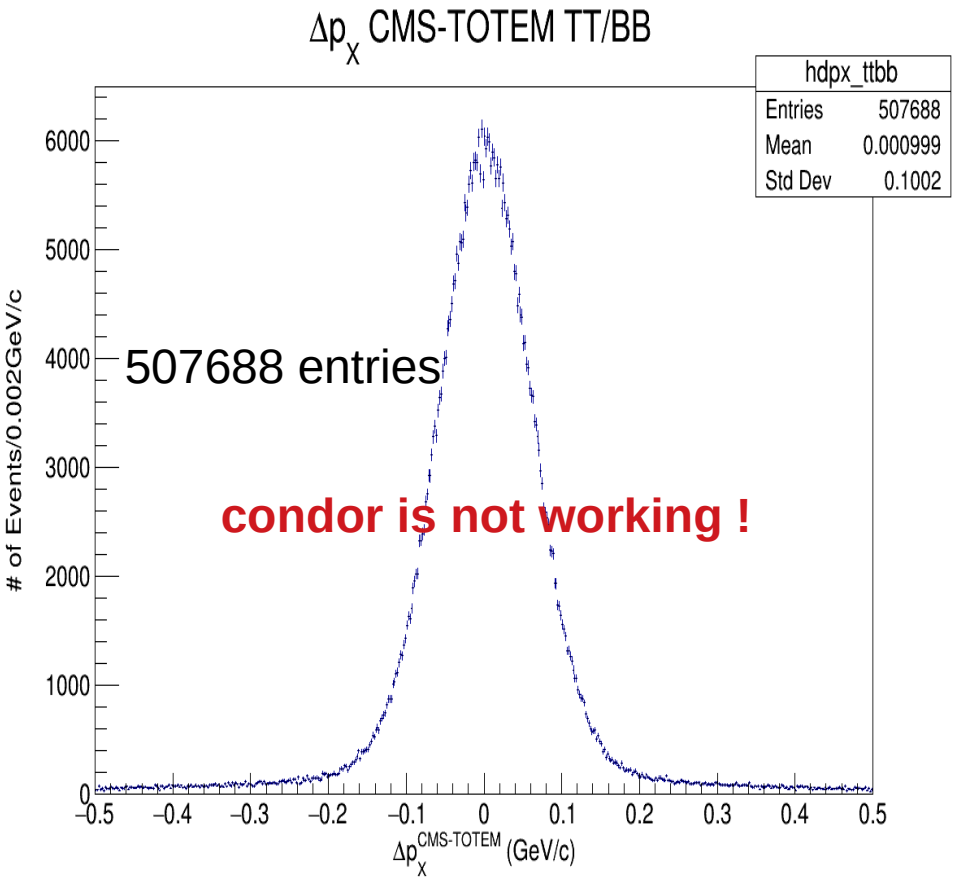


condor is not working !



Task-C: Balance in transverse momenta, single track events, all 2015 data





- studying code’s logic: flowchart map
- **project: mass distribution of pi+pi-, K+K- for 2 track events only**

Thank you for your attention