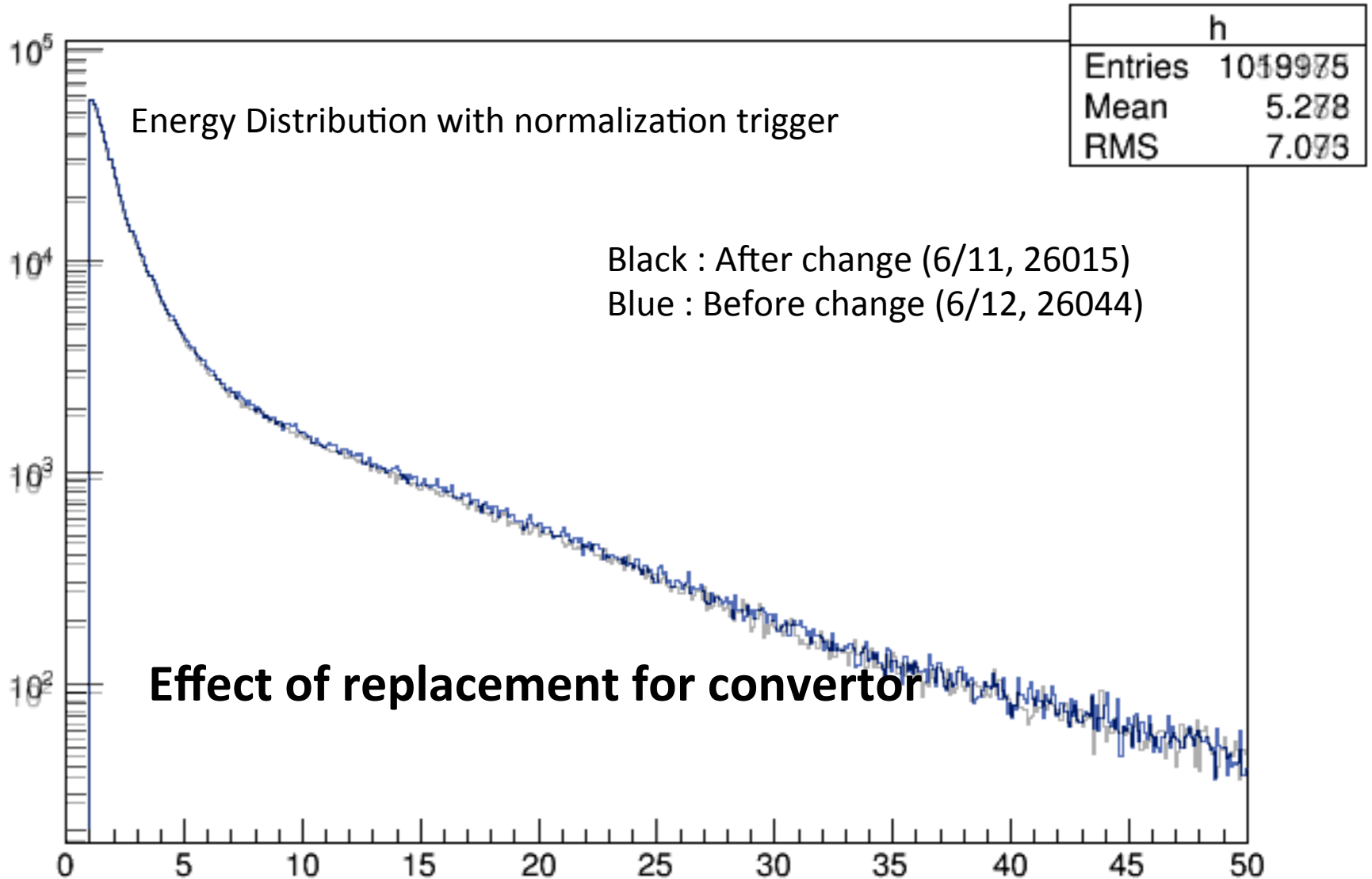
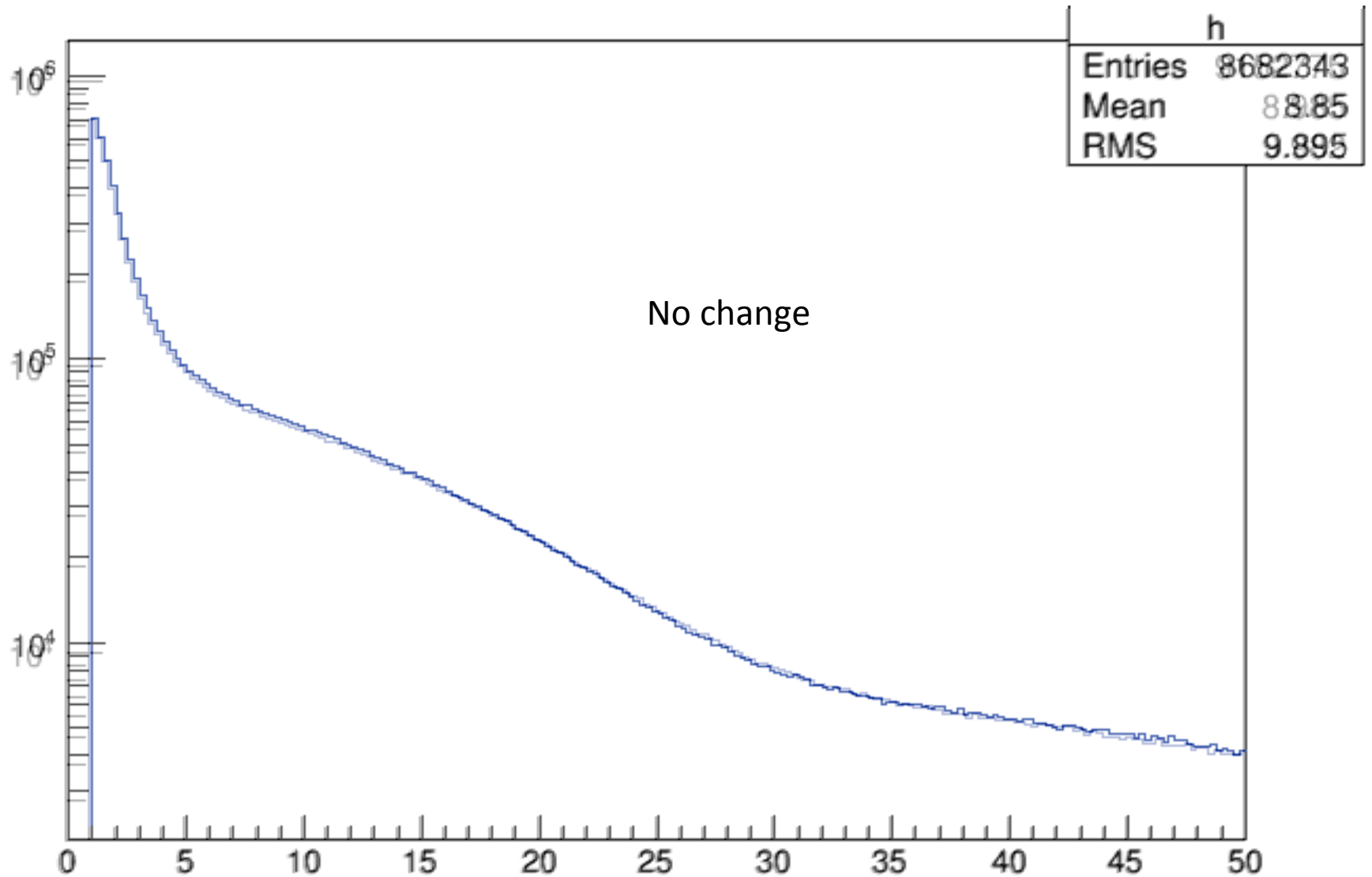


