

Quality Assurance for High p_T Tracks at ALICE

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Objective : Understand the resolution at High p_T ,
assure the correct p_T determination.

Problem : Tails in the resolutions and in the pulls in p_T .

SAMPLE

AliGen Box Sample

Kaon Pions Protons same amount

Multiplicities 900, 3000, 4500, 6000 particle

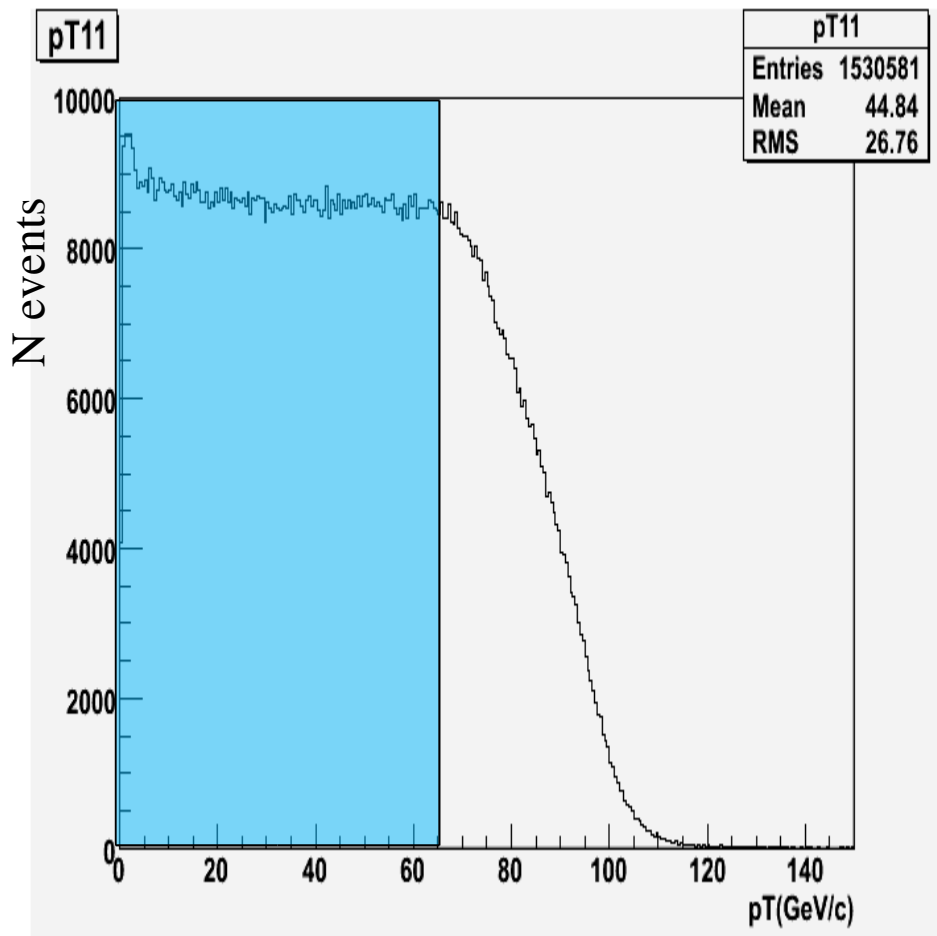
suppress decays

Flat Total Momentum 0-100 GeV/c

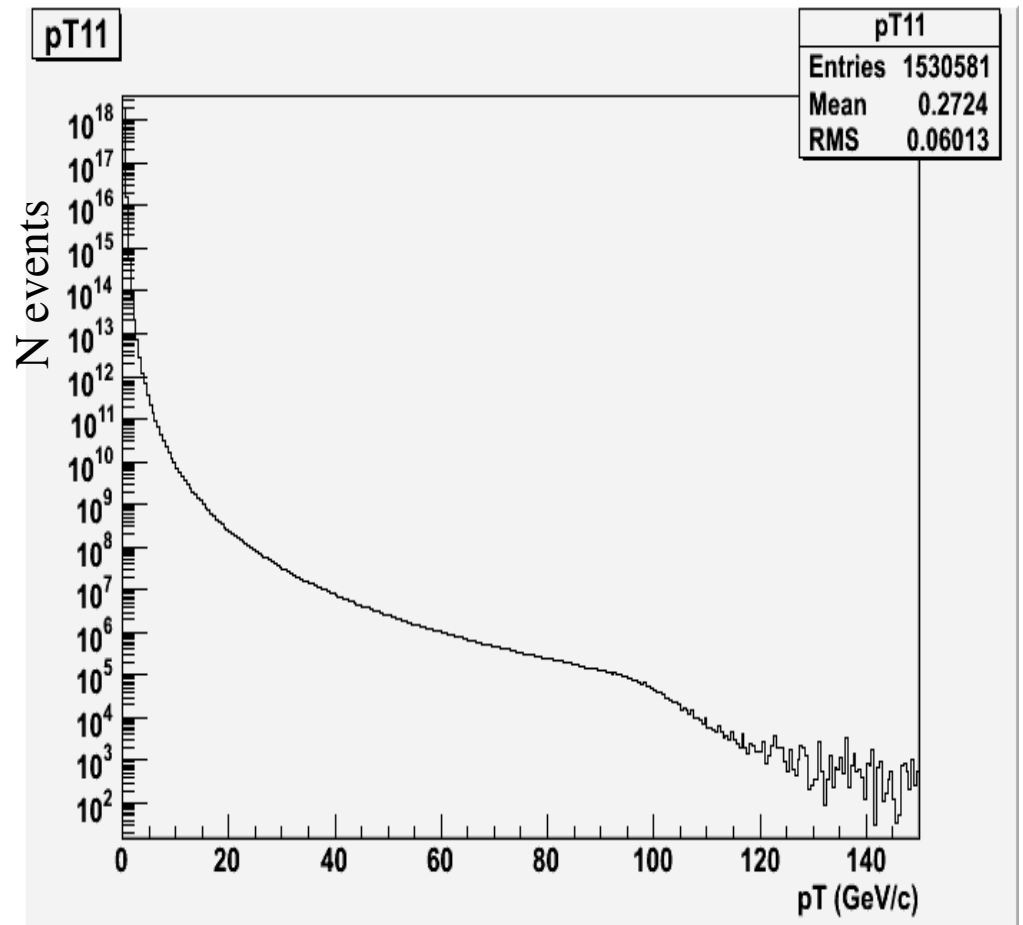
$|\eta| < 0.9$

ITS and TPC in the reconstruction

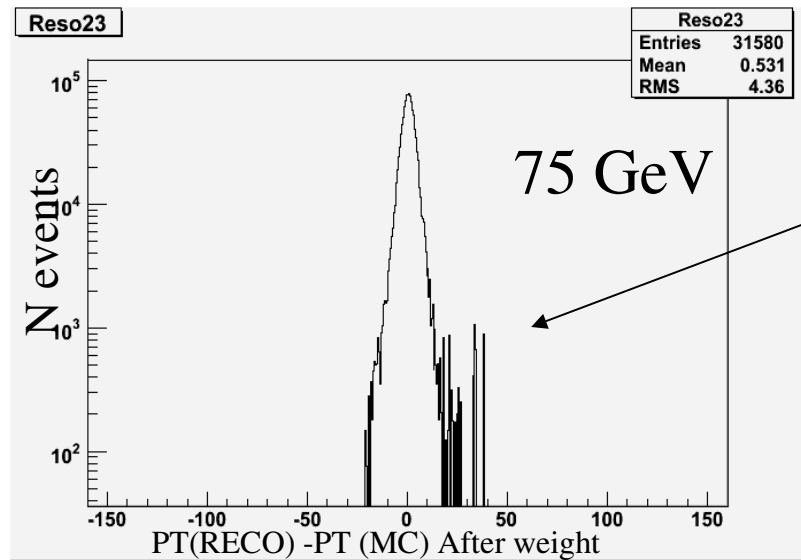
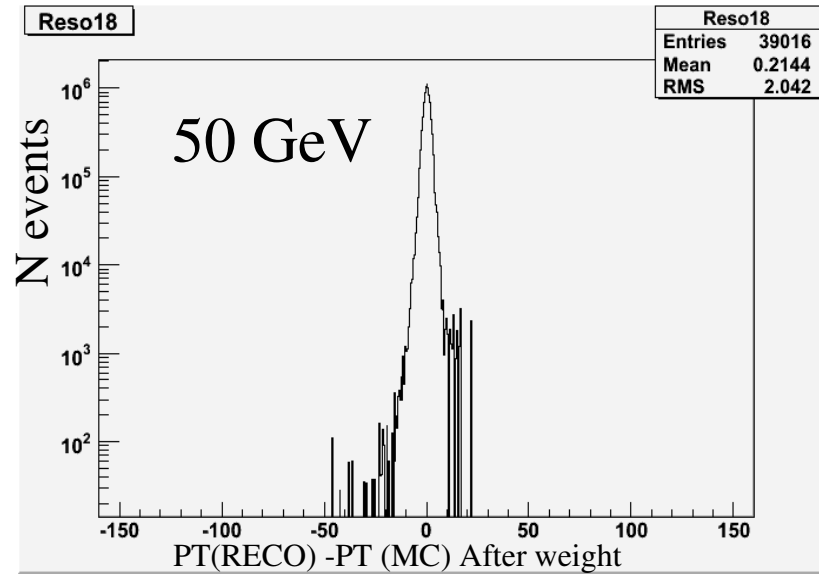
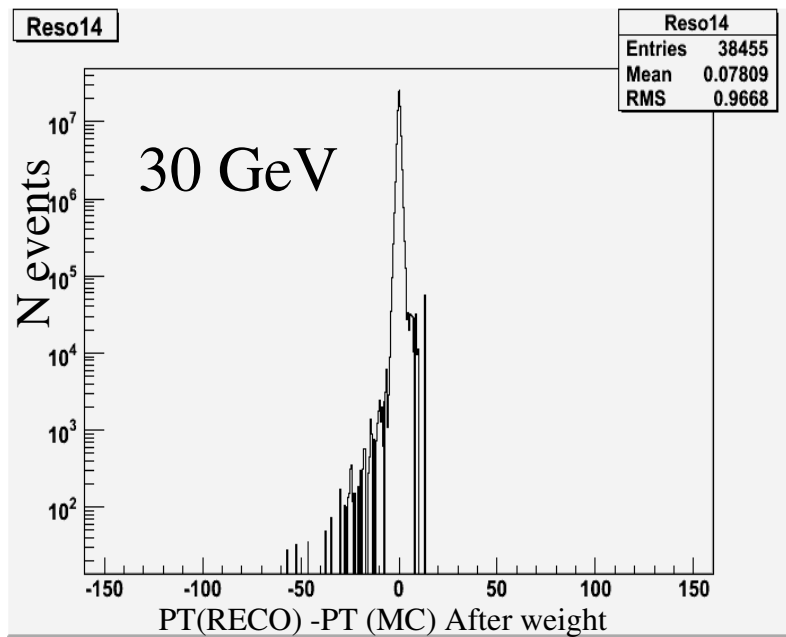
Toy MC , since data above 20 GeV is quite low use AliGenbox and weight the pT using a pT^{-5} “ weight ”..



