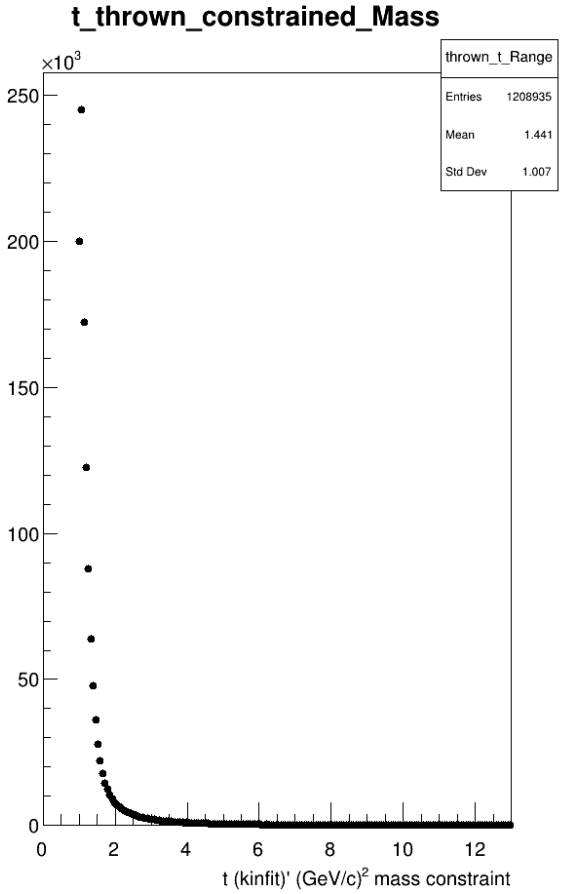
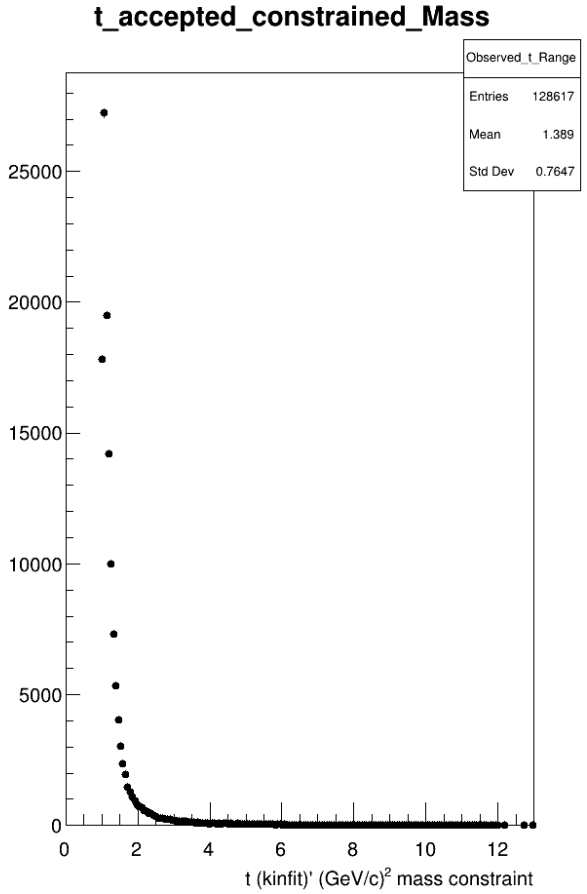
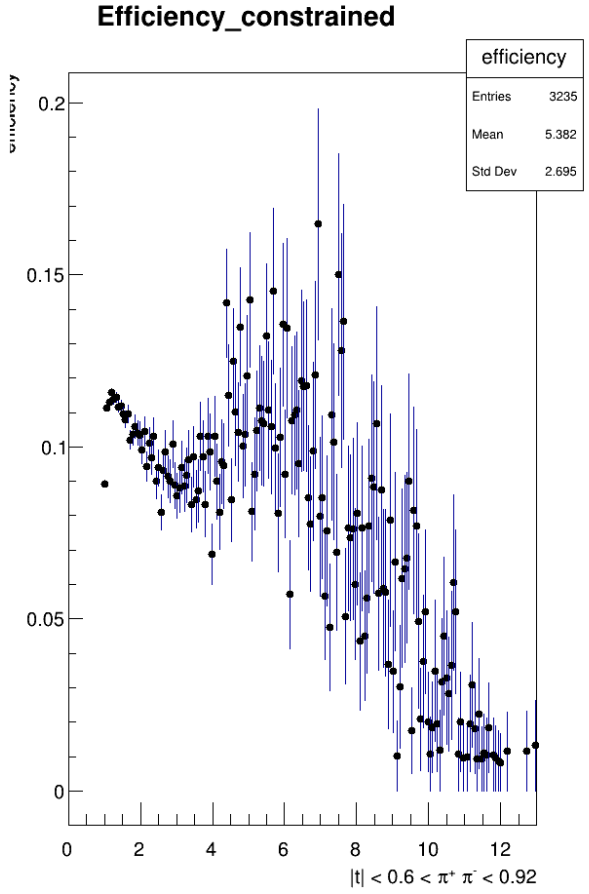
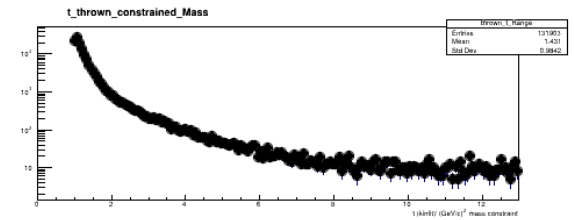
Efficiency for E (8.0,9.0)