Report_170614

CBAREne



IBEne

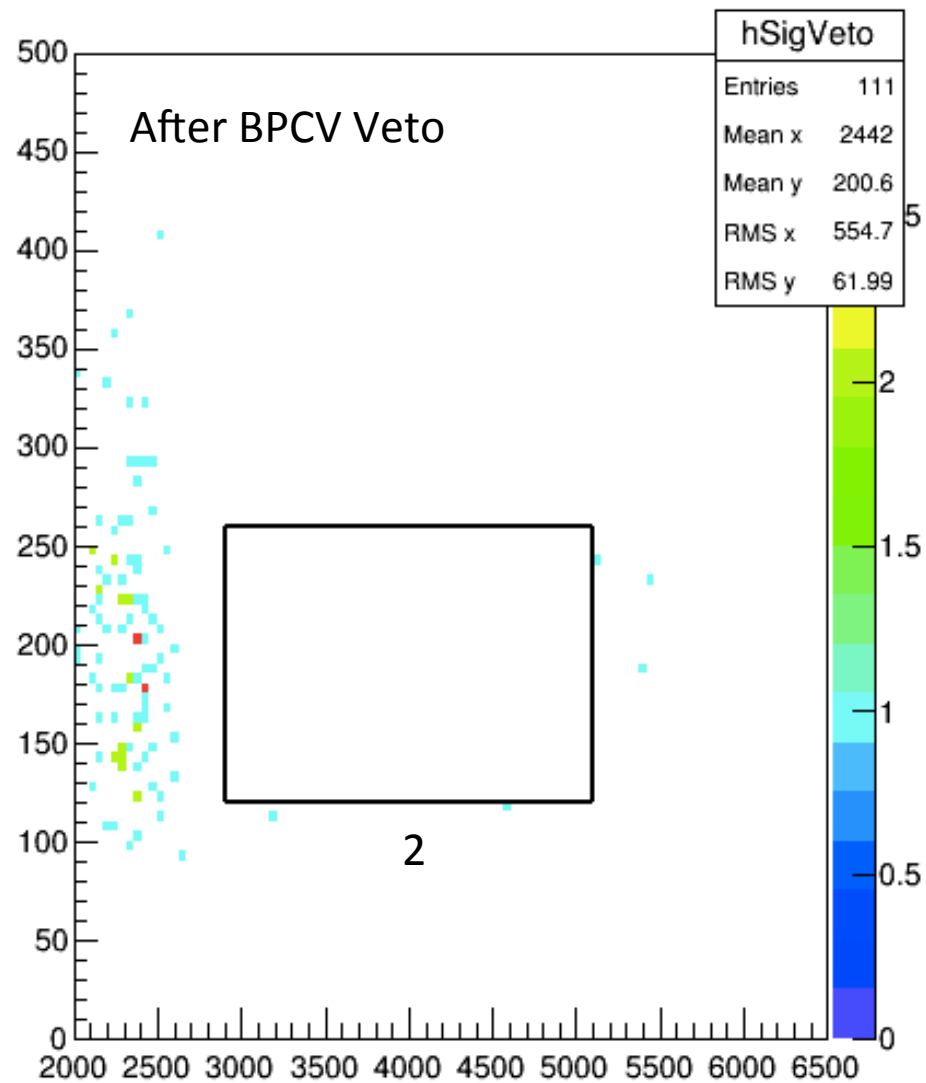
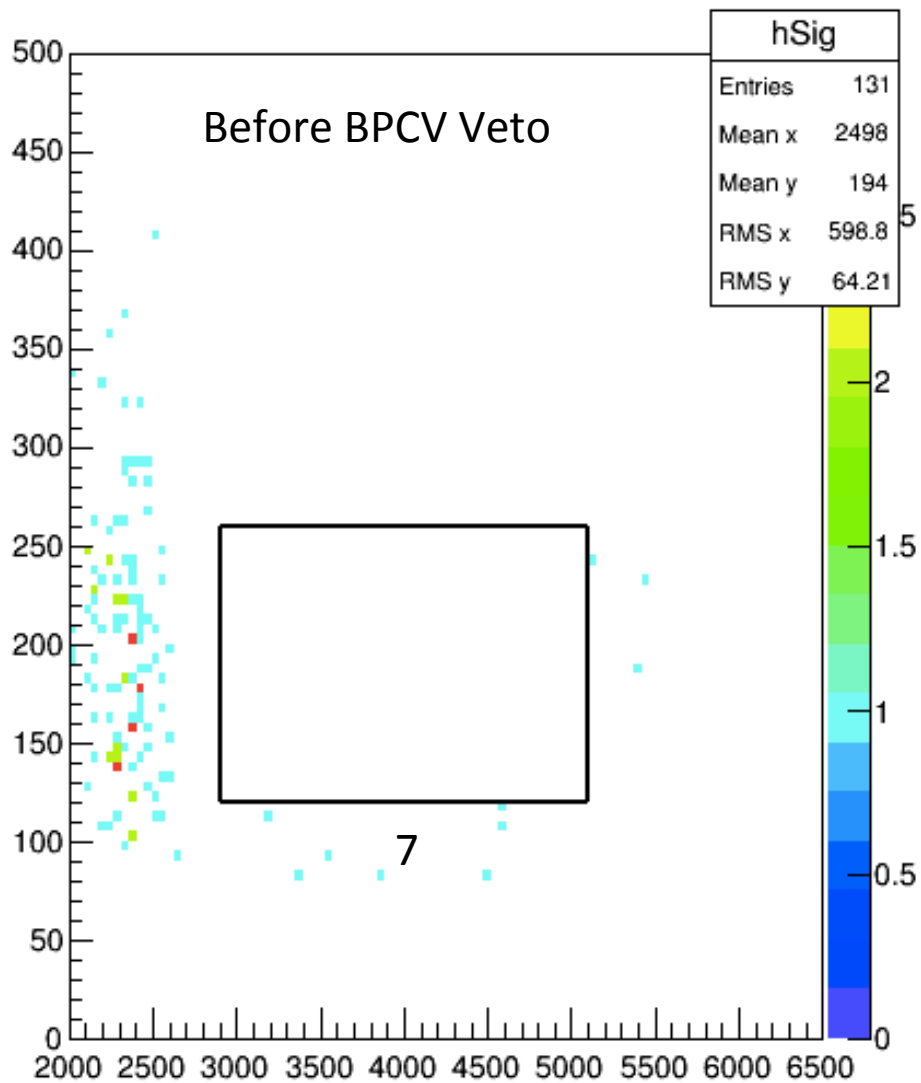


Updated KLpipi0 AnalysisLibrary

- 0) Bit Selection
 - Bug in MySelection
- 1) NewAna
 - Definition of improper BPCV, BHCV Veto
- 2) SeedData
 - Some files have too many events from bug