Before weight



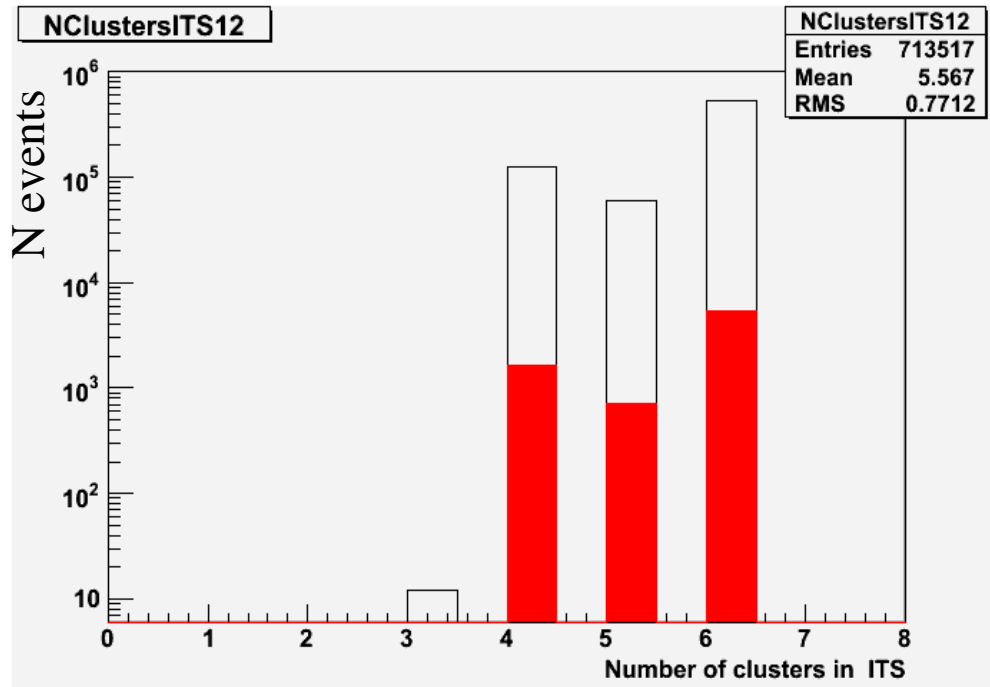
After weight



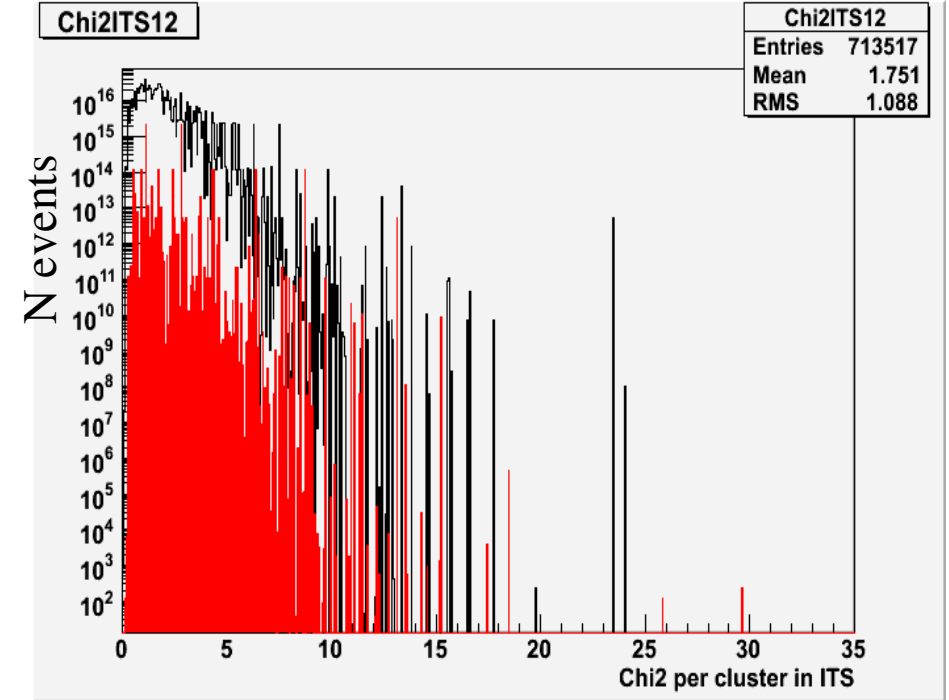
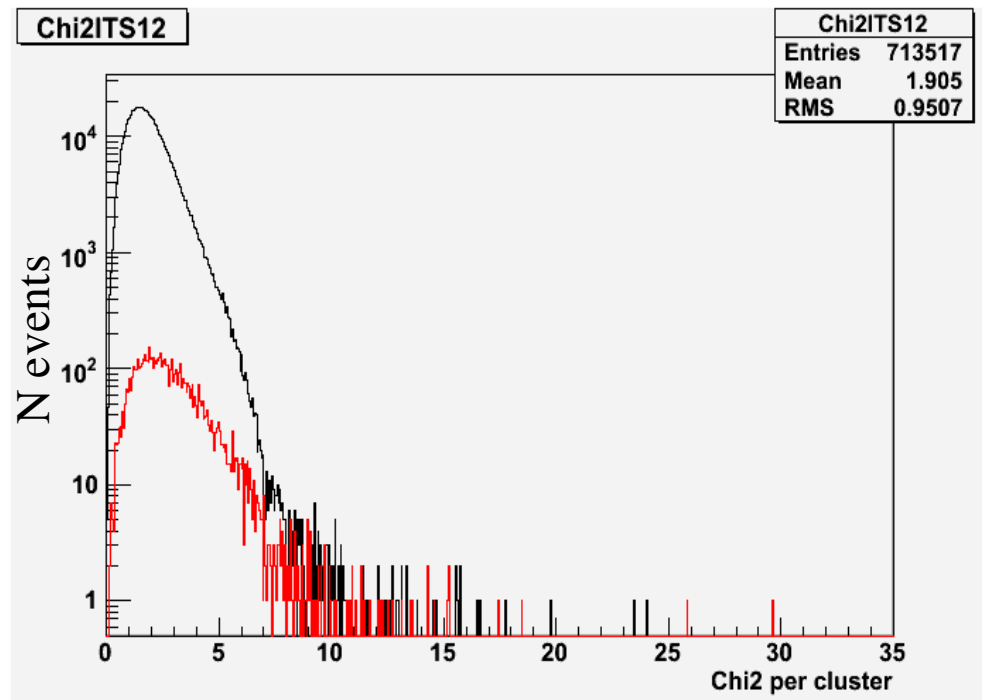
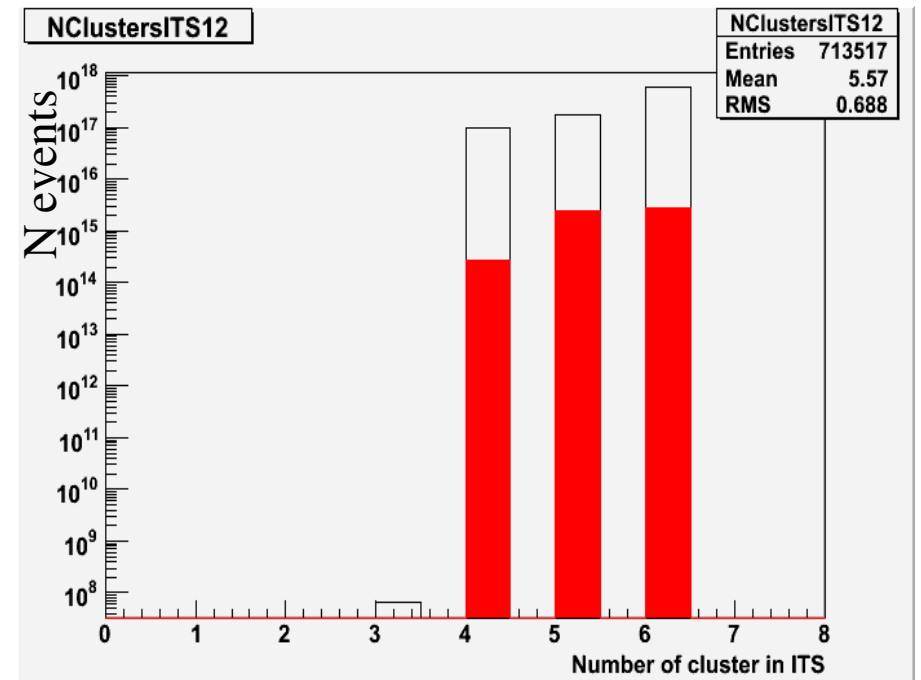
Indication of a migration from low to High Momentum

PT(RECO) -PT (MC) After weight

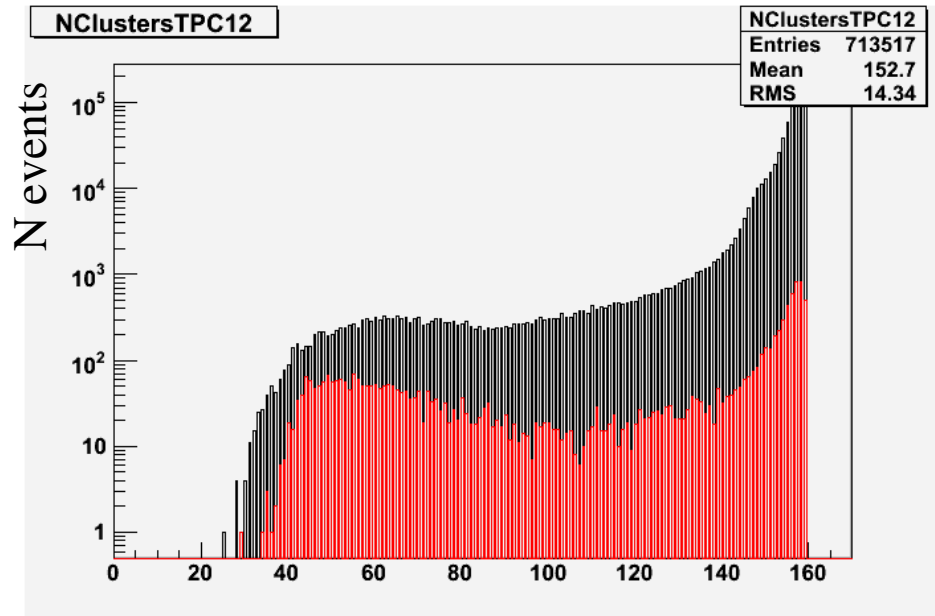
UN-WEIGHTED



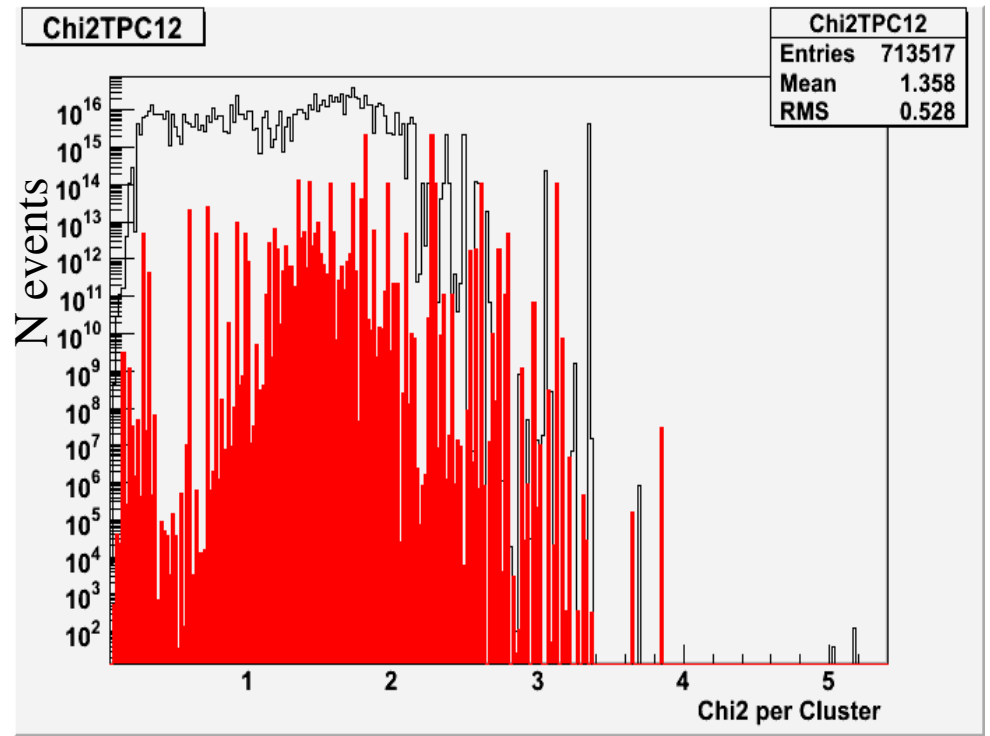
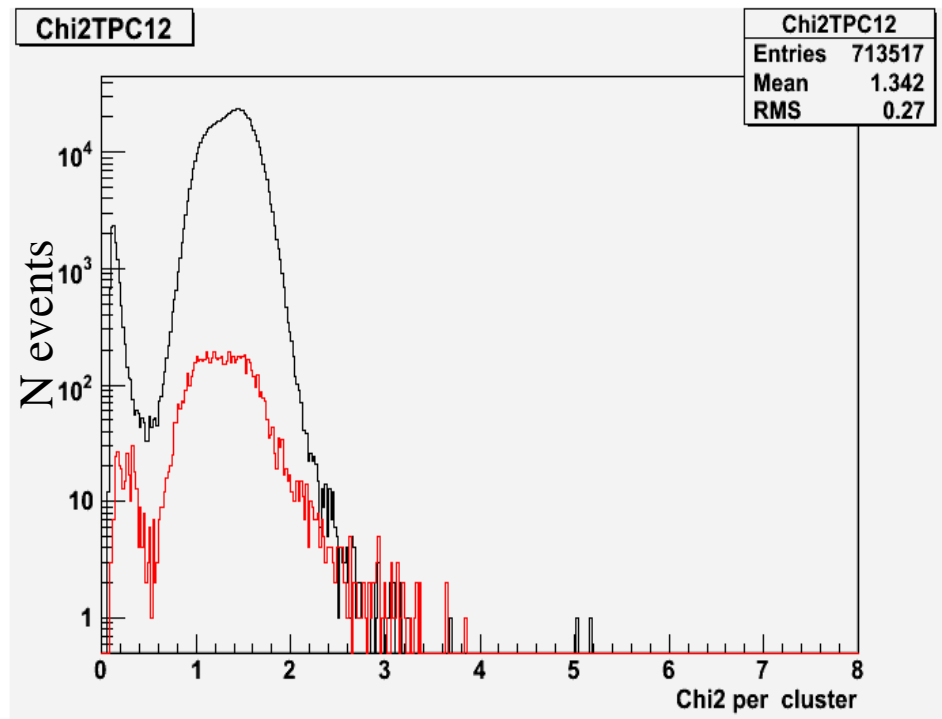
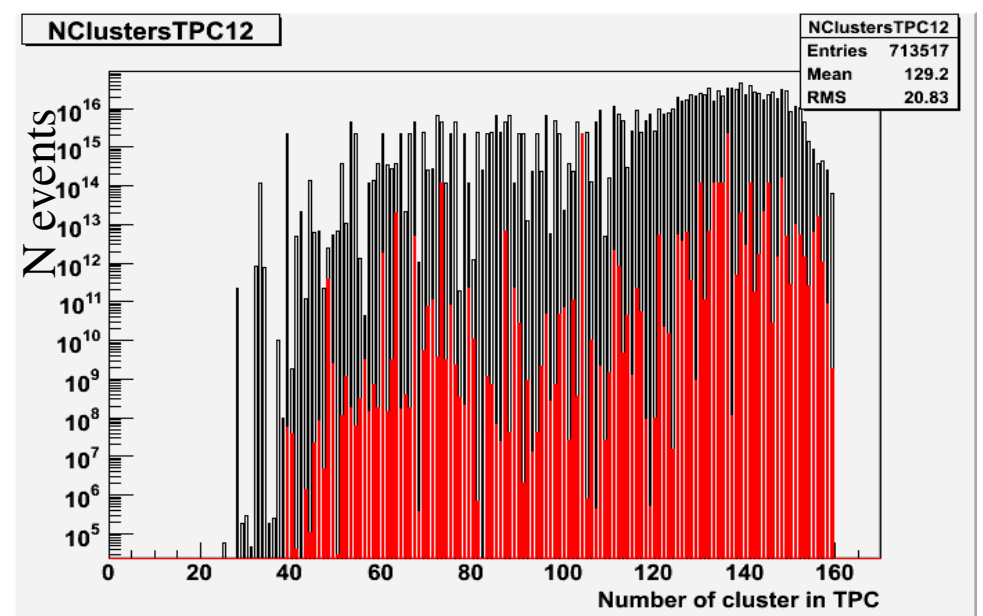
WEIGHTED