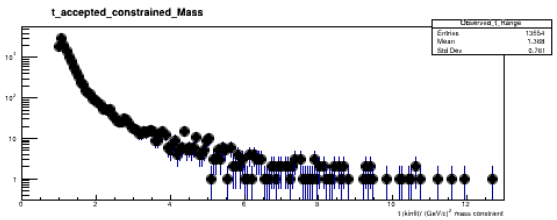


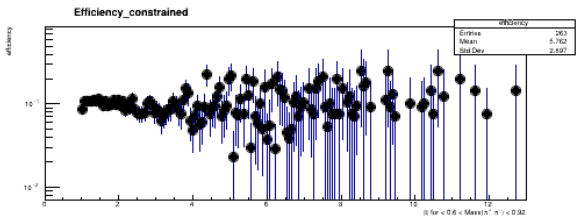


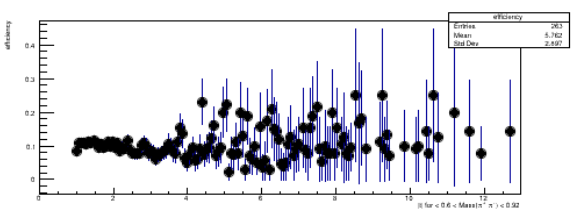


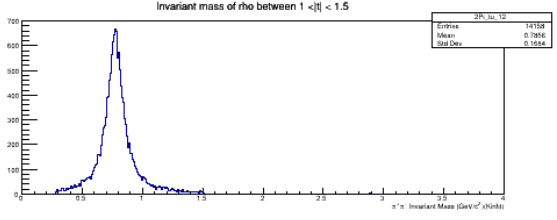
0)Cut on Energy (8.42-8.47)

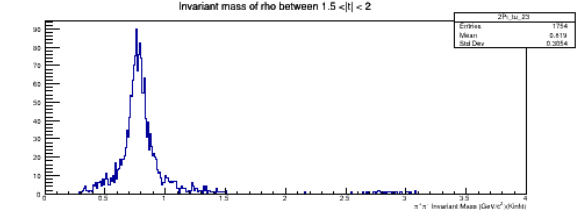


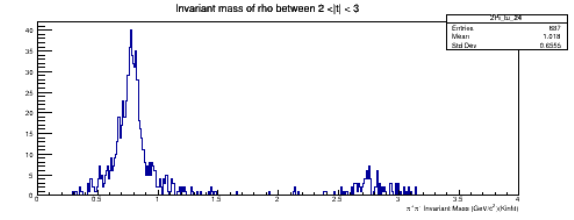


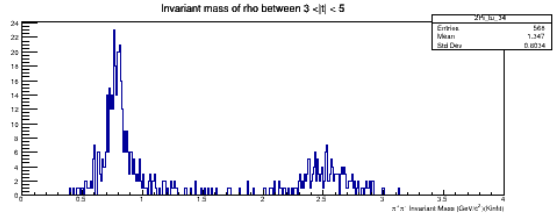


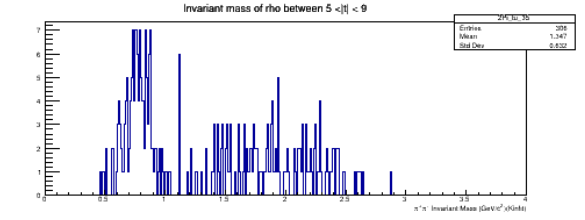










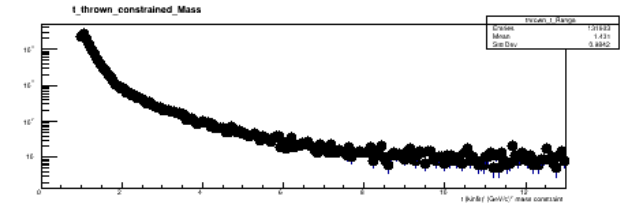


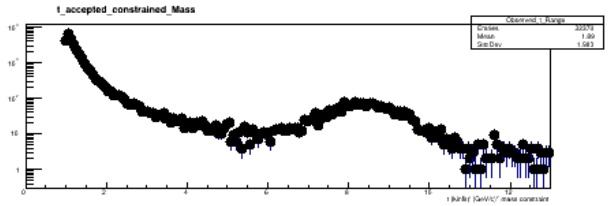
List of Cuts applied

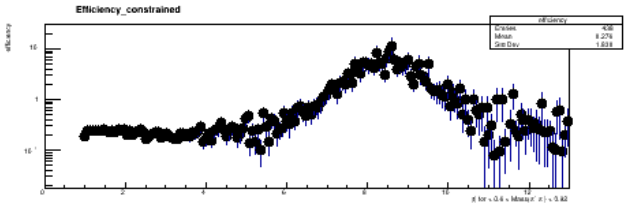
BeamEnergy (8.42 -8.47 GeV)
All cut on data