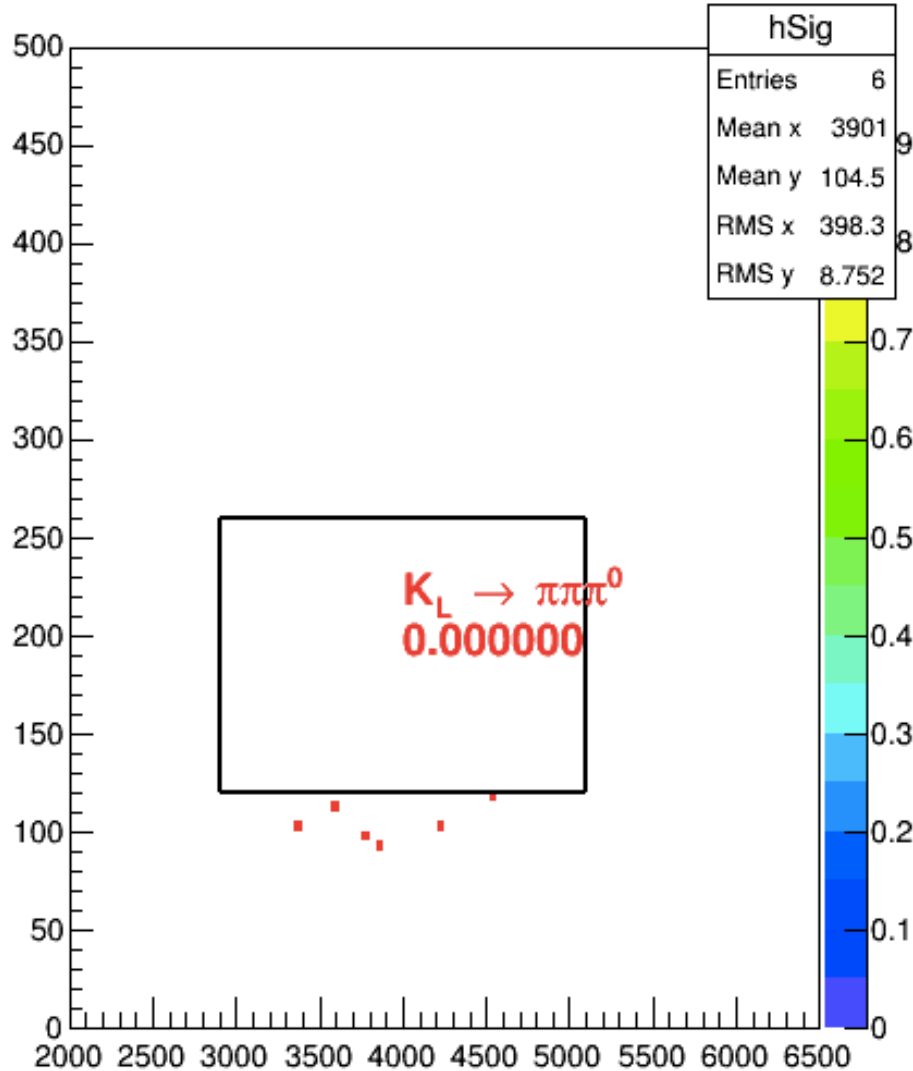
BPCV Veto effect

Run62 Physics Trig

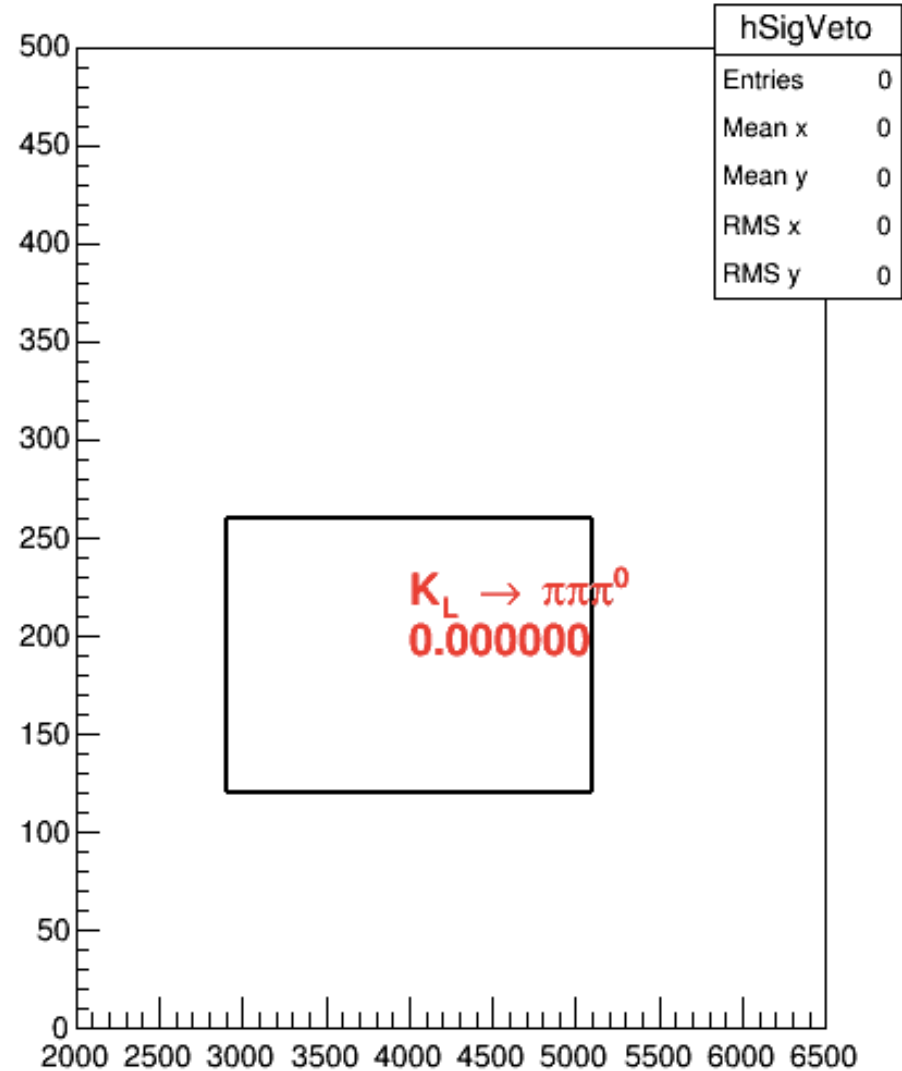


MC (pipi0)

hSig

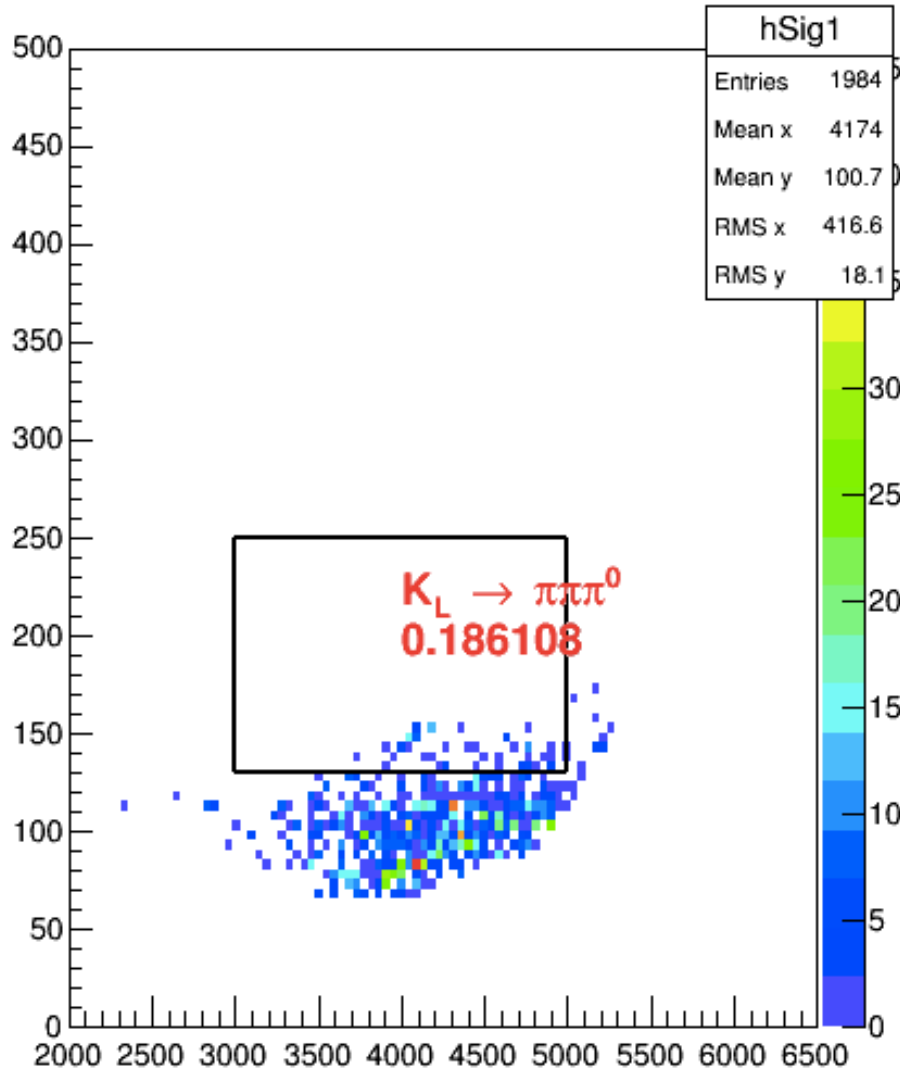


hSigVeto

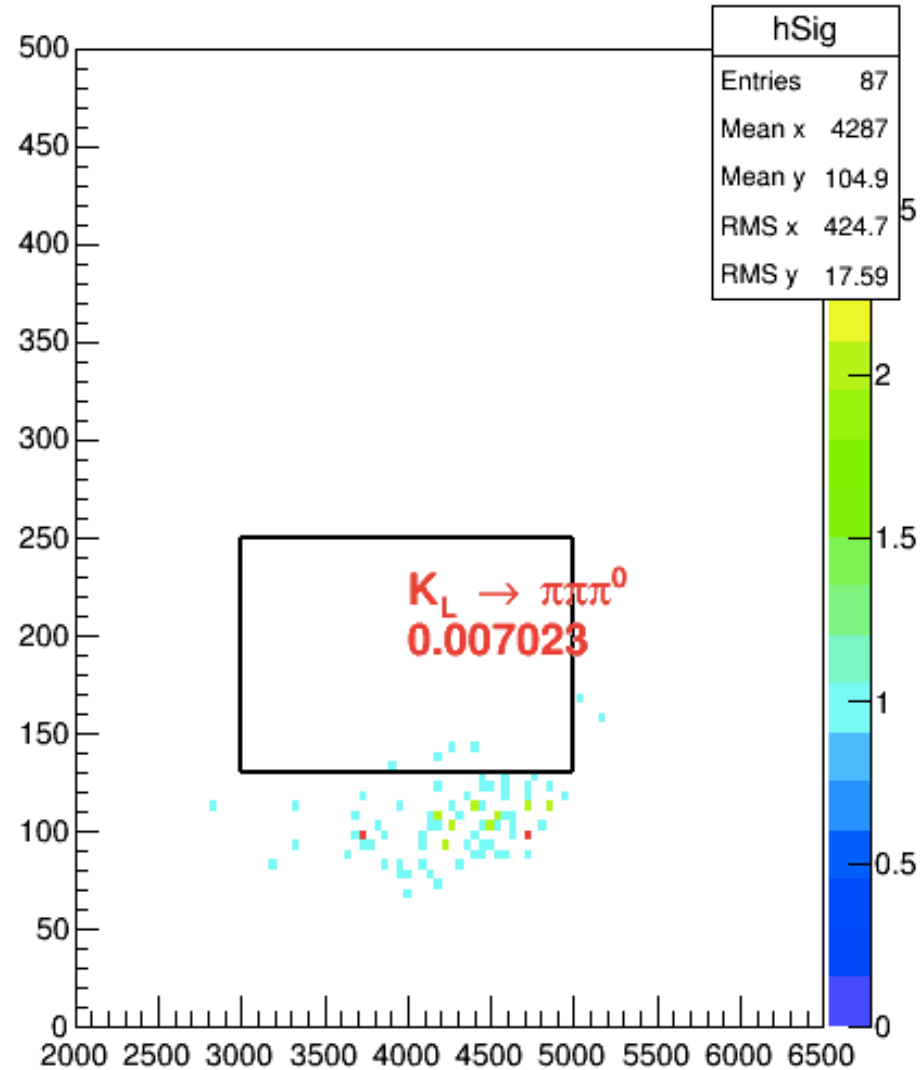


MC (pipipi0 recycle)

hSig1

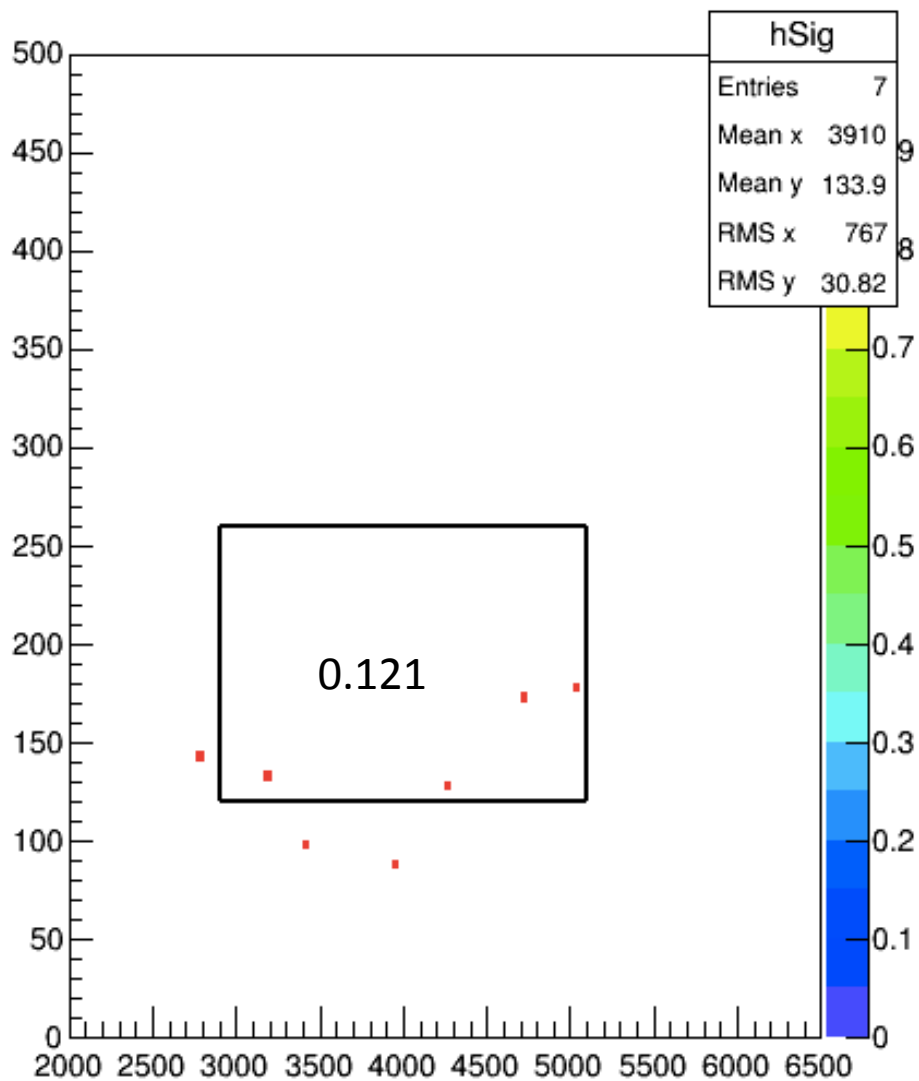


hSig

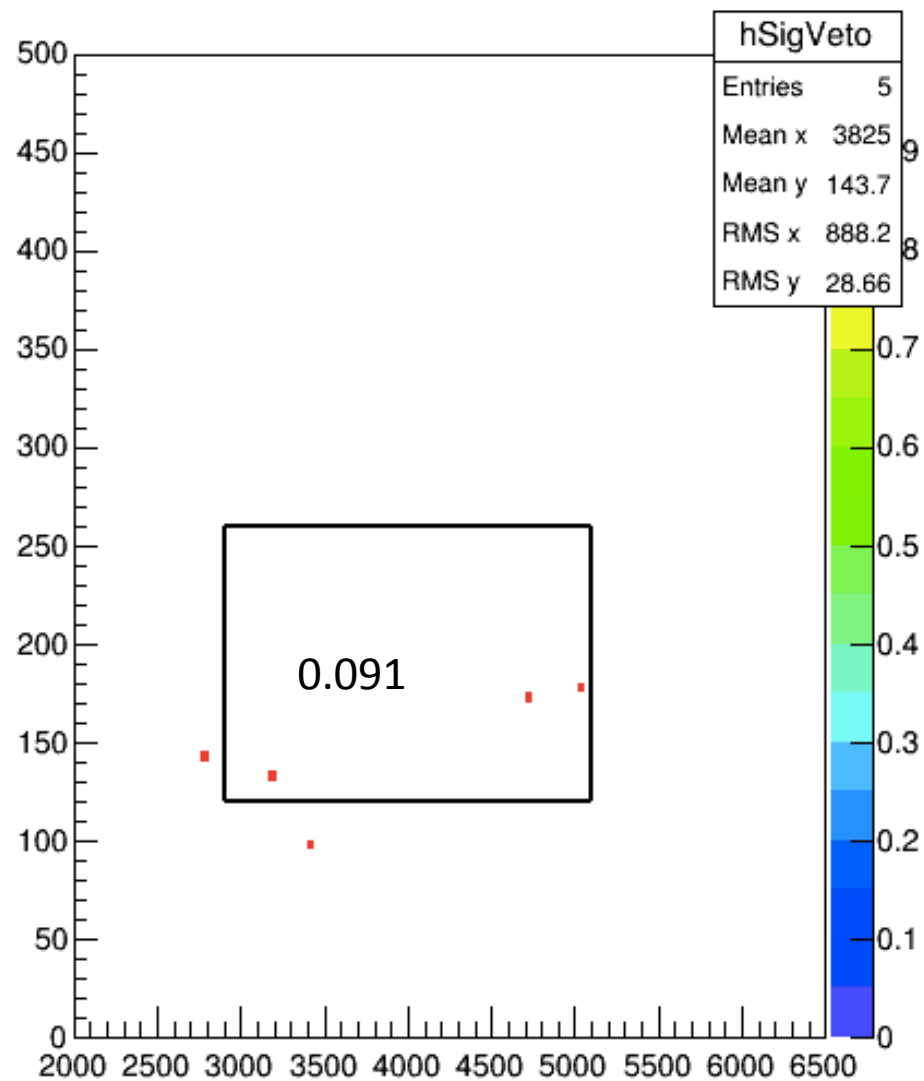


MC ($\pi^0\pi^0$)

hSig

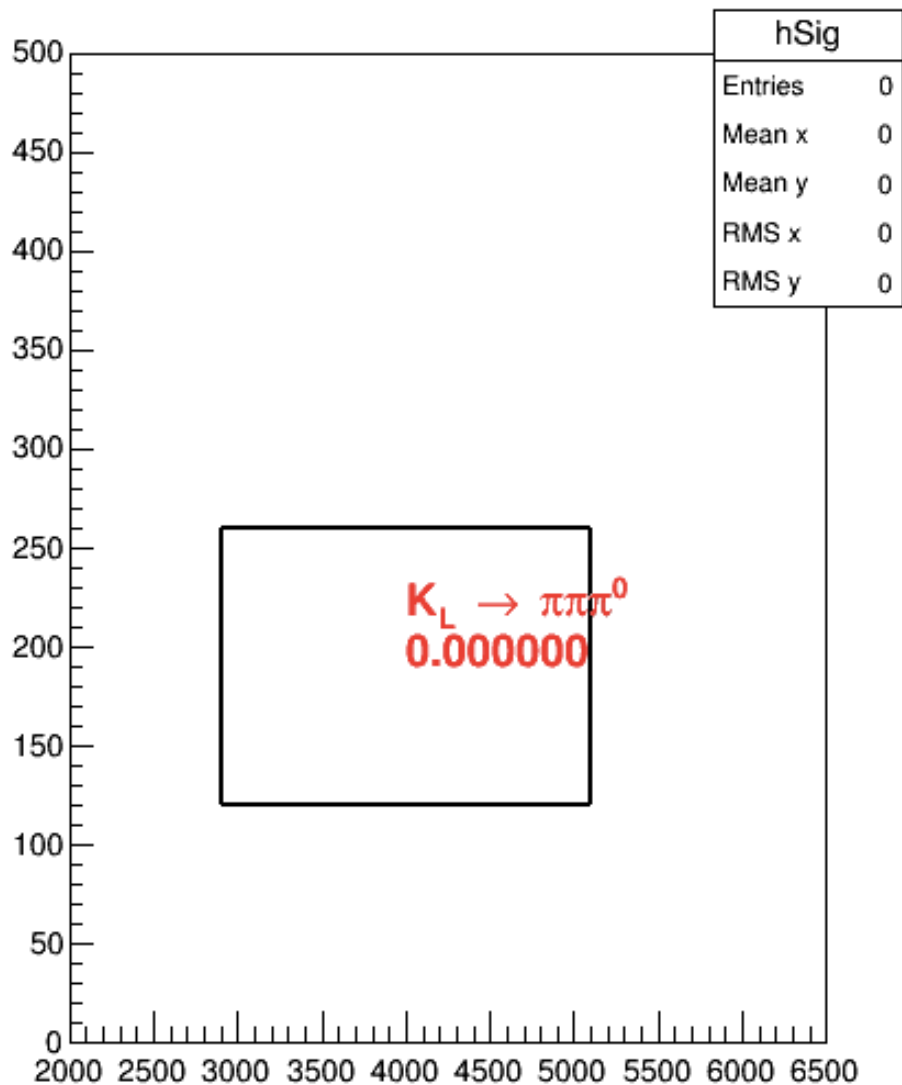


hSigVeto

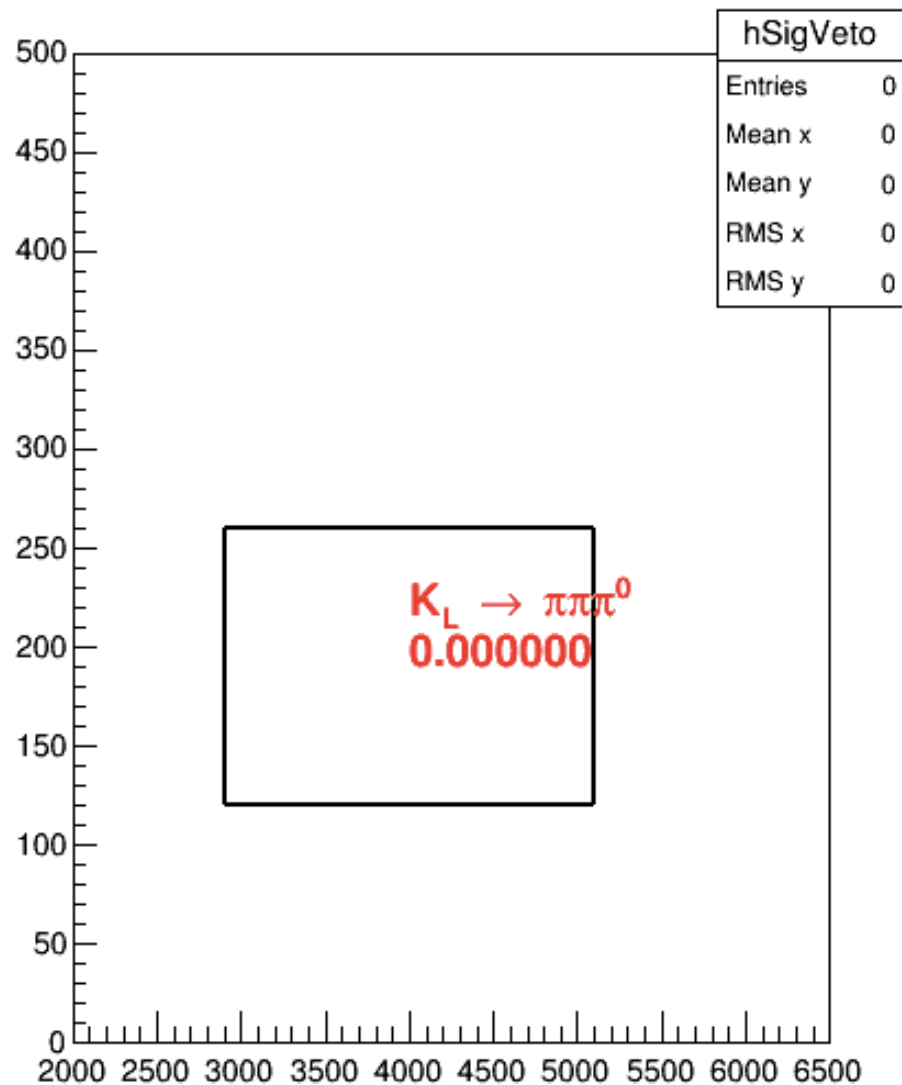


MC (3pi0)

hSig

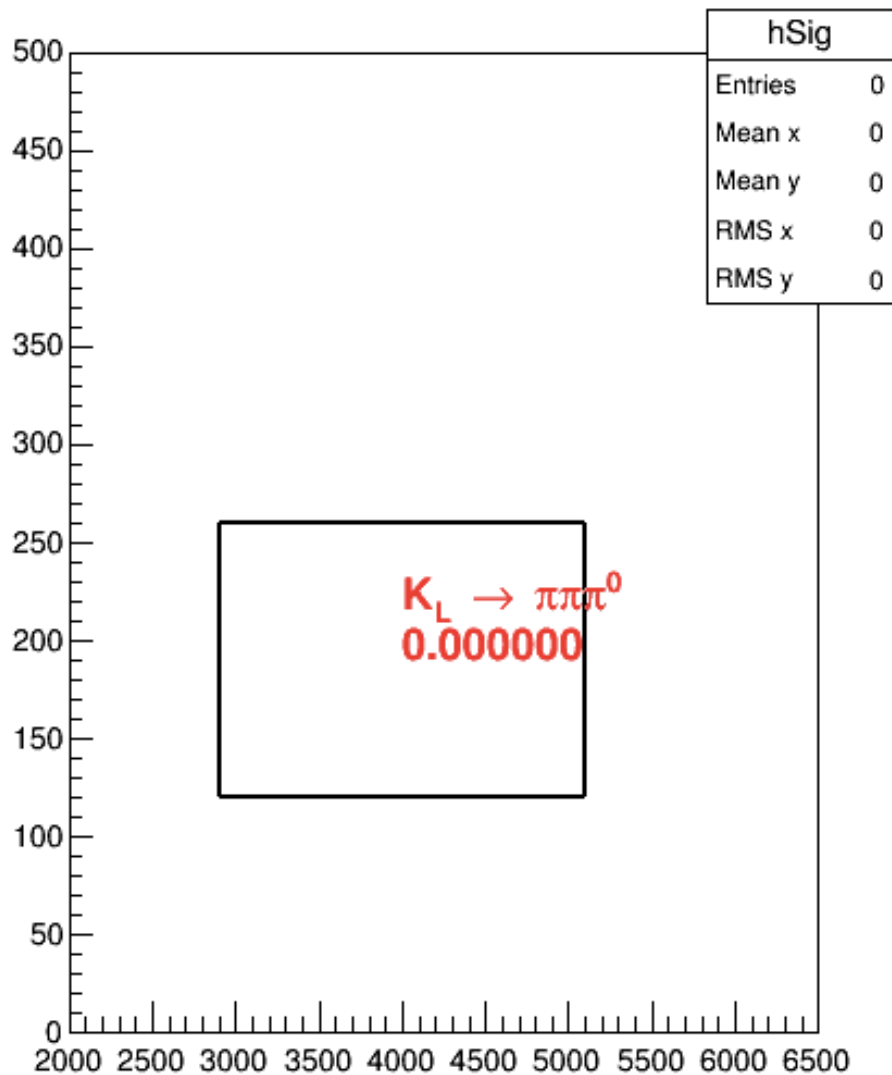


hSigVeto

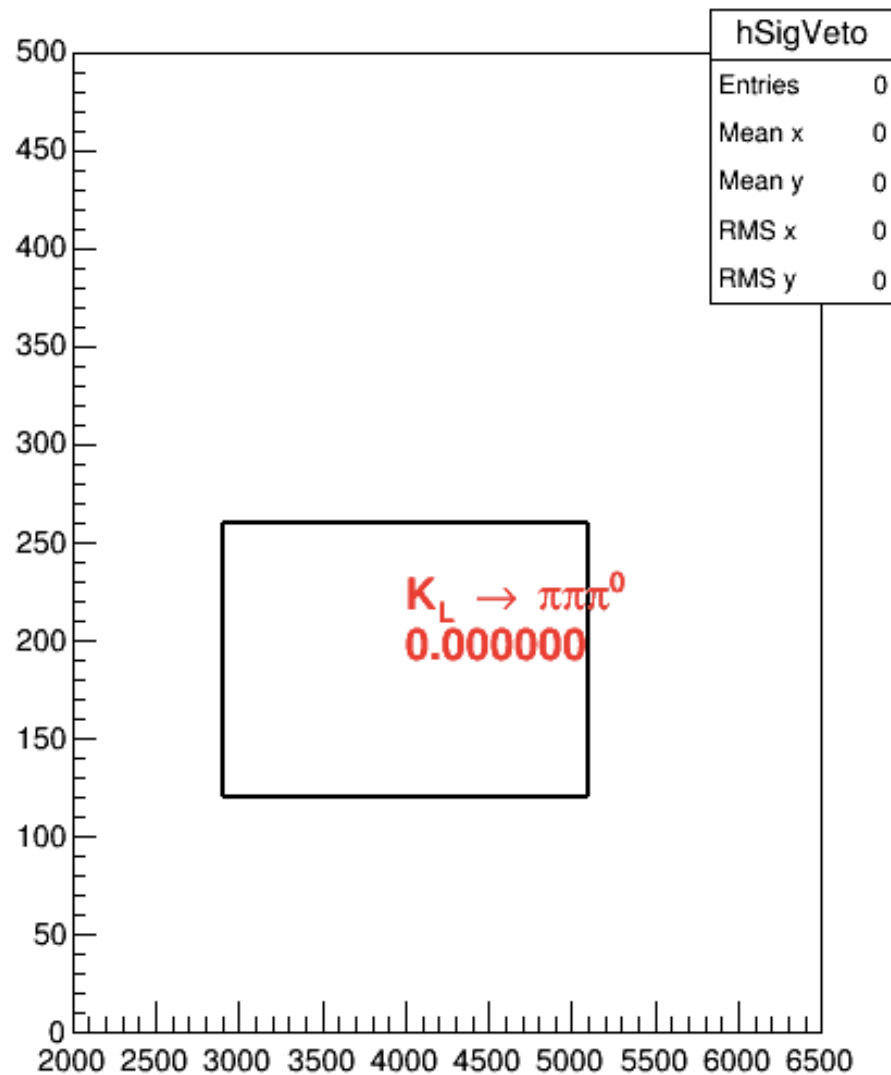


MC (2gamma)

hSig



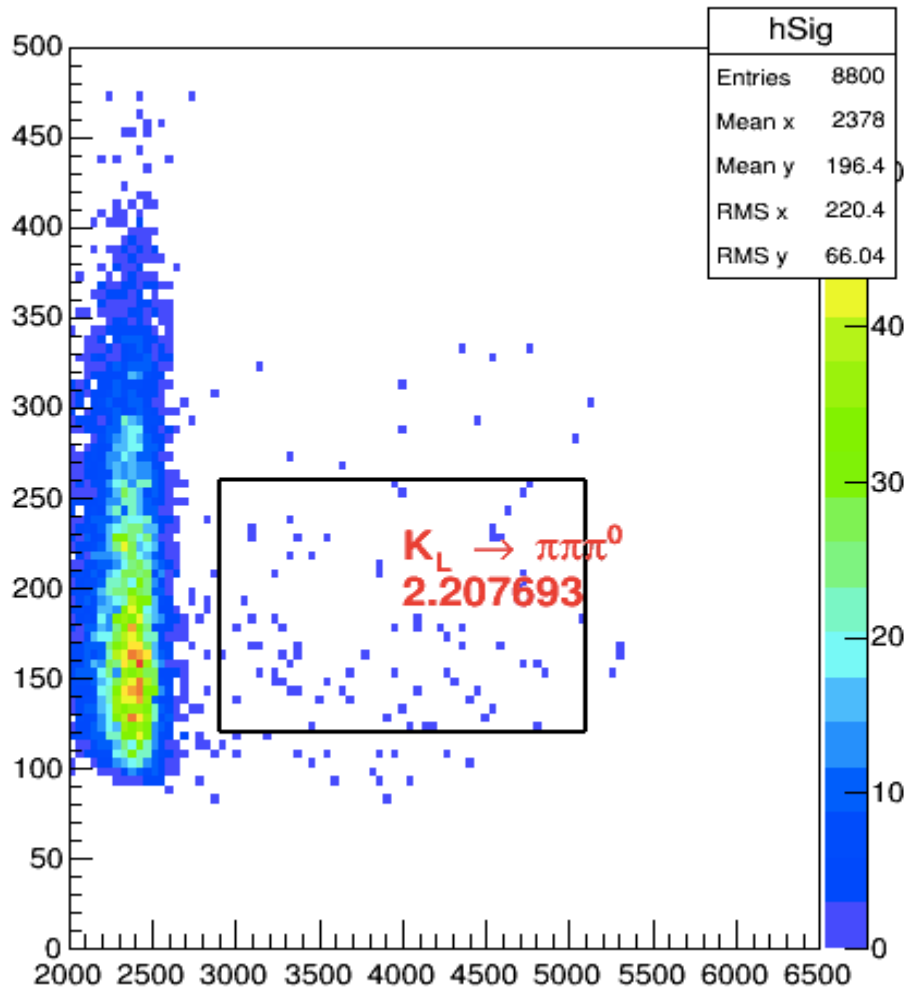
hSigVeto



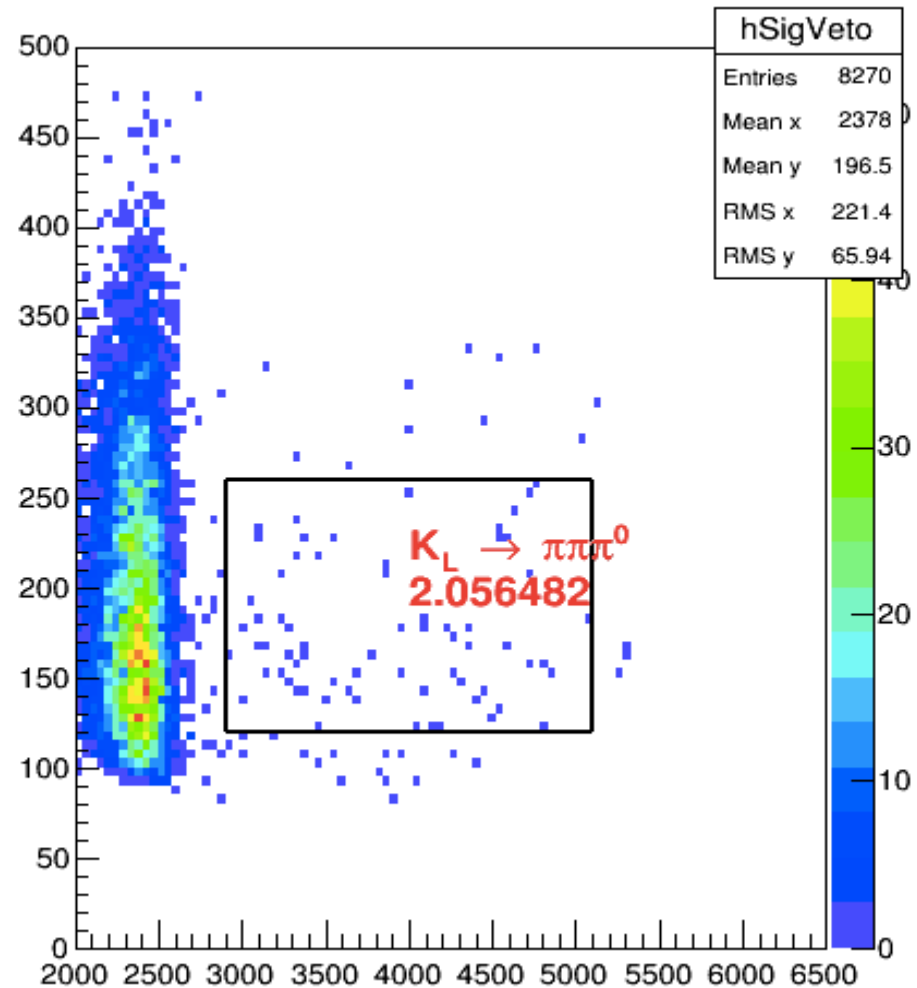
MC (NCC)

need to understand details

hSig

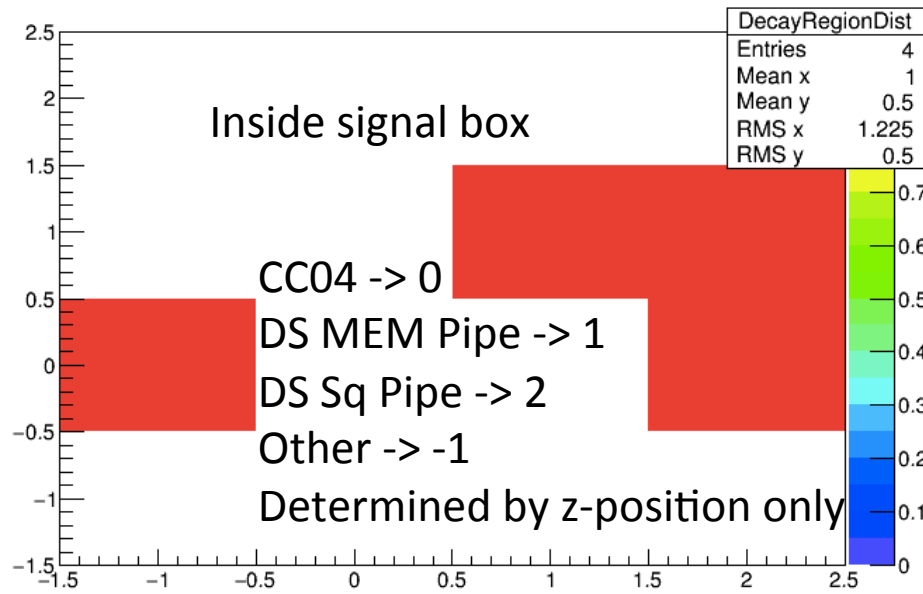
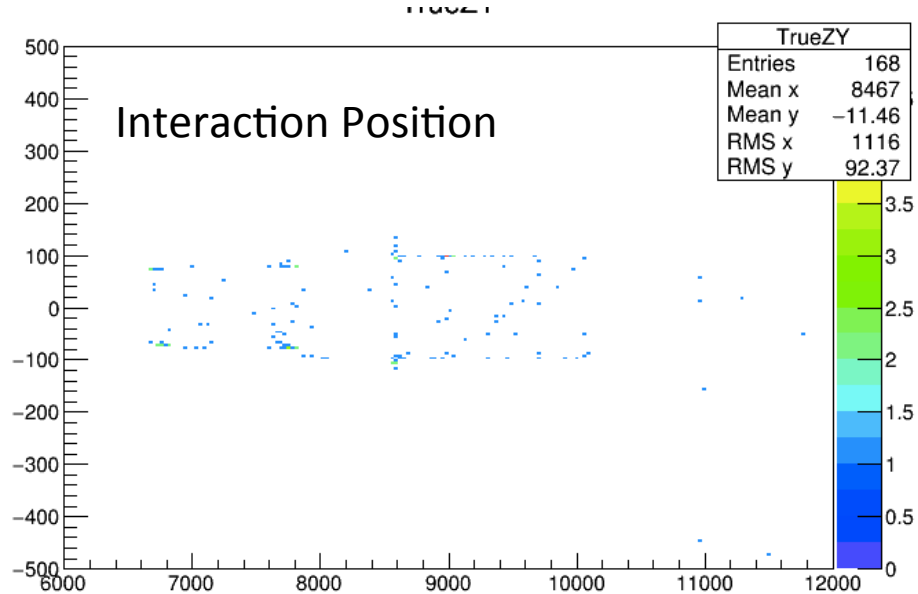
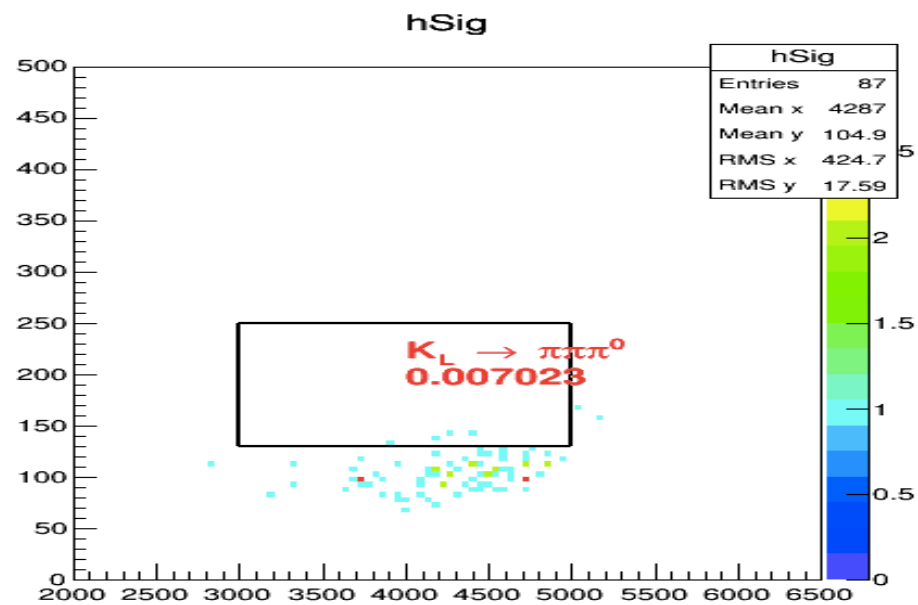
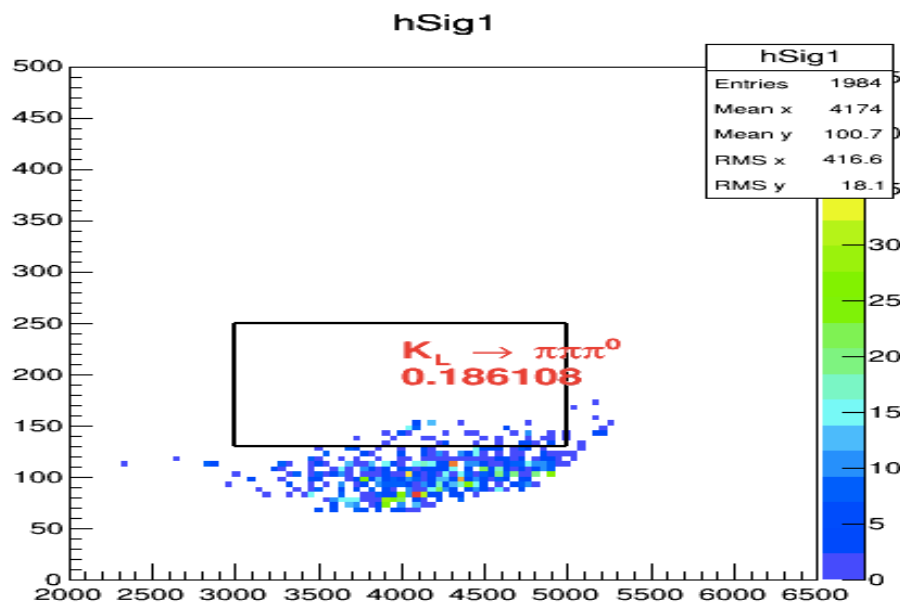


hSigVeto