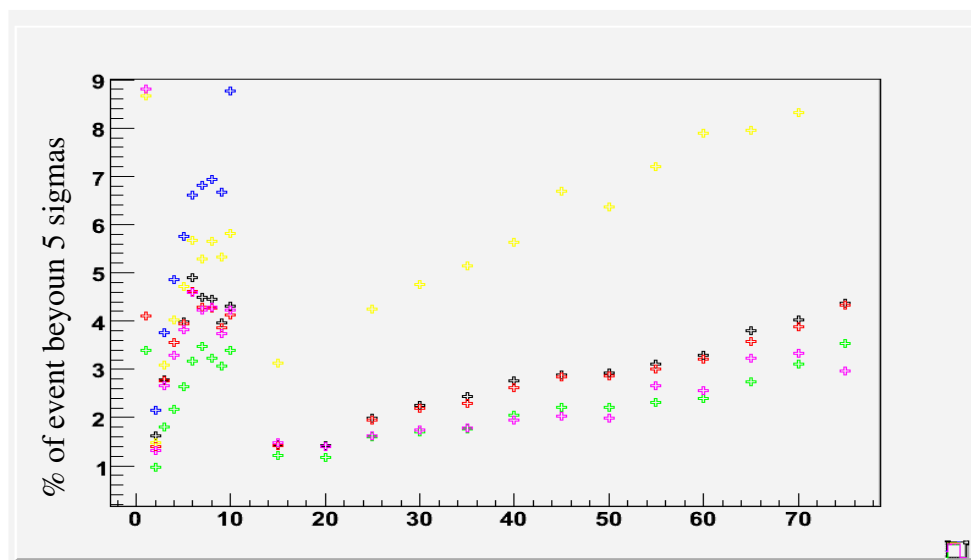
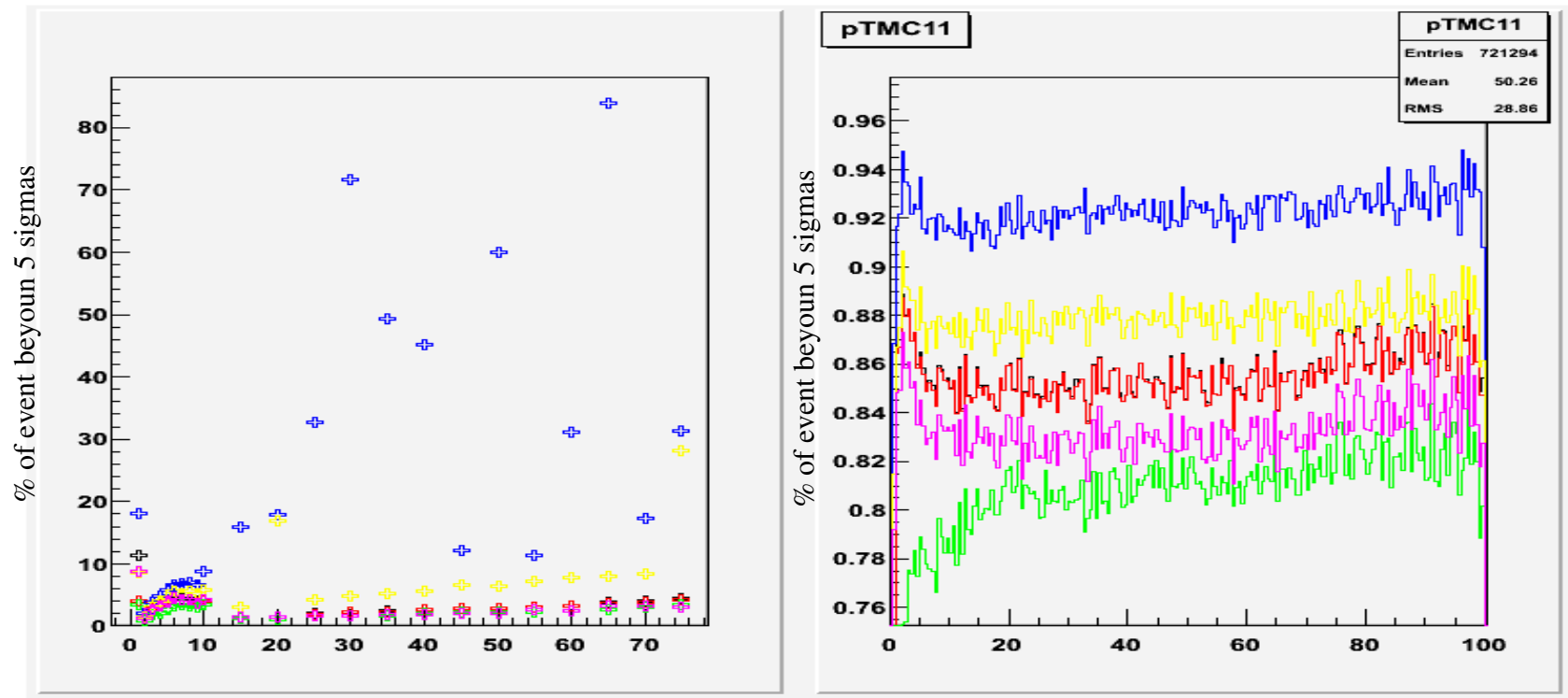
UN-WEIGHTED



WEIGHTED



Beyond 5 sigma in the resolution



Black : No kinks + TPC+ITS

Red : No Kinks + TPC + $pT/Err(pT) < 3$

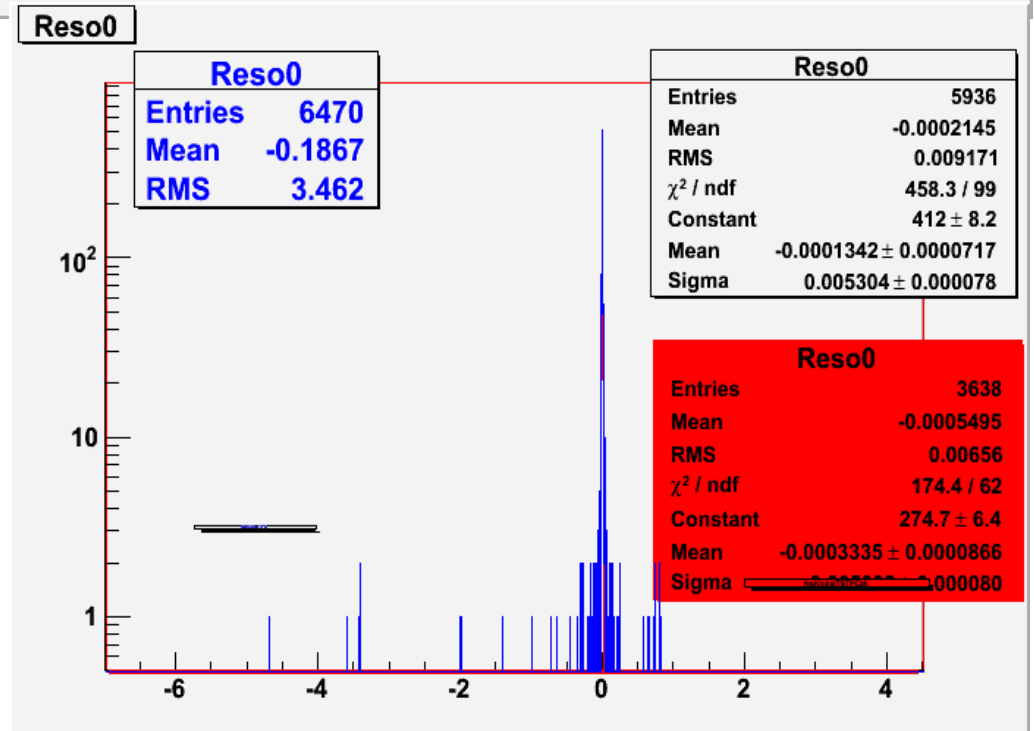
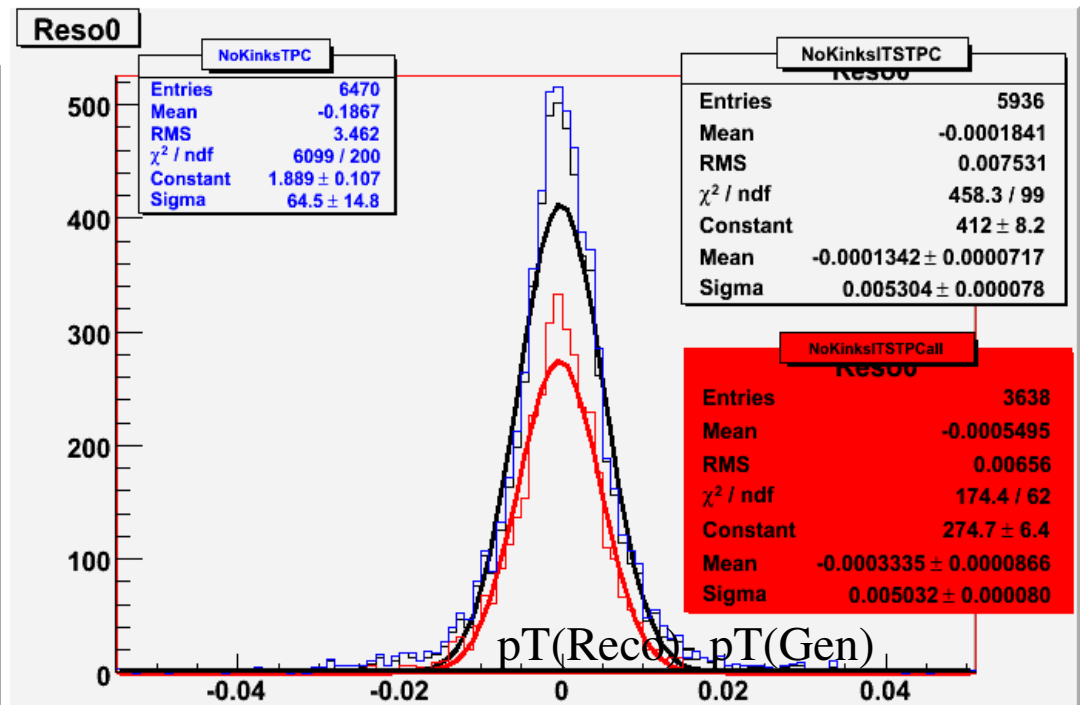
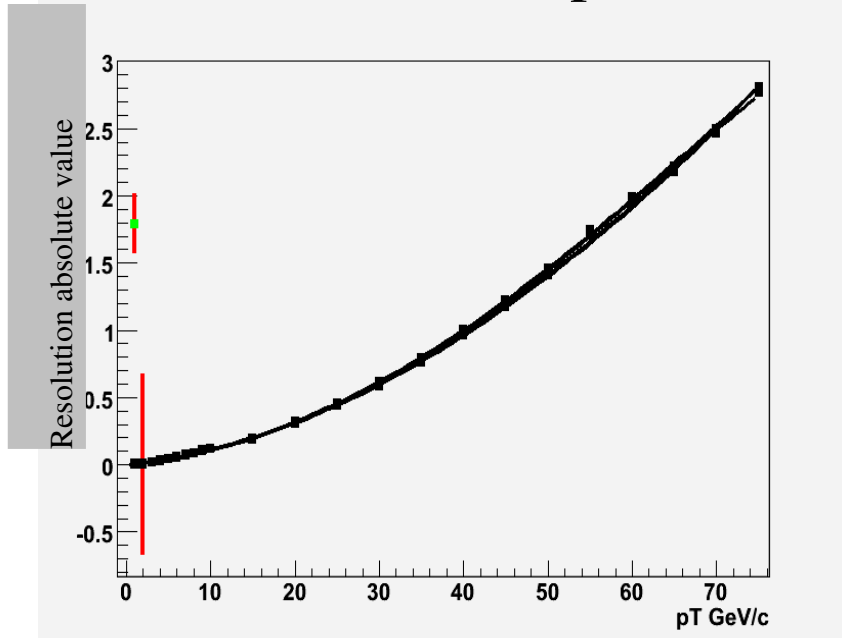
green: No kinks + TPC+ ITS + ALL

Blue: PWG0- DCA

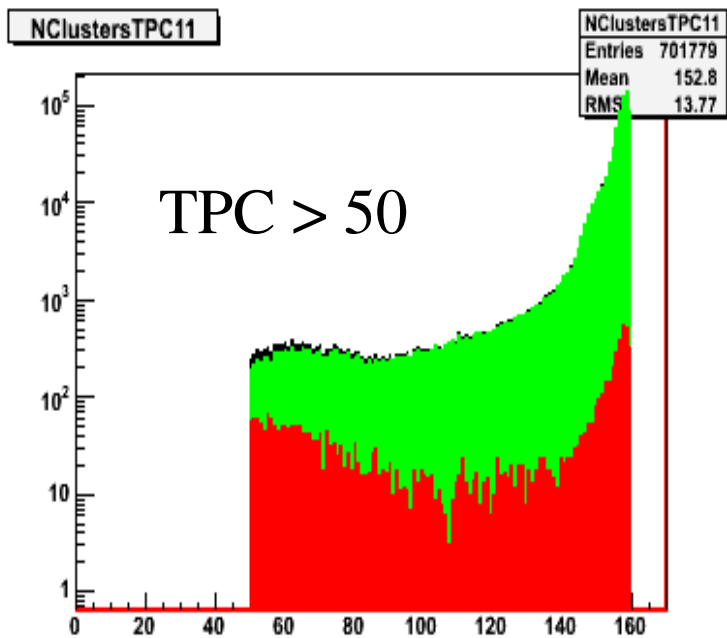
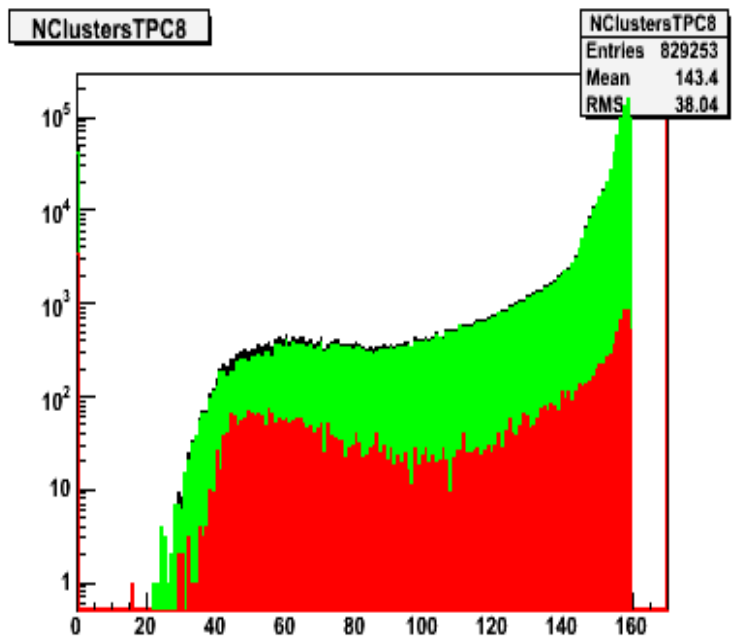
Yellow: PWG0

Magenta : PWG0+ITS

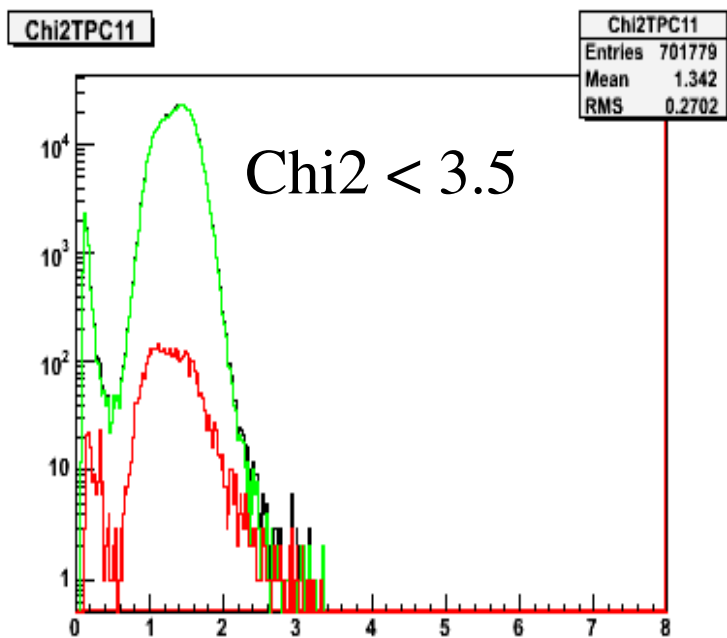
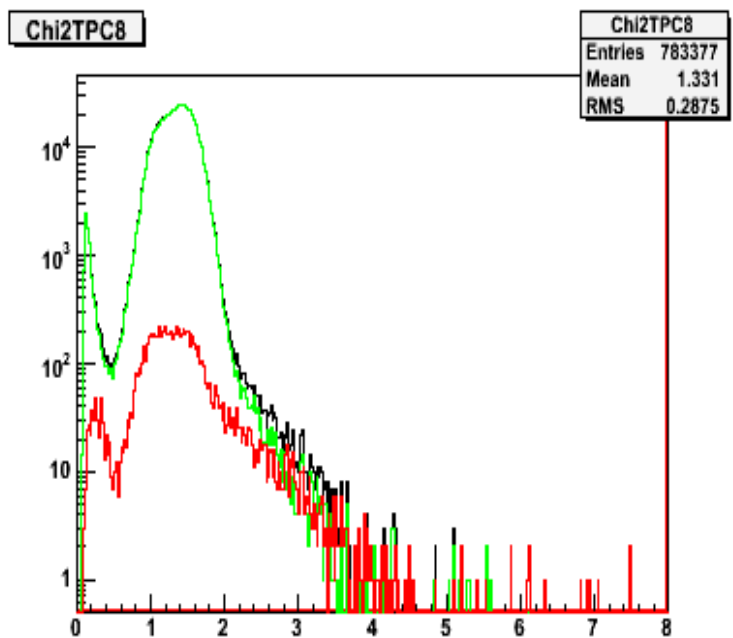
Resolution in pT



Diferent cuts do not affect the overall resolution the gaussian ia bout the same..

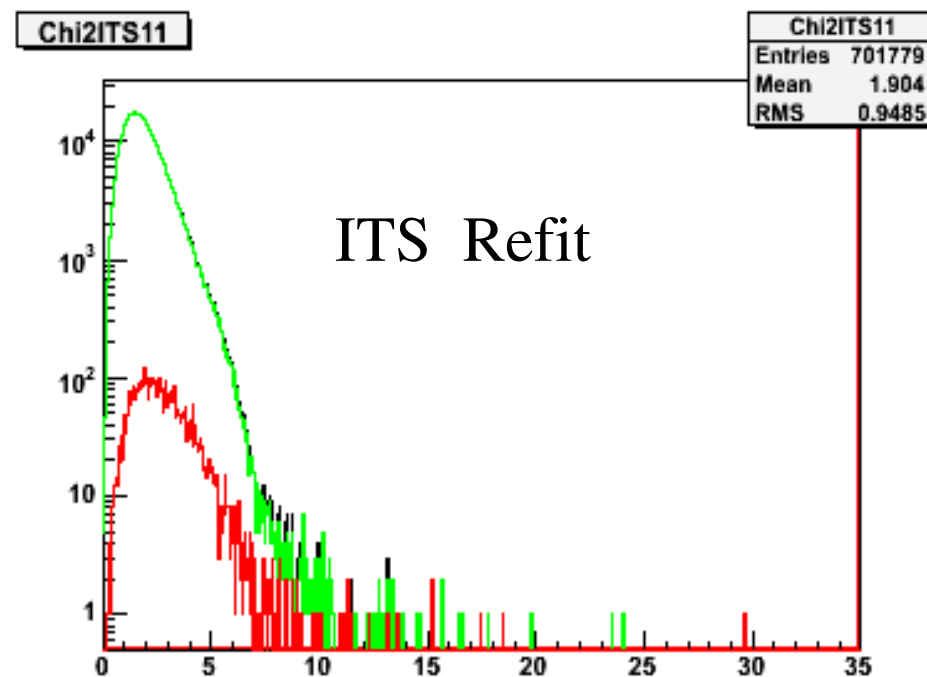
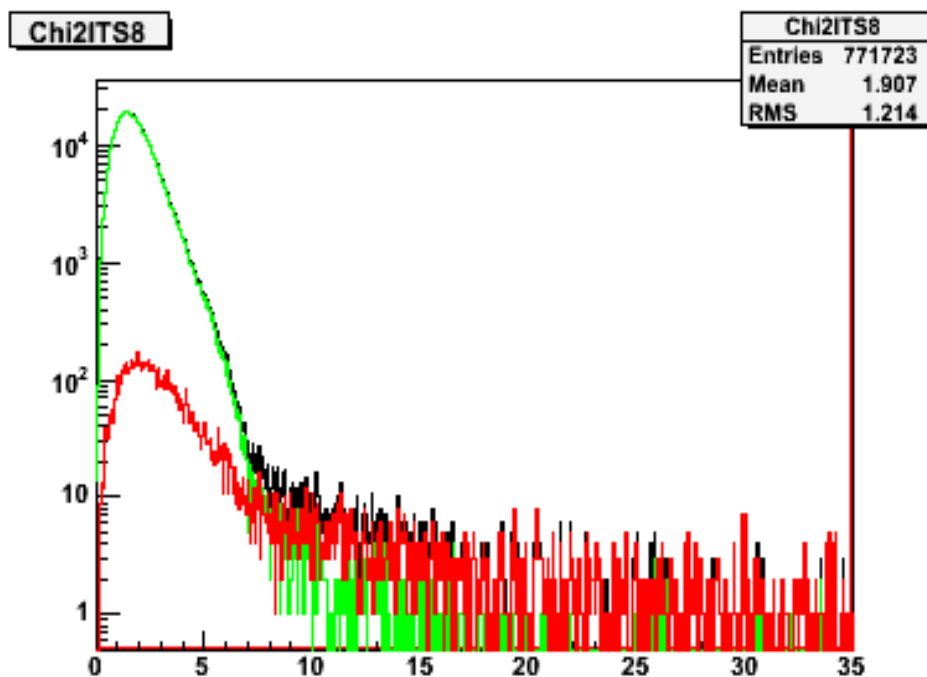
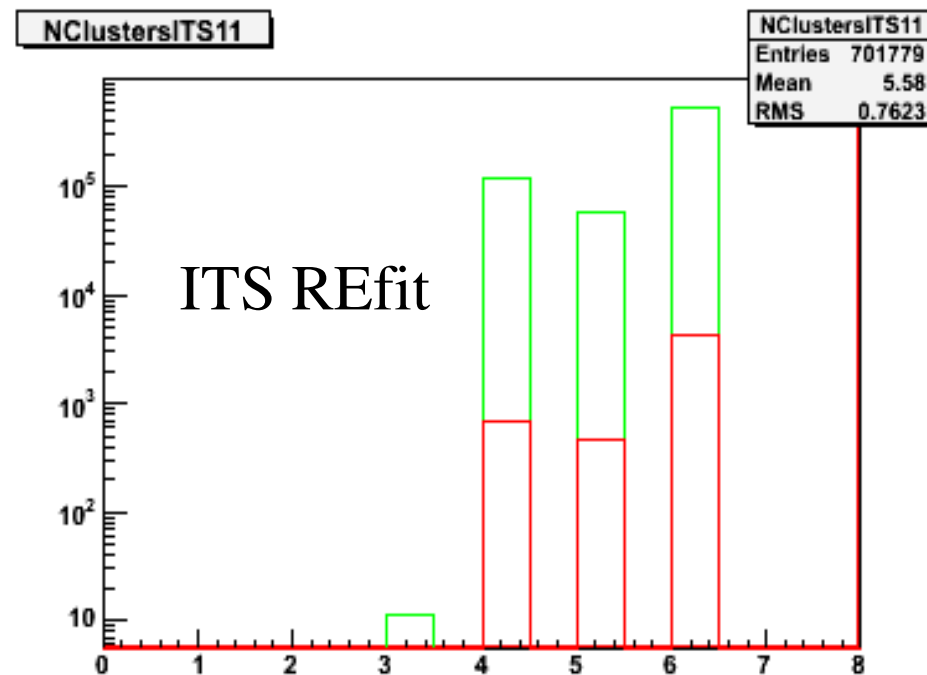
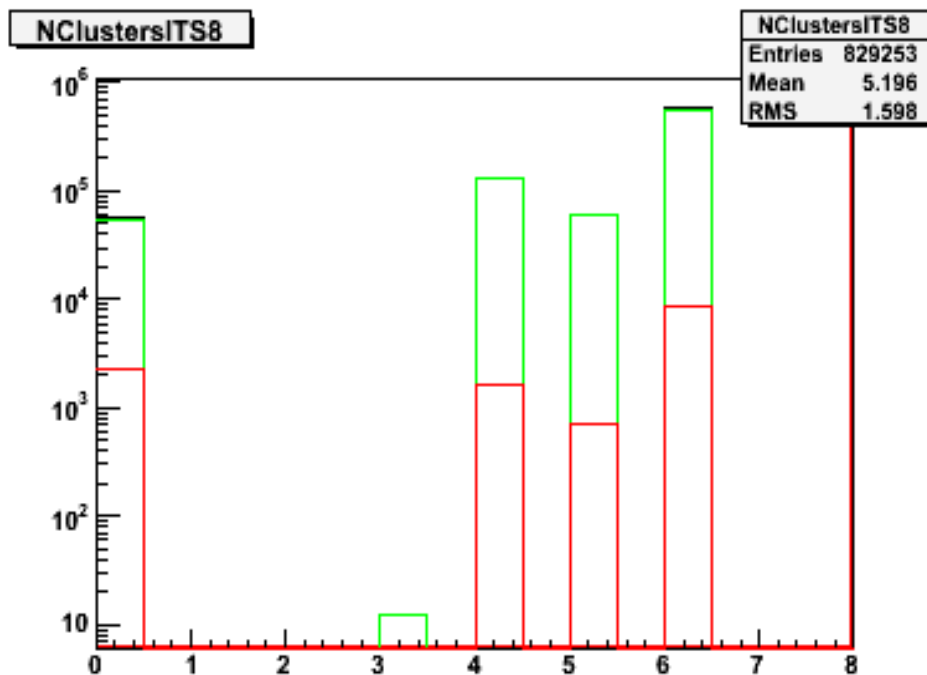


Analizing
PWG0
Cuts



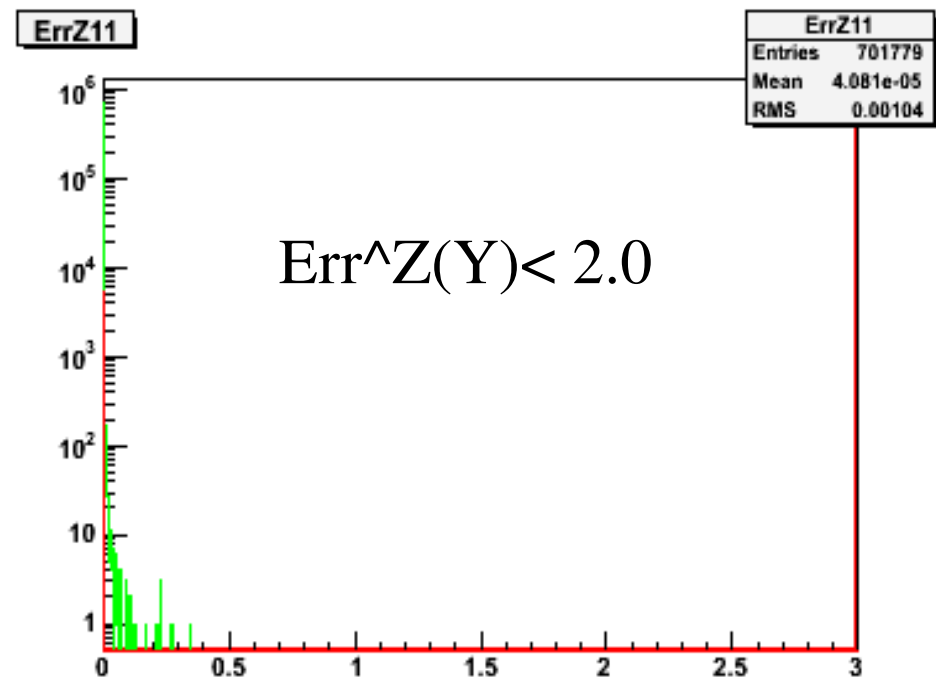
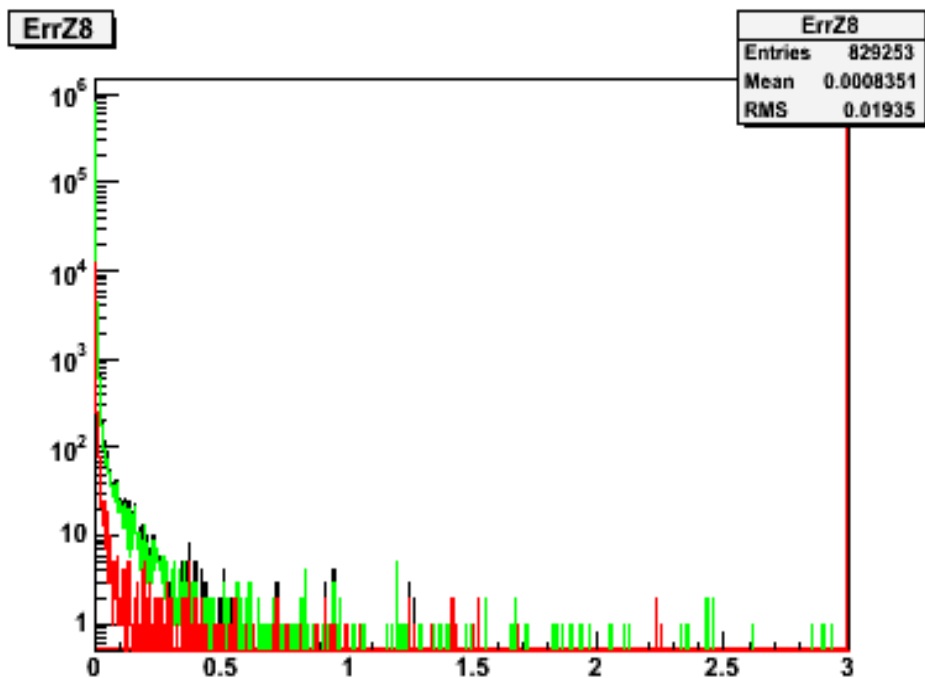
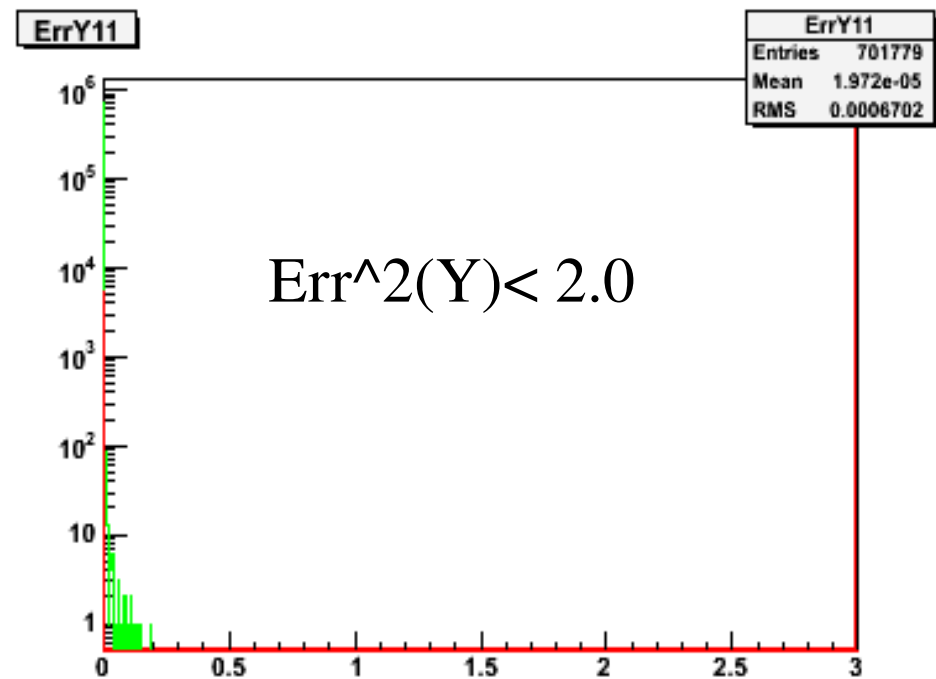
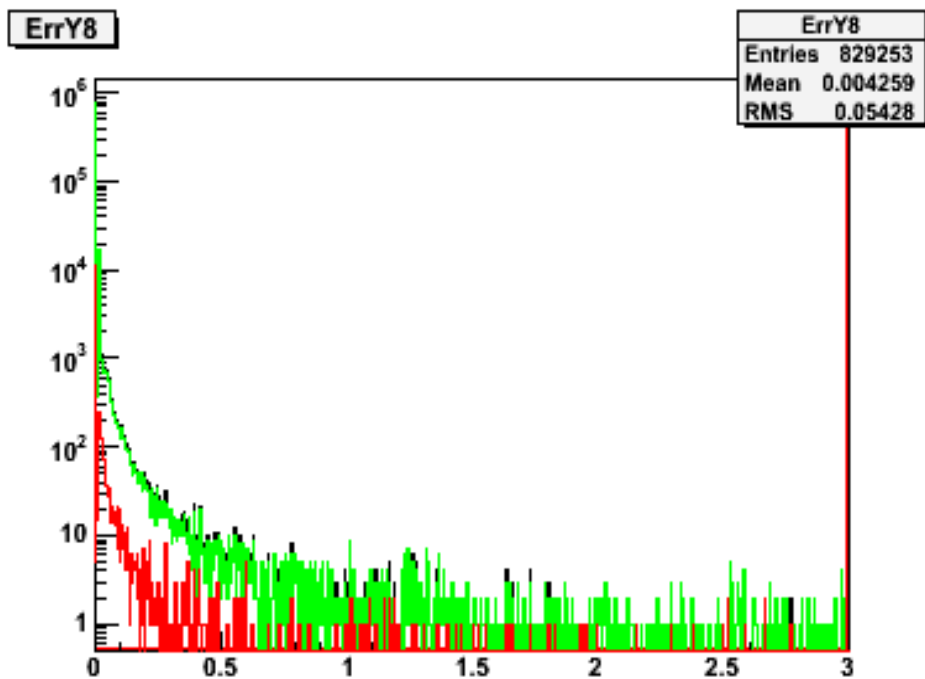
Before Cuts

After Cuts



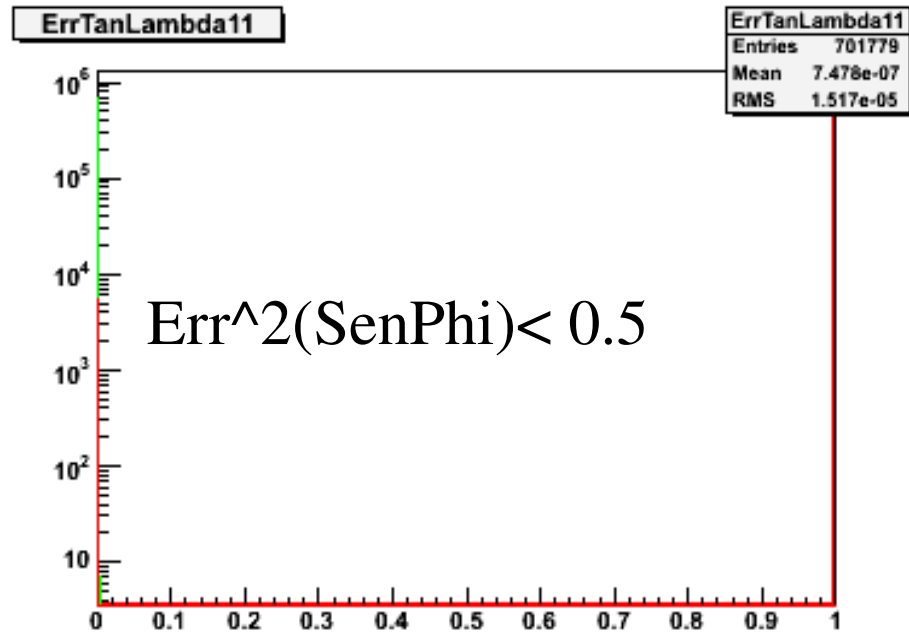
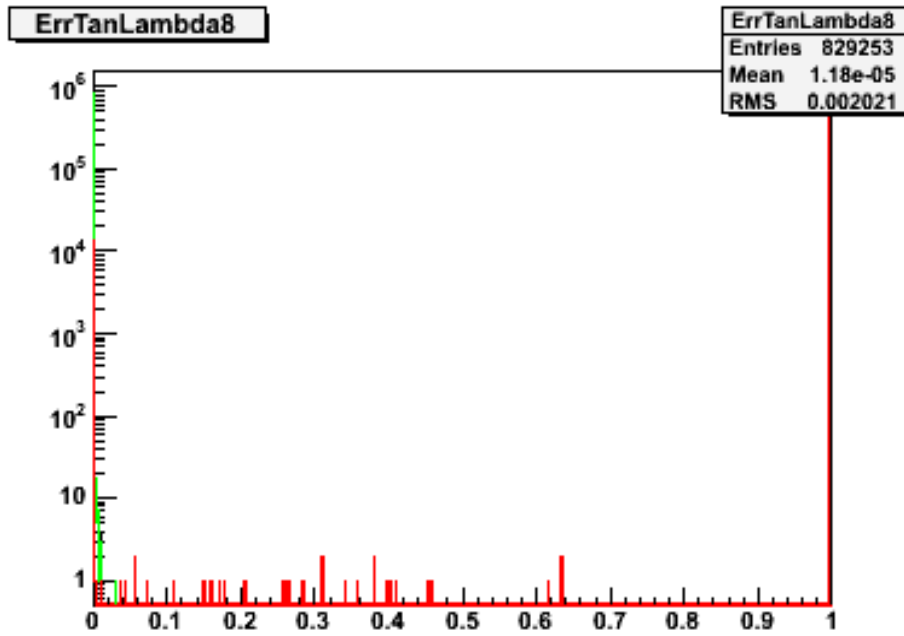
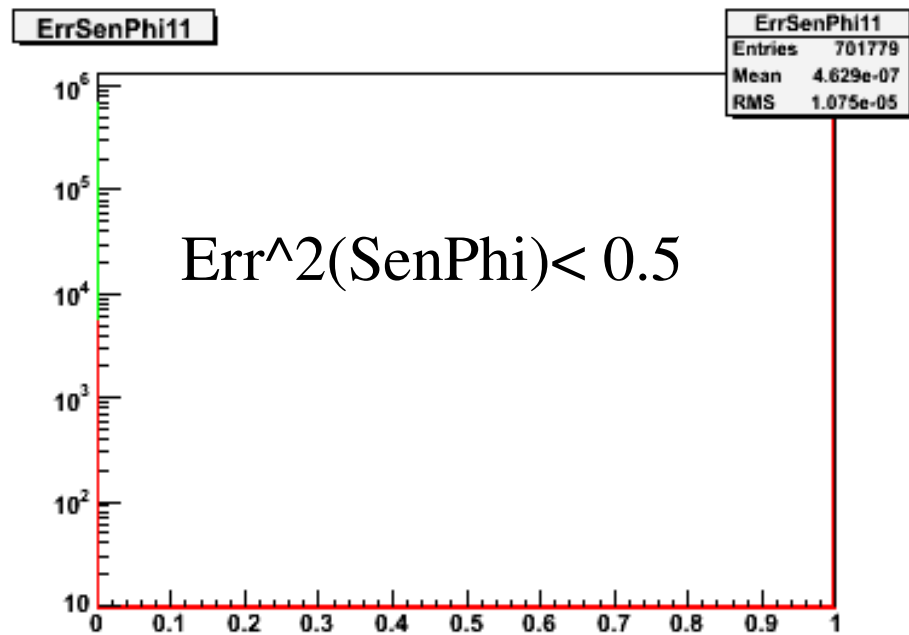
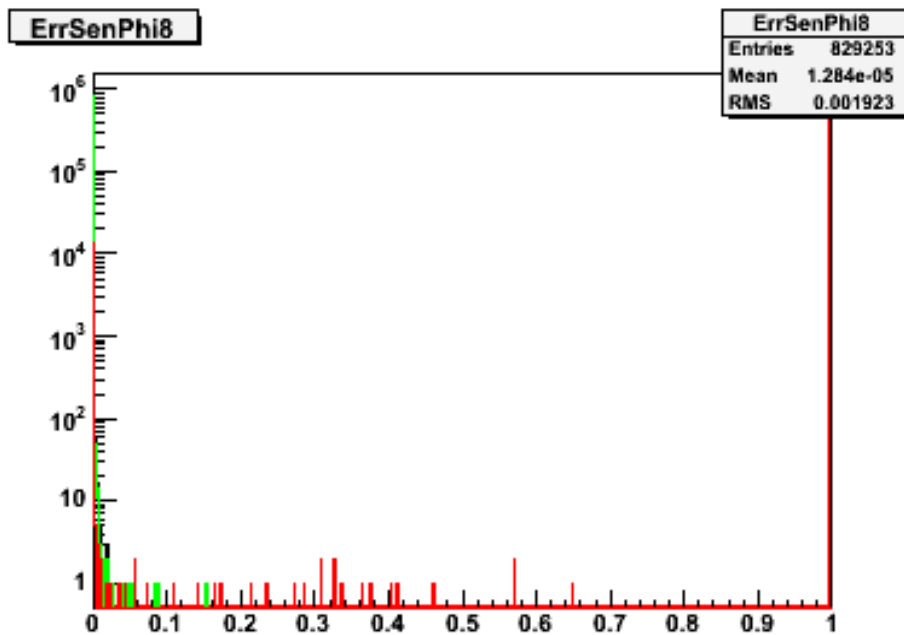
Before Cuts

After Cuts



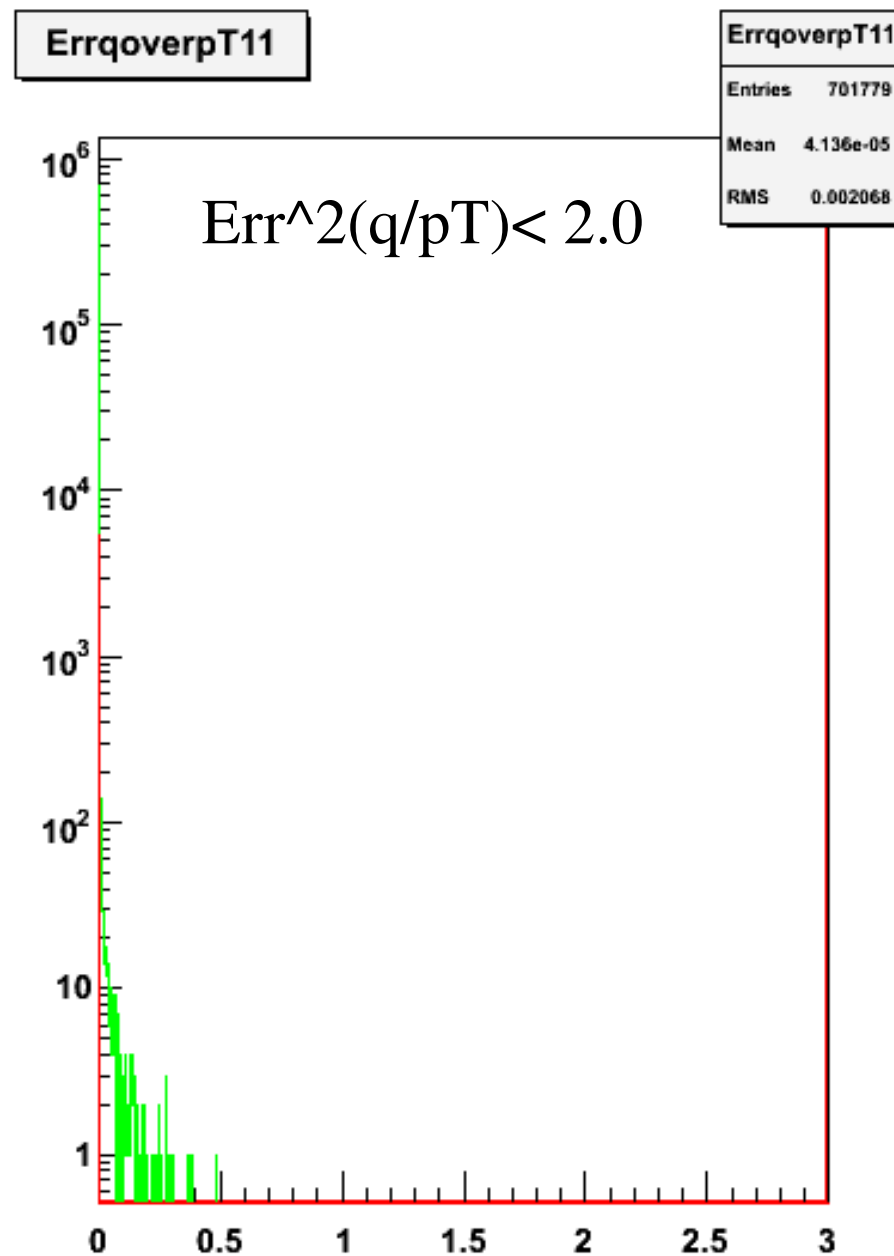
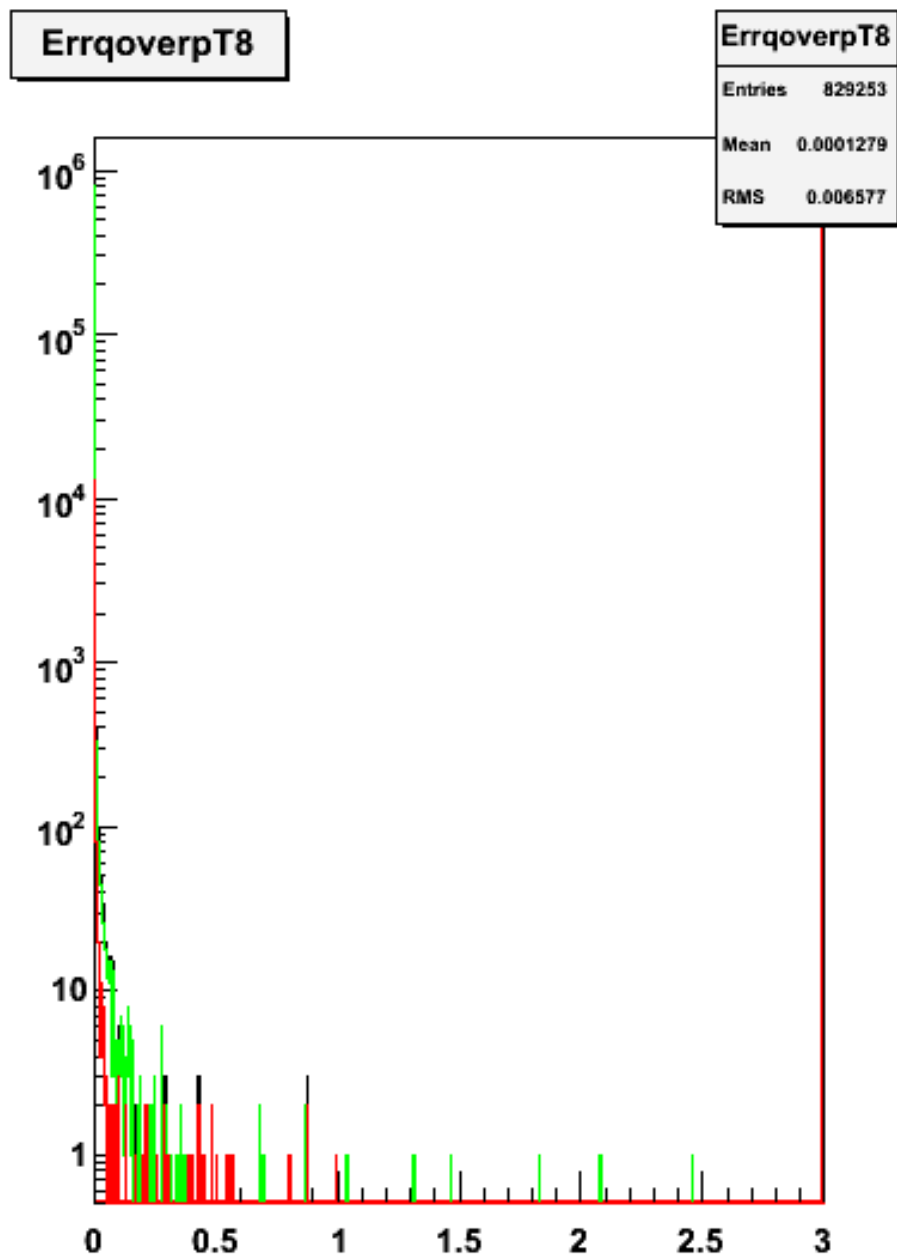
Before Cuts

After Cuts

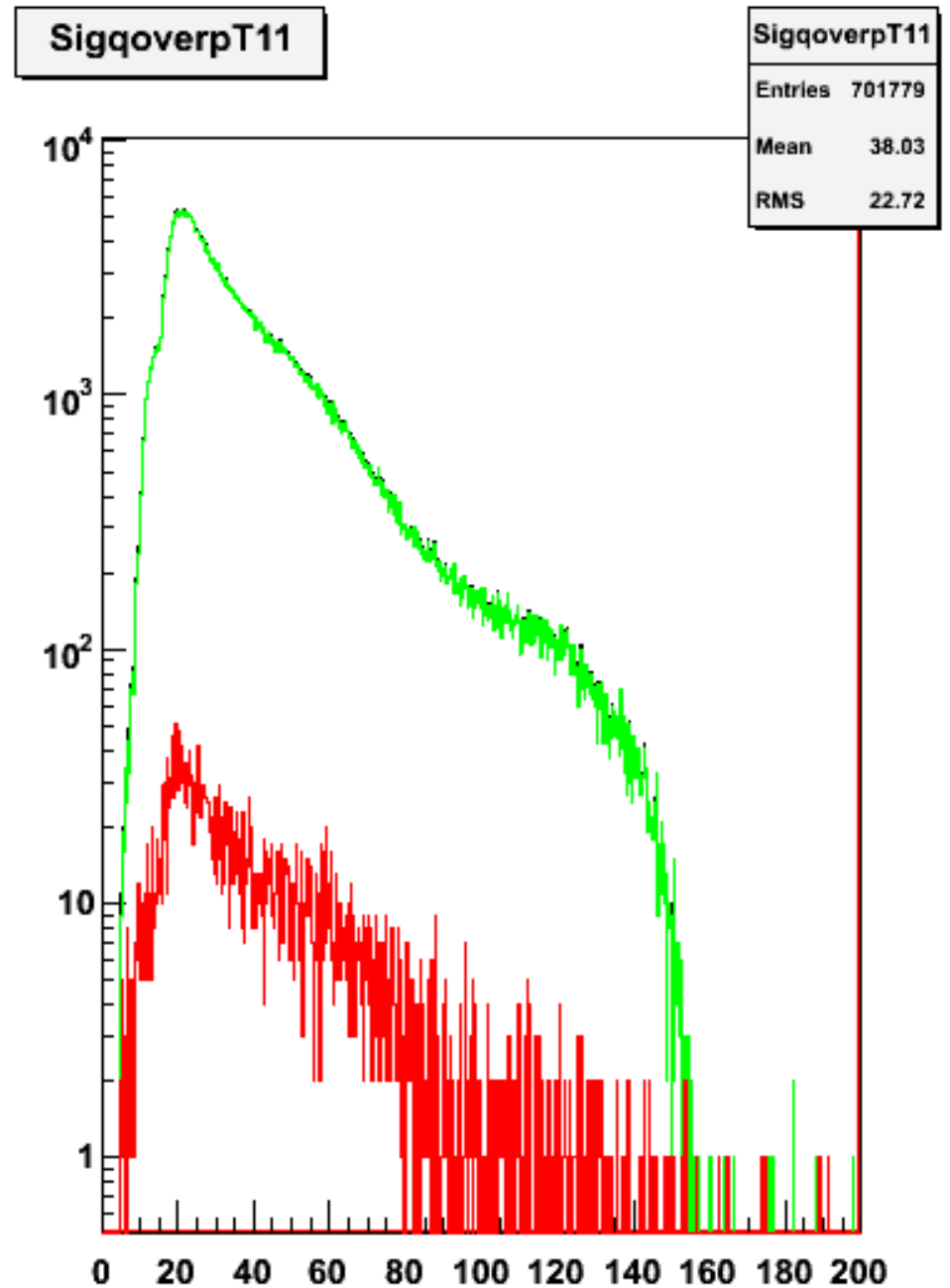
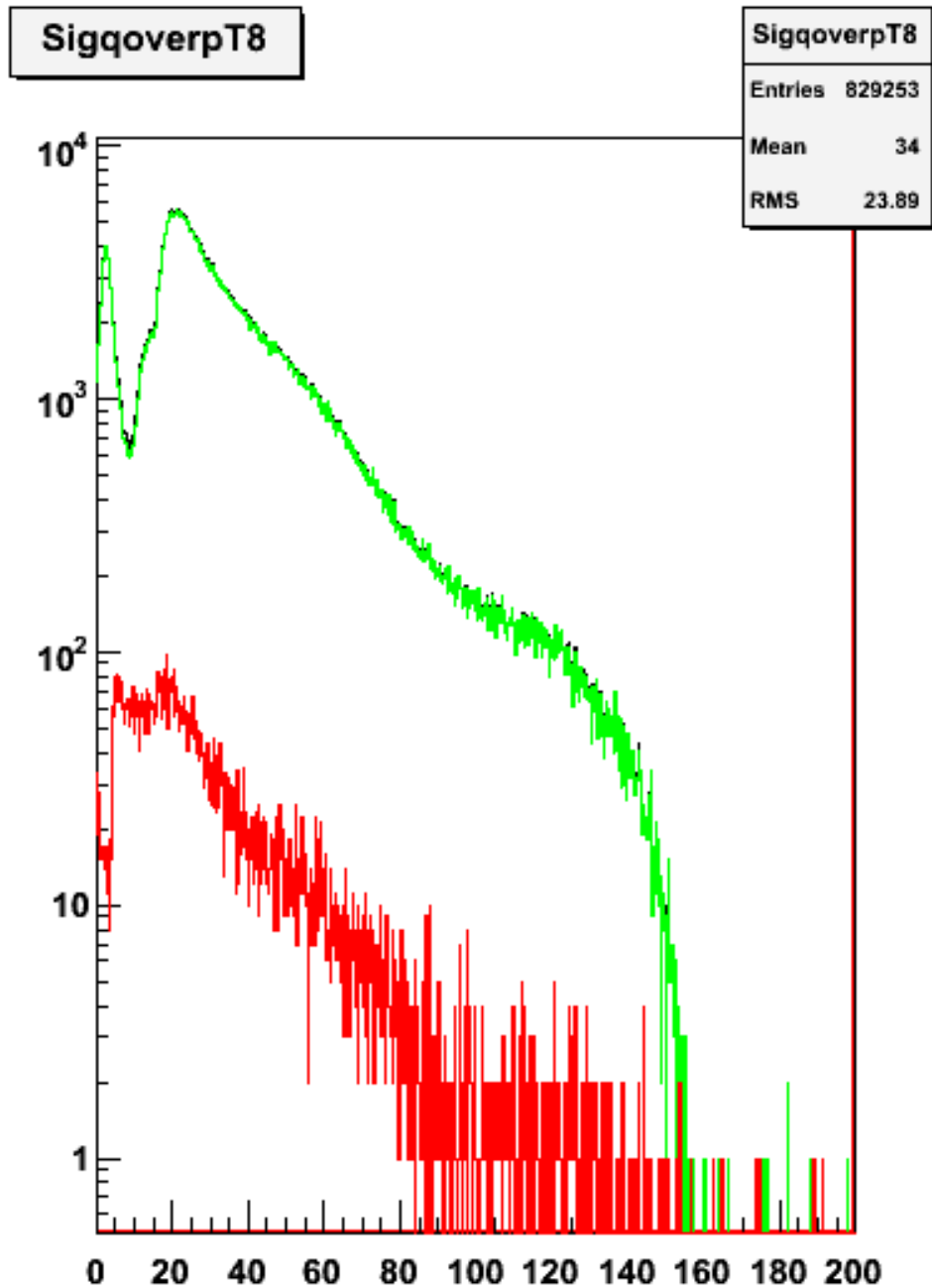


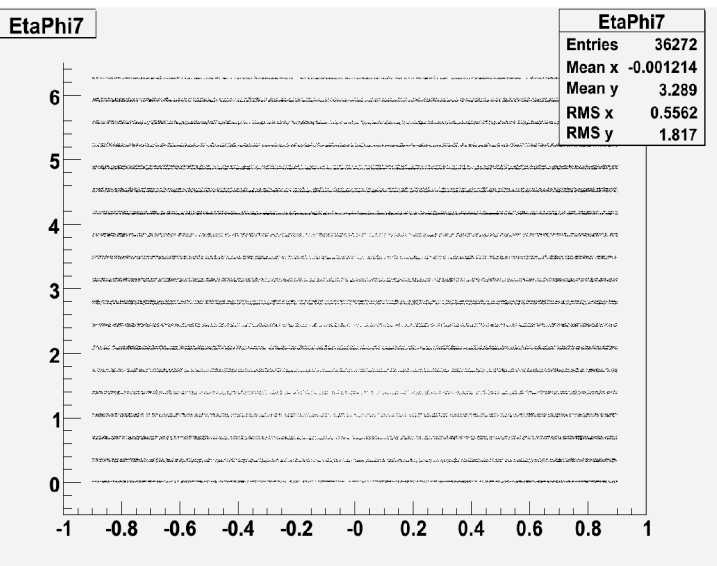
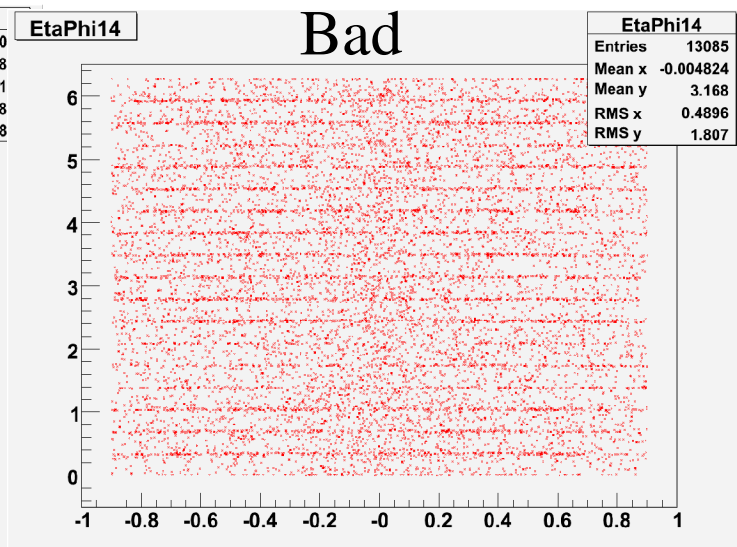
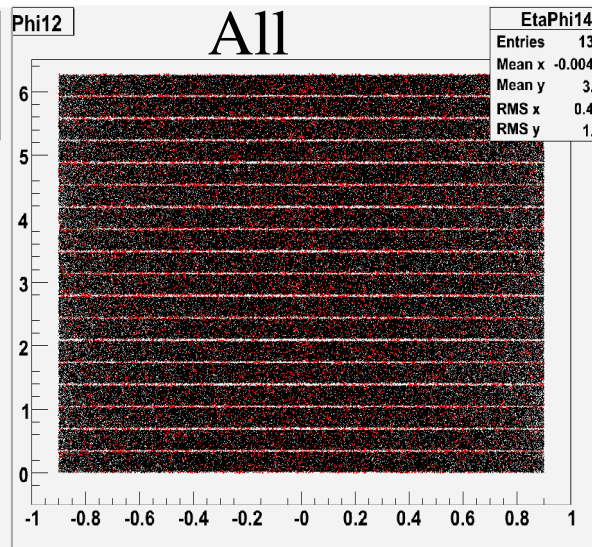
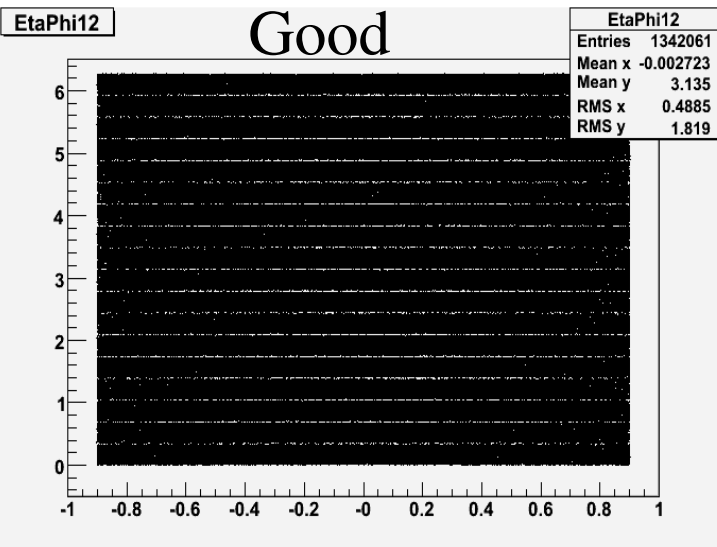
Before Cuts

After Cuts



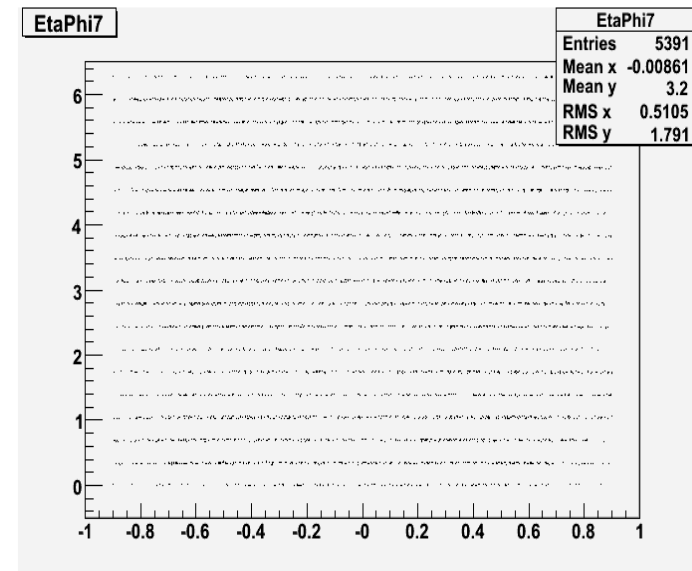
Another possible cuts oil other significances meaningless



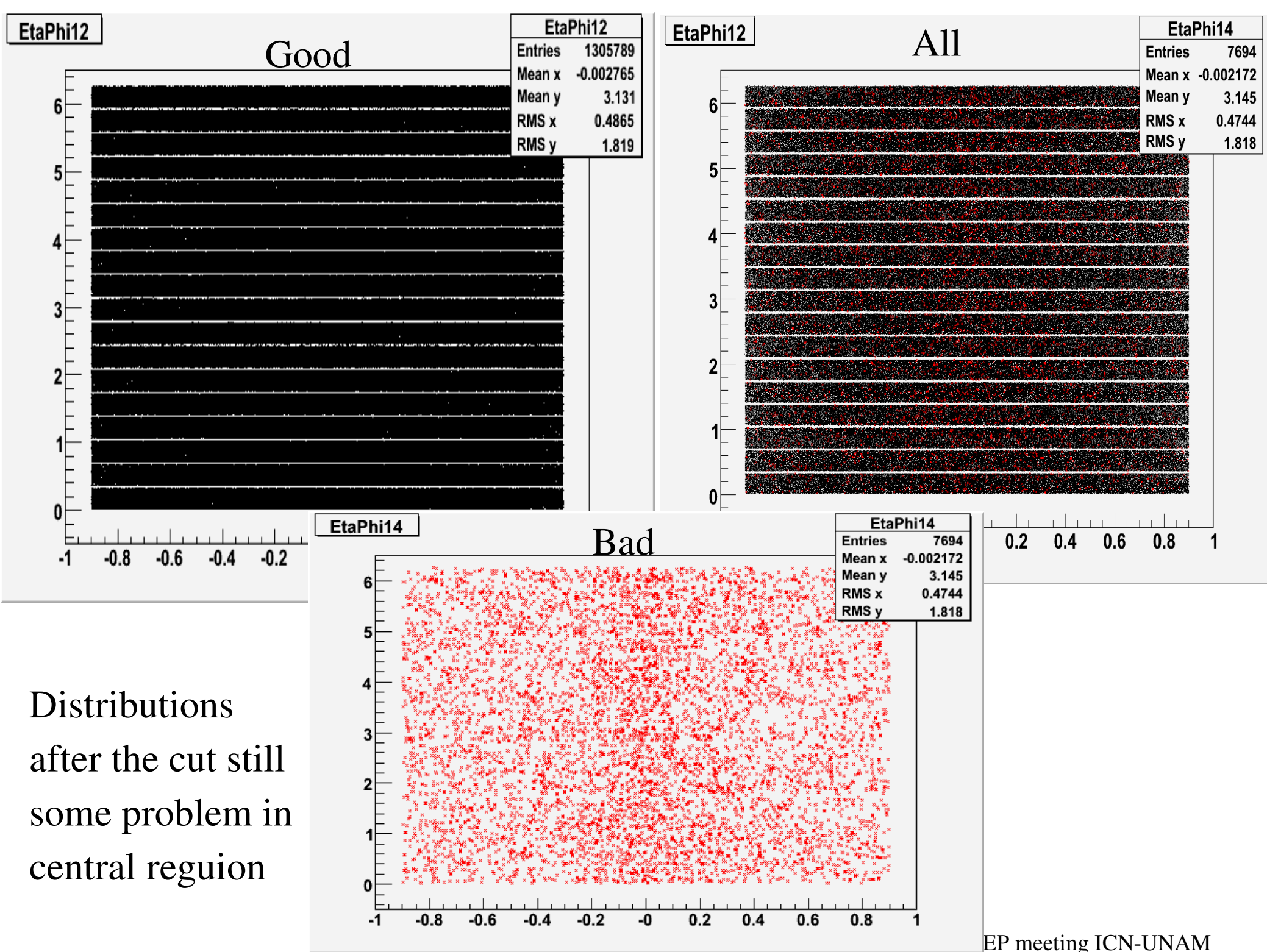


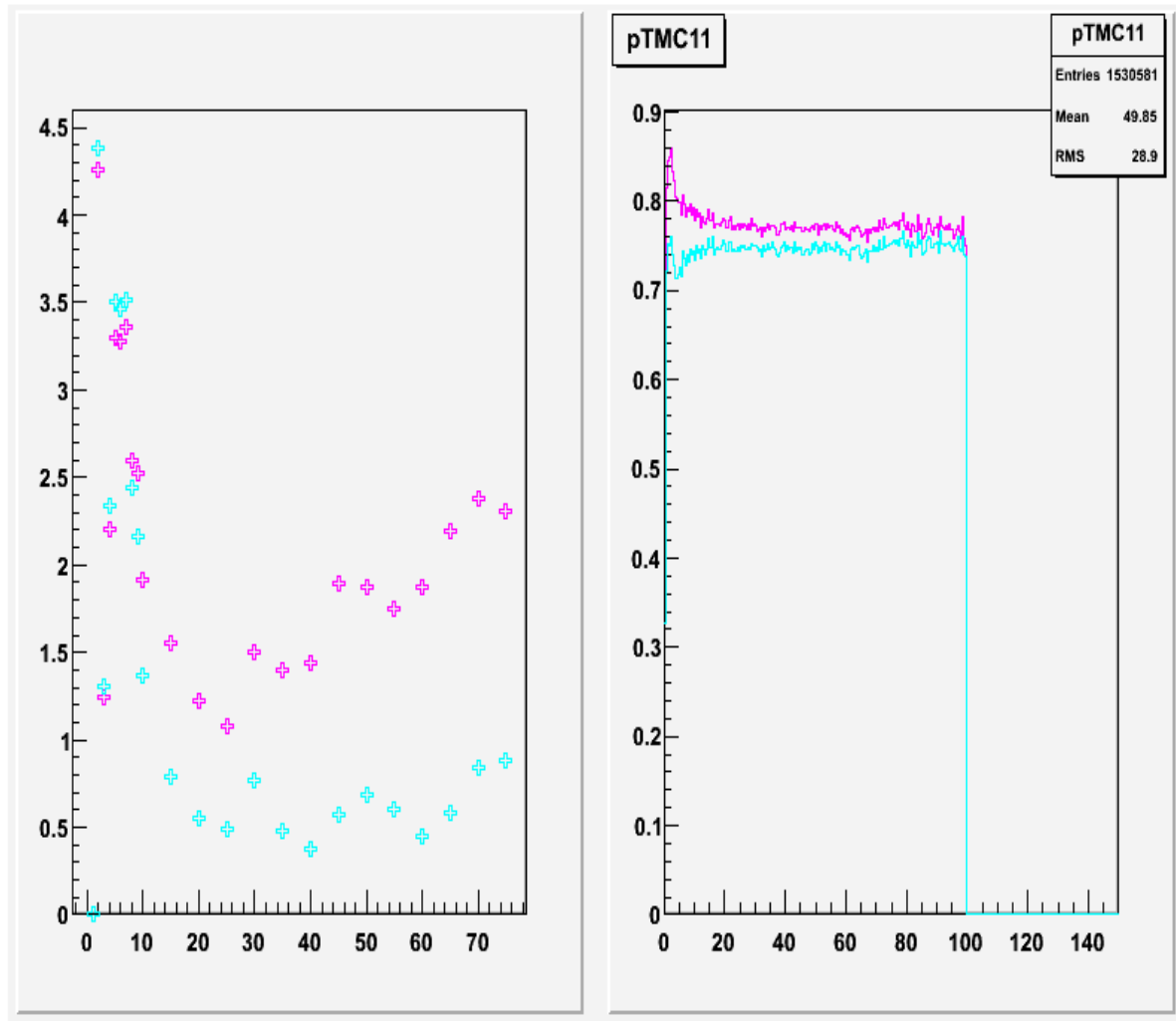
Look like strips in the bad tracks implement acut that eliminates this one

Cuts eliminates 2.72 % of the good ones and 41.0 % of the bad ones.



Possible bad reconstruction in the edges of the TPC sectors

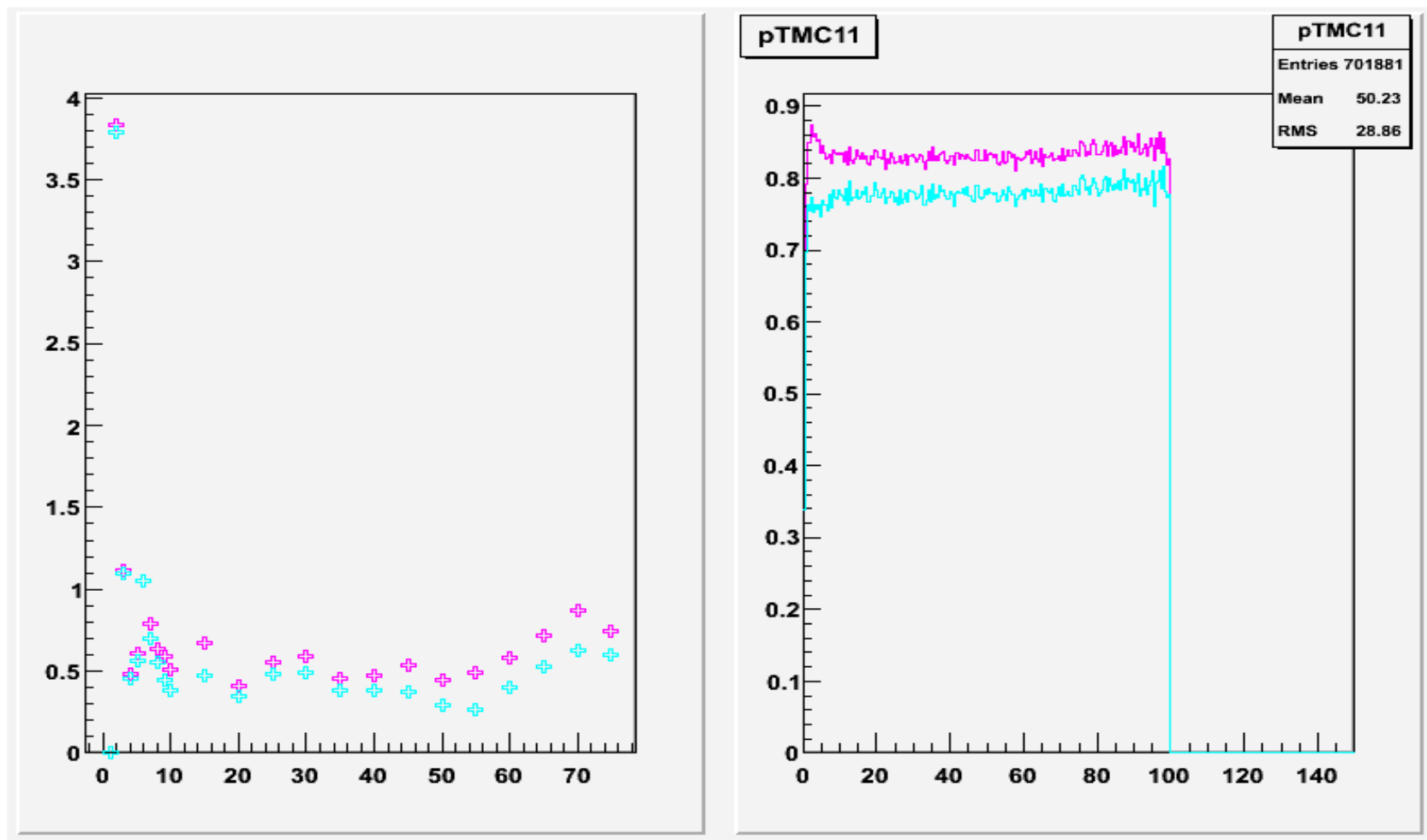




Magenta = PWG0+ ITS refit

cyan = PWG0+ ITS refit + Etaphicut

About 40% reduction depending of the pT for 3000 track multiplicity using resolution in pT



About 10% reduction depending of the pT for 900 track multiplicity using resolution in q/pT .

Runing in CAF using proof and MB events

Here we use selectors, I use a simple selector from the tutorial as base, To be able to analyze reco and generation need to load aliroot full

Use the sample

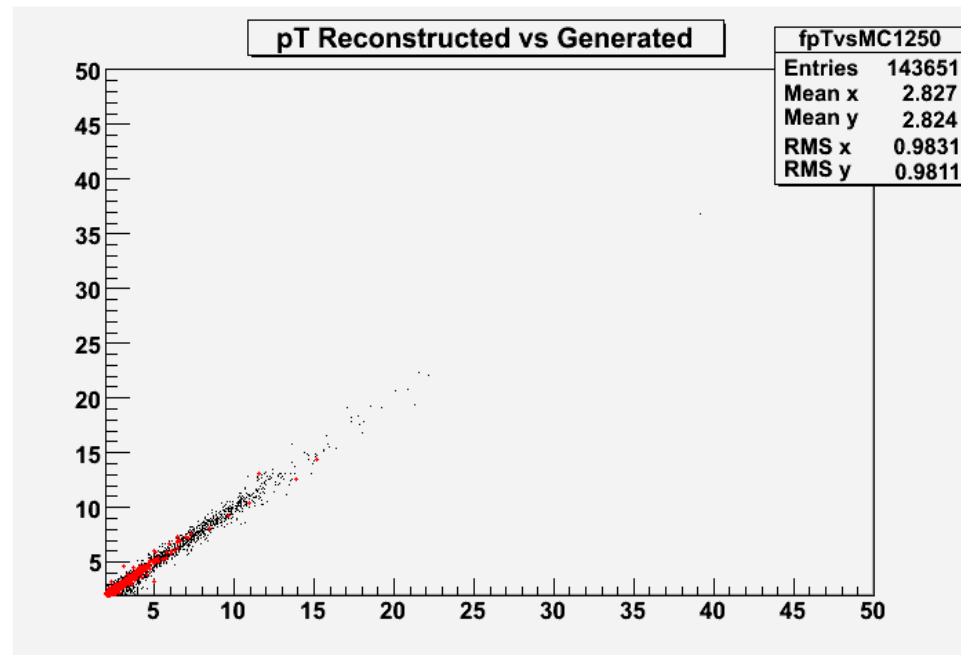
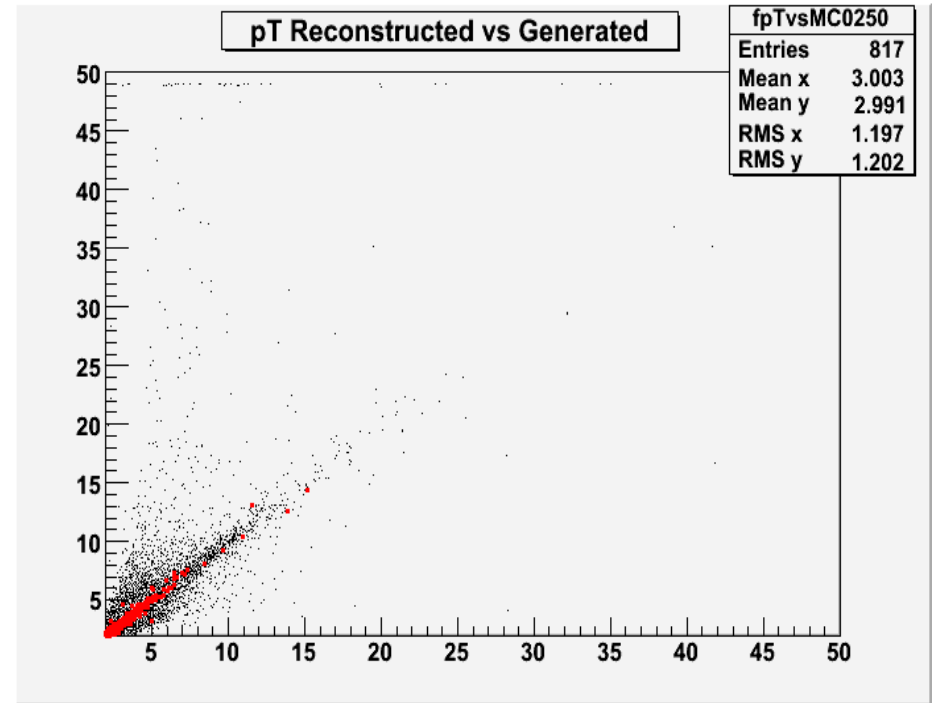
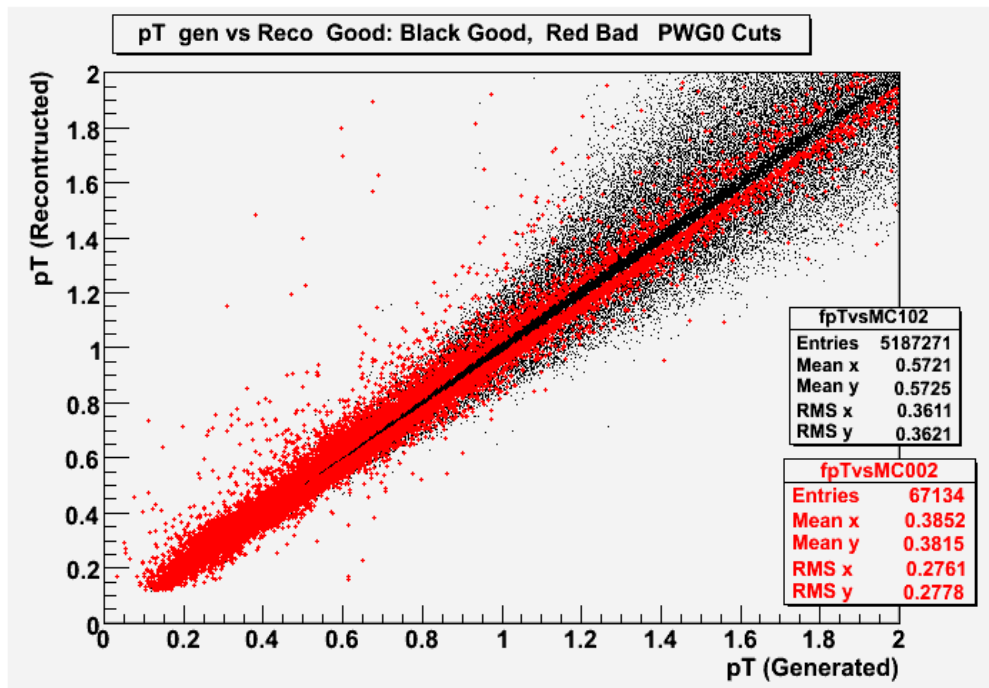
14 TeV pp minbias: 653600 events in 6536 files created with v4-04-Rev-07:

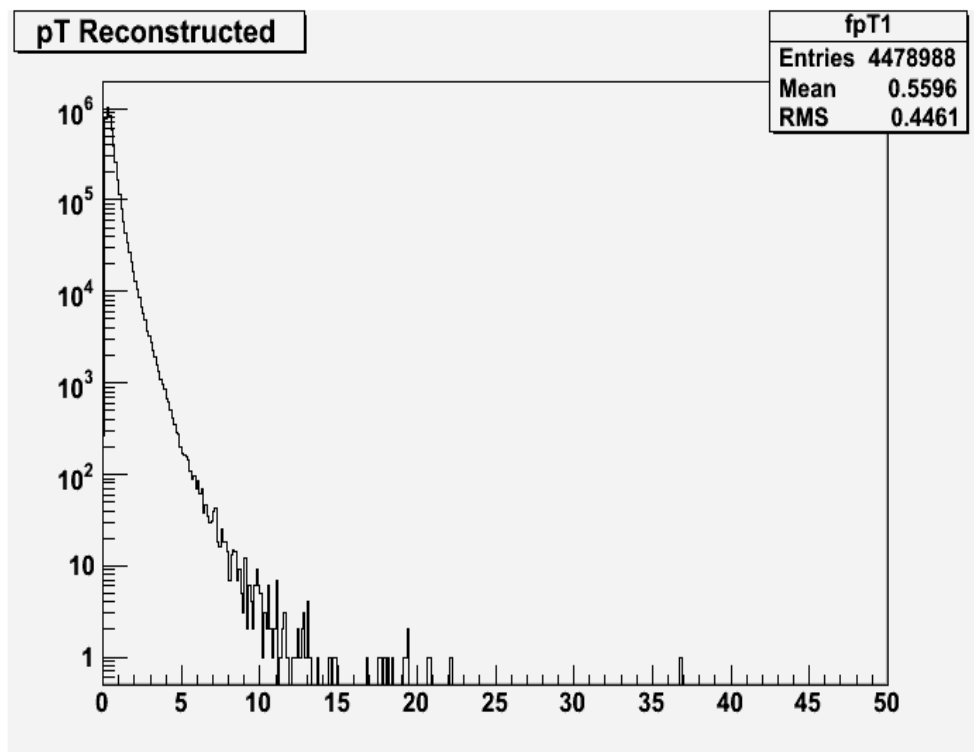
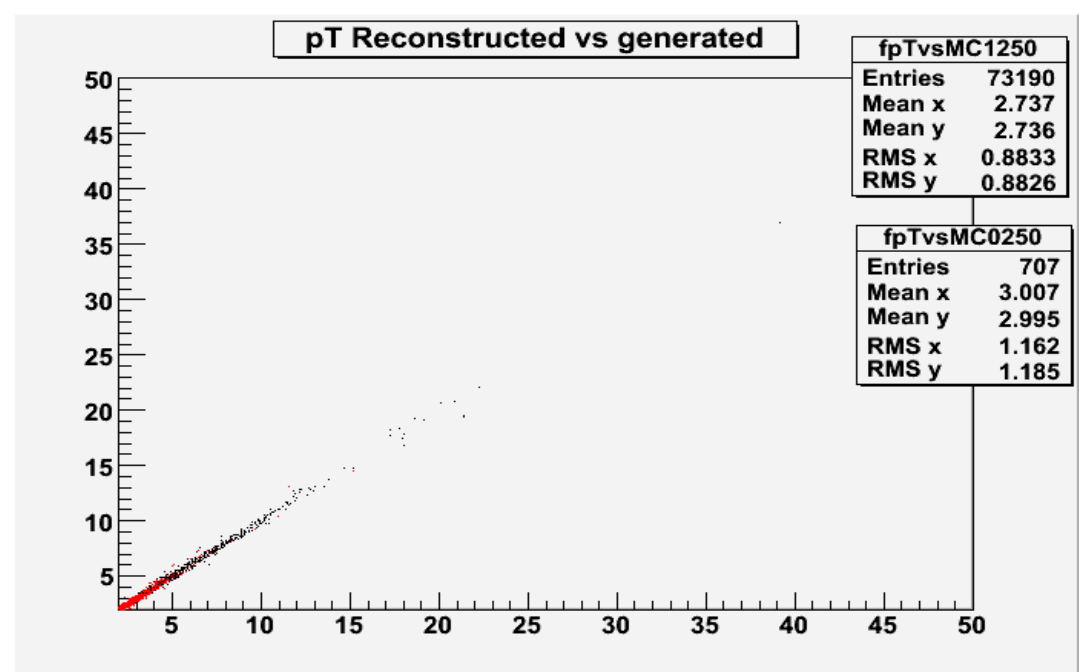
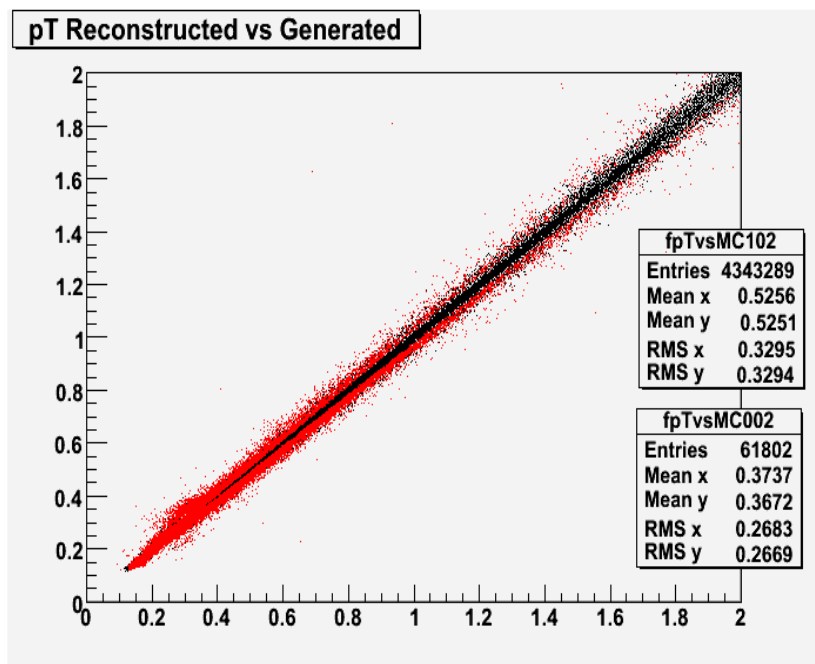
I only run over 6000 files ..

The objective us to have some PAR file so do not fully load Aliroot, I intend to follow the JetaAn example..

Thinking to integrate the QA in JetAn.

First View over the data: Only Kaon Pion and proton





Can no observe any very bad tracks statistics seem too low..

Going On :

Same analysis PDG06 using CAF

To do :

Generation of a bigger AliGenBox sample form 0 -200GeV

Analysis over a JETS events..

I want to do some test with the head since results from the last time. I observed a drop in efficiency.

But I still need information from Joury or Marian since they changed the material .. and maybe the definition of kinks..