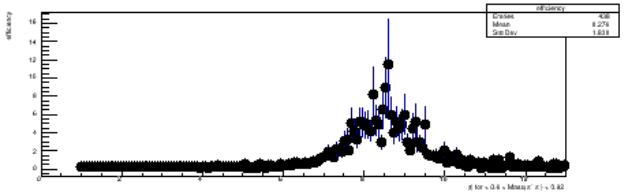
PID > 0.01

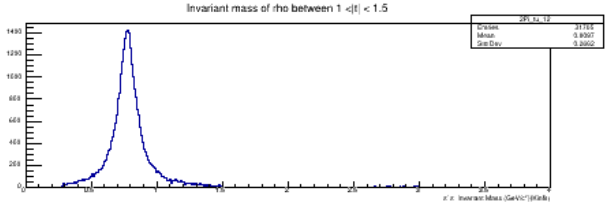
1) CL, track & shower cut

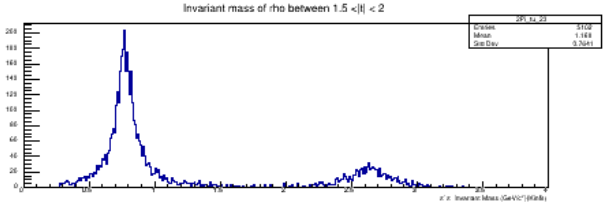


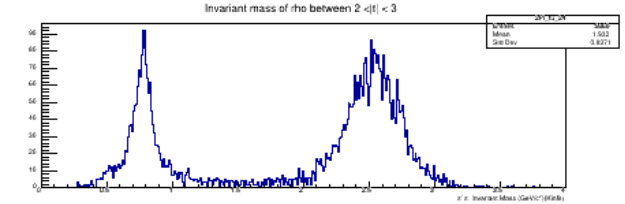


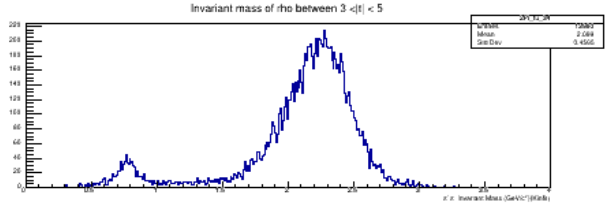


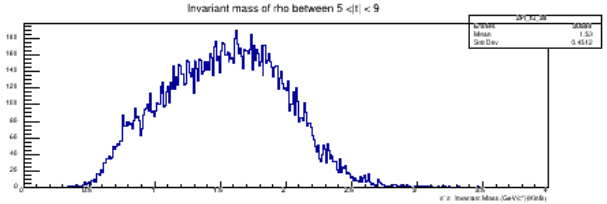








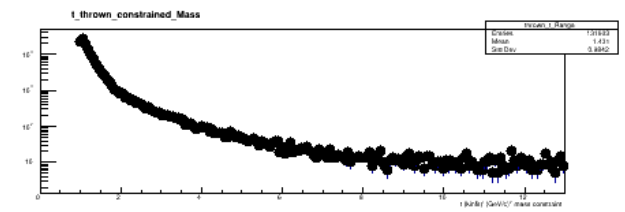


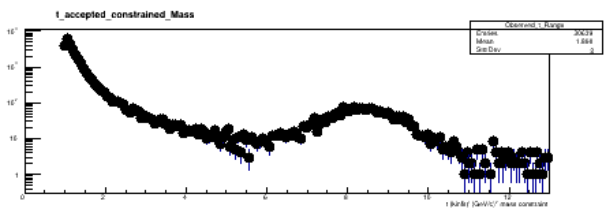


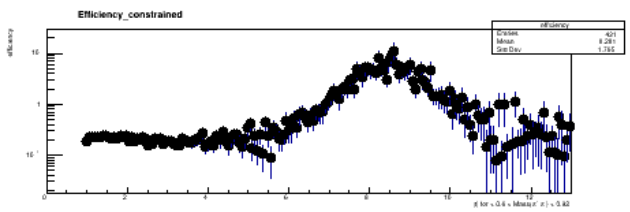
List of Cuts applied

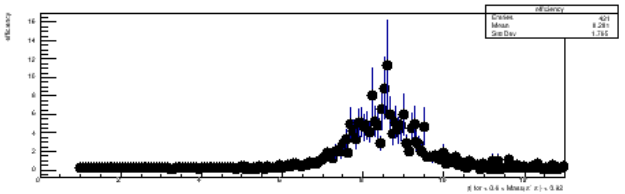
BeamEnergy (8.42 -8.47 GeV)
No extra track & shower
|t| and |u| > 1
c.L > 0.001

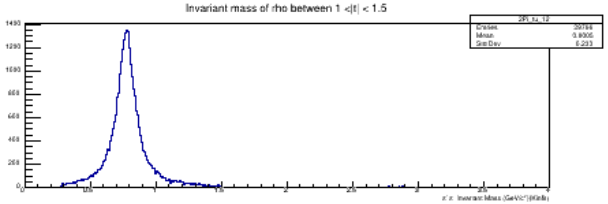
2) Includes coplanitary cuts

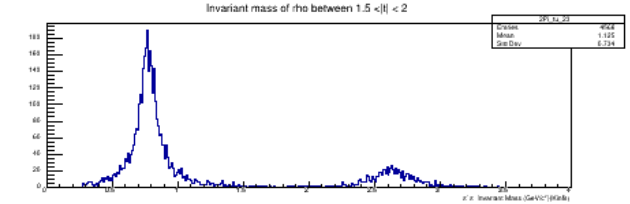


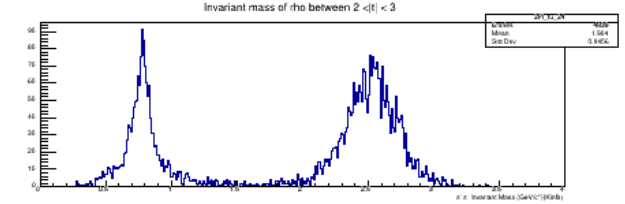


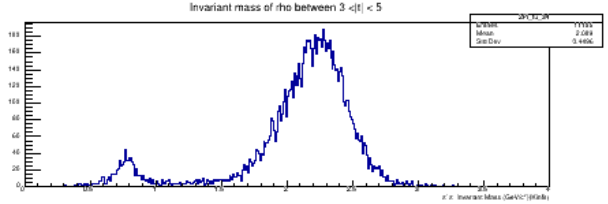


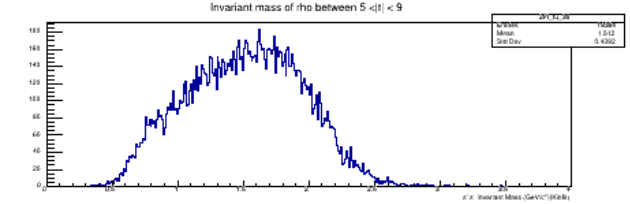










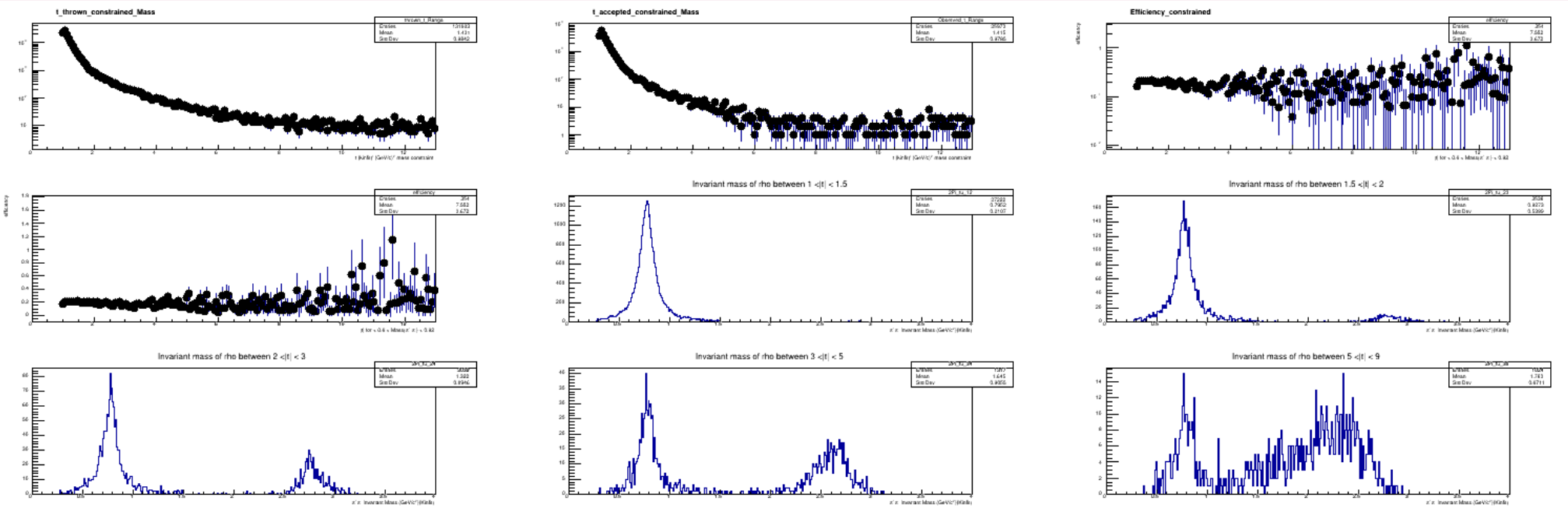


List of Cuts applied

BeamEnergy (8.42 -8.47 GeV)
No extra track & shower
|t| and |u| > 1
c.L > 0.001
coplanitary(170,180)

Cuts on confidence level, extra shower, tracks and coplanitary only is not helping to suppress the background

3) Inclusion of pMinus

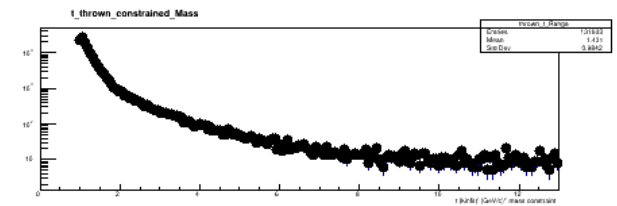


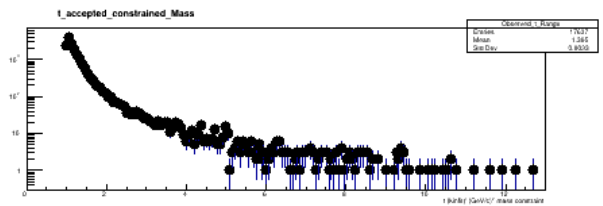
List of Cuts applied

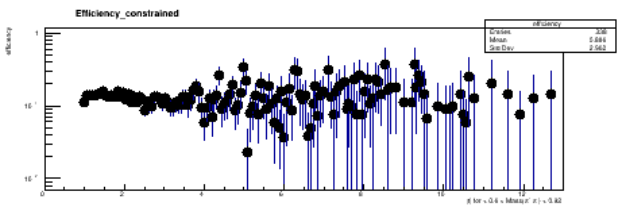
BeamEnergy (8.42 -8.47 GeV)
No extra track & shower
|t| and |u| > 1
c.L > 0.001
coplanitary(170,180)
pMinus

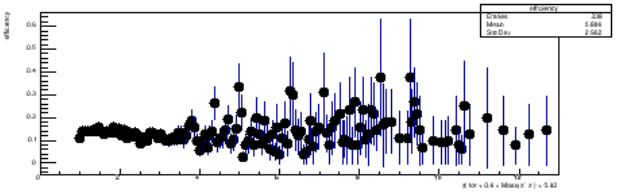
No PidFom applied, Pminus cut is suppressing lots of background.(it was helpful in data)

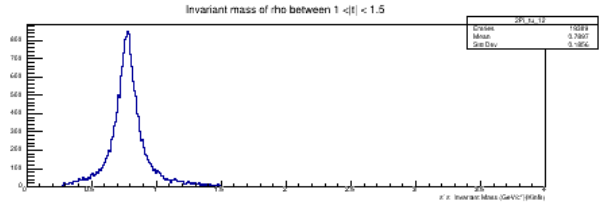
3) Includes PID cuts

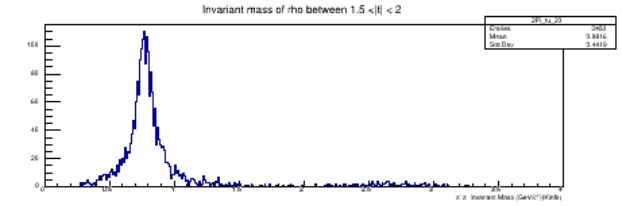


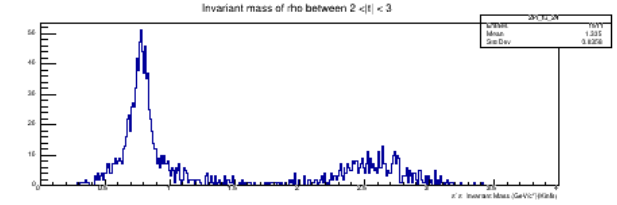


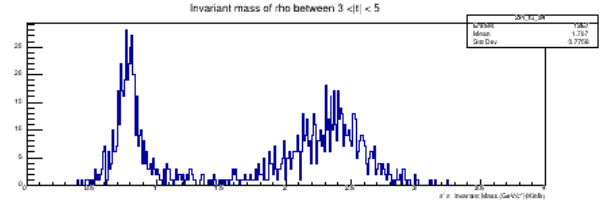


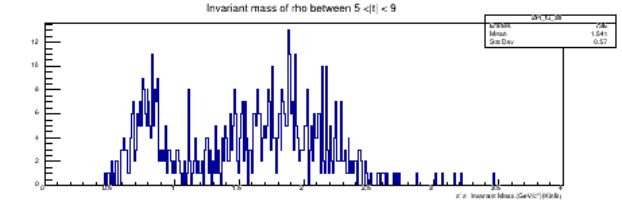












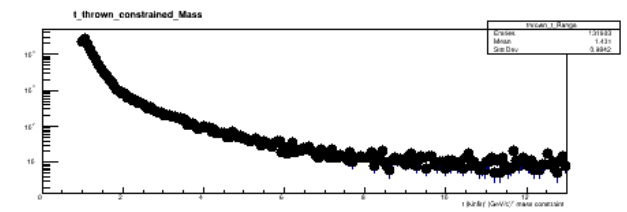
List of Cuts applied

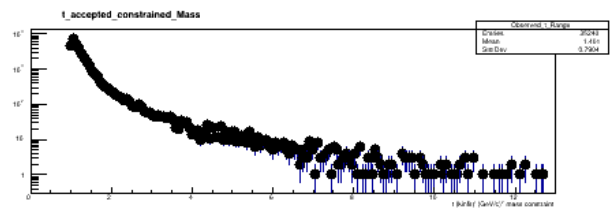
BeamEnergy (8.42 -8.47 GeV)
No extra track & shower
|t| and |u| > 1
c.L > 0.001 && pid >0.01

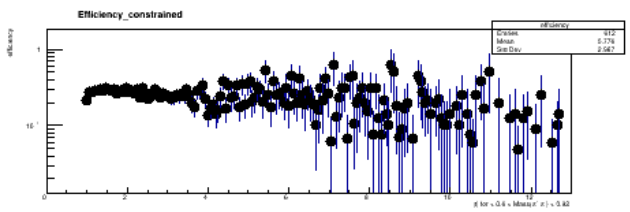
PID > 0.001 suppress lot of background. It is removing background peak above 2.

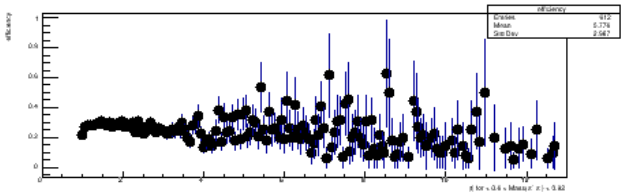
No pMinus cuts applied.

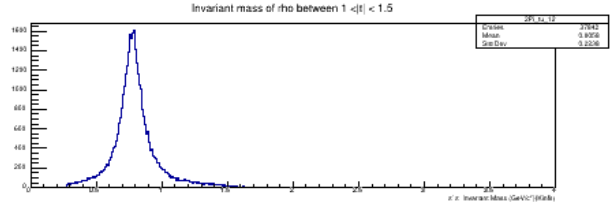
Just Applying PID and pMinus cuts;

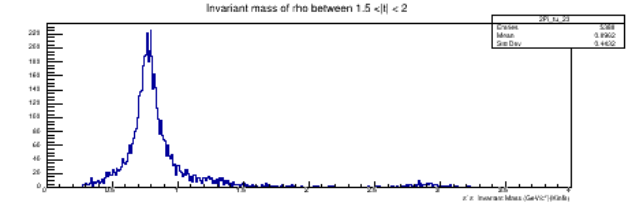


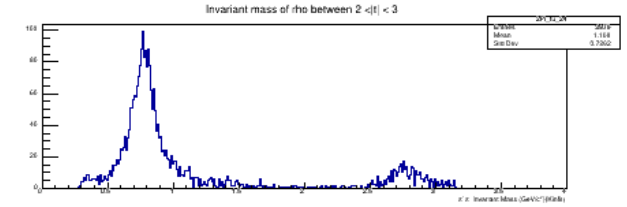


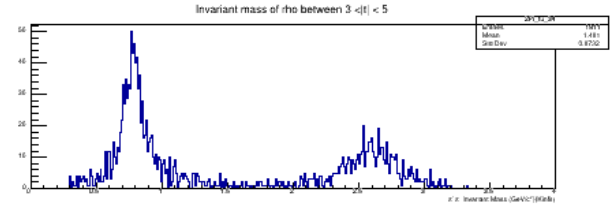


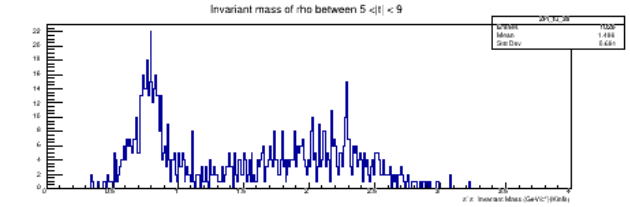










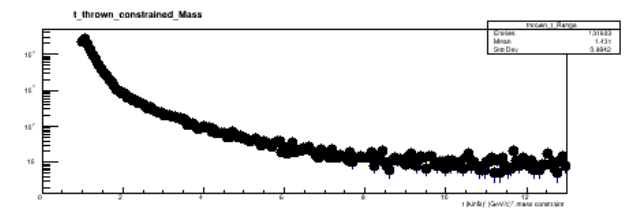


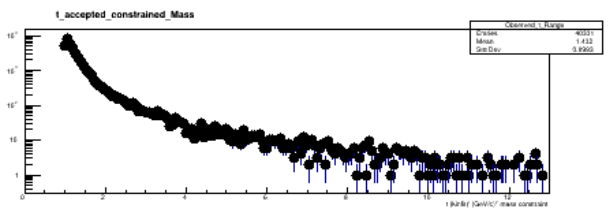
List of Cuts applied

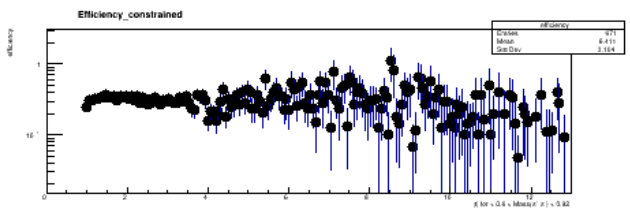
BeamEnergy (8.42 -8.47 GeV)
only pidfom & pMinus
|t| and |u| > 1

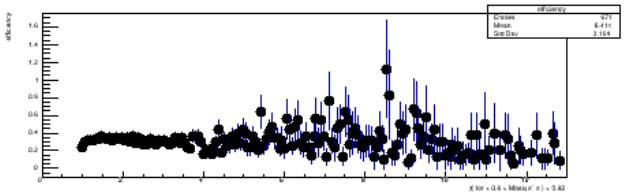
The peak in efficiency seems to be misidentified pions and proton at high |t|. So PIDFOM cut could be good cut to look at.

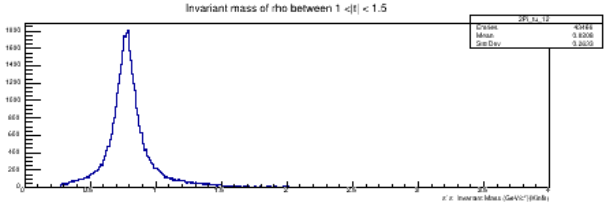
Look at PID cuts

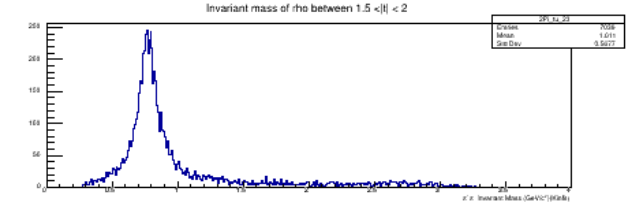


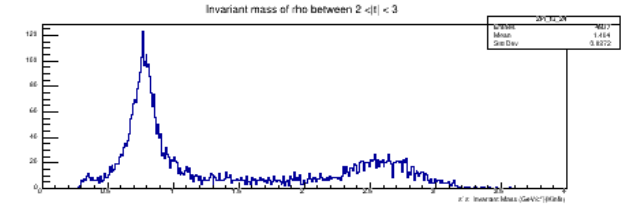


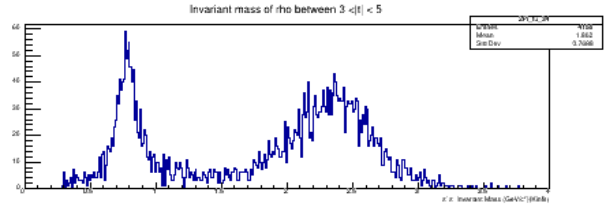


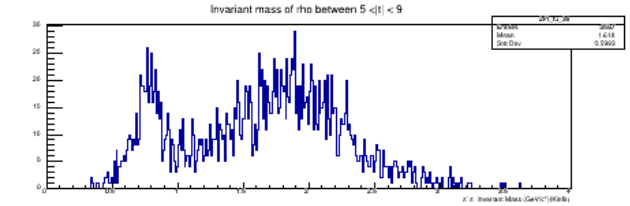










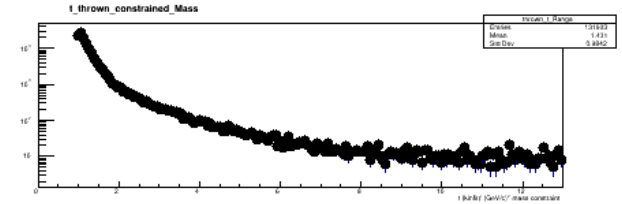


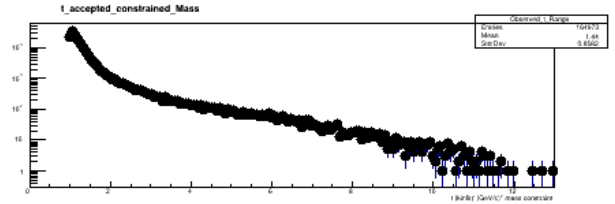
List of Cuts applied

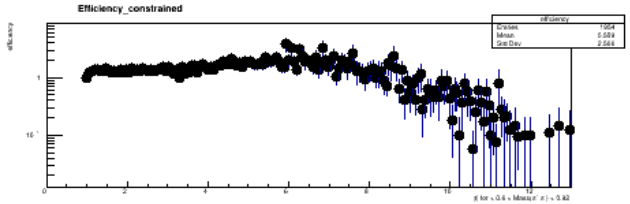
BeamEnergy (8.42 -8.47 GeV)
only pidfom
|t| and |u| > 1

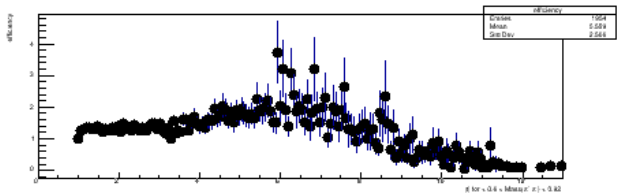
Just applying PID cuts remove background (1.5 ,2) and suppresses (2,3). which leads to some tigher cuts on PIDFOM

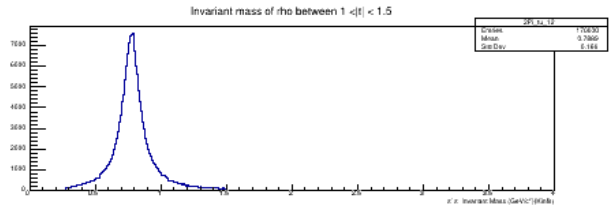
Using PIDFOM for E > 6.5

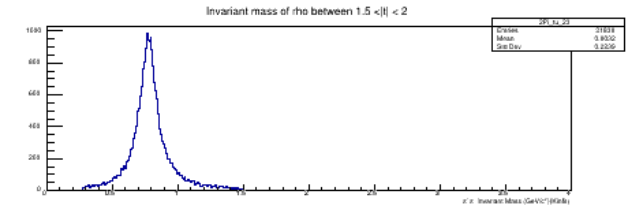


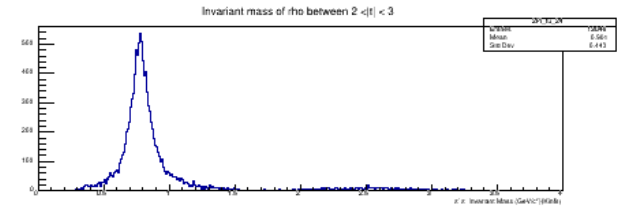


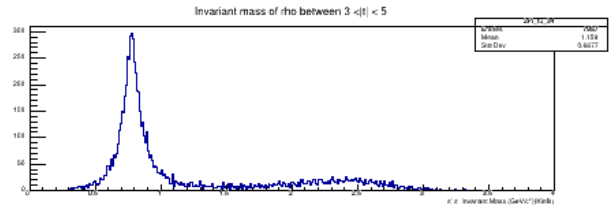


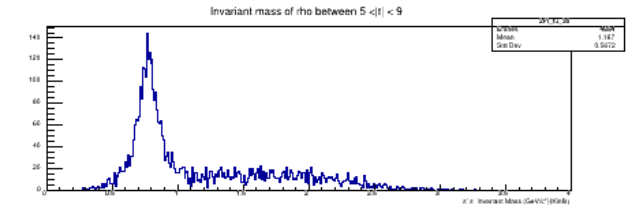










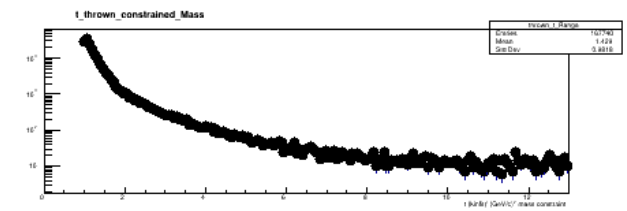


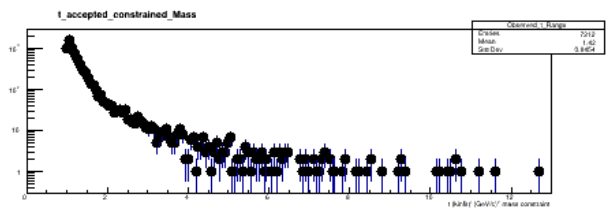
List of Cuts applied

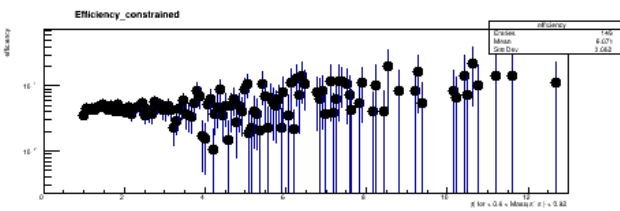
BeamEnergy (6.5 GeV)
All cut pidfom > 0.1

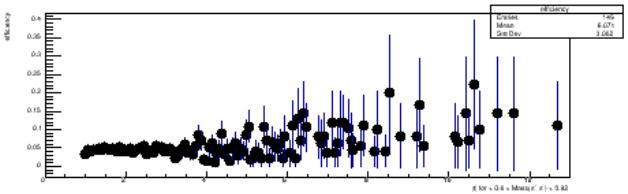
PID FOM tighter cuts >0.1. This cut removes lots of peak from background of Invariant Mass. Those peaks in efficiency could be due mass of Rho0 candidate.

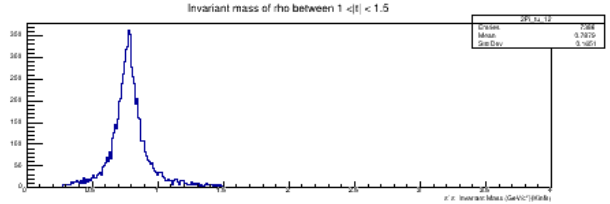
For E(8.42 -8.47)

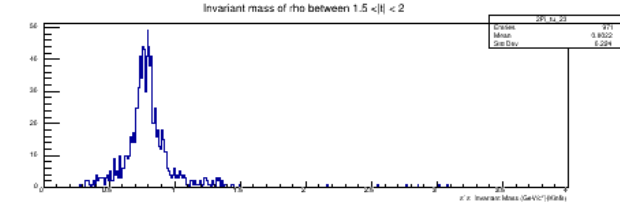


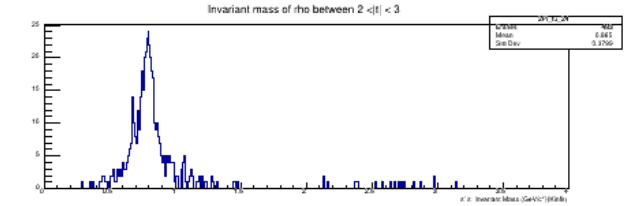


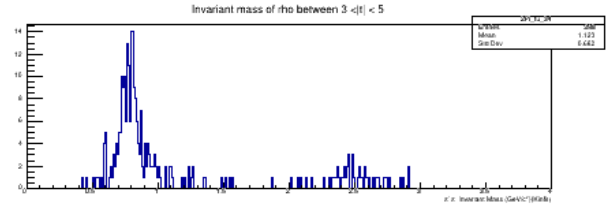


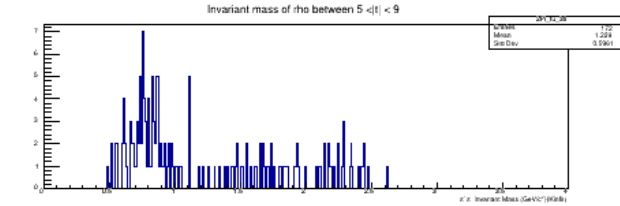












List of Cuts applied

BeamEnergy (8.42 - 8.47 GeV)
All cut pidfom > 0.1
mass of pippim(0,4)

Those peaks in efficiency could be due to pie of background.

Prelim remarks

- At high |t| there pions and proton detection efficiency is very poor. Selection of tigher PIDFOM could removes lots of background.
- Current cut for PIDFOM > 0.01 . To increase efficiency we need to look at tighter PIDFOM > 0.1 (Note: It will remove a lot of signal too.)
- The peak of efficiency at 4-8 may be due to just inclusion of rho0 candidate. If we include particle of mass of pipluspiminus then we see a different shape of plot in efficiency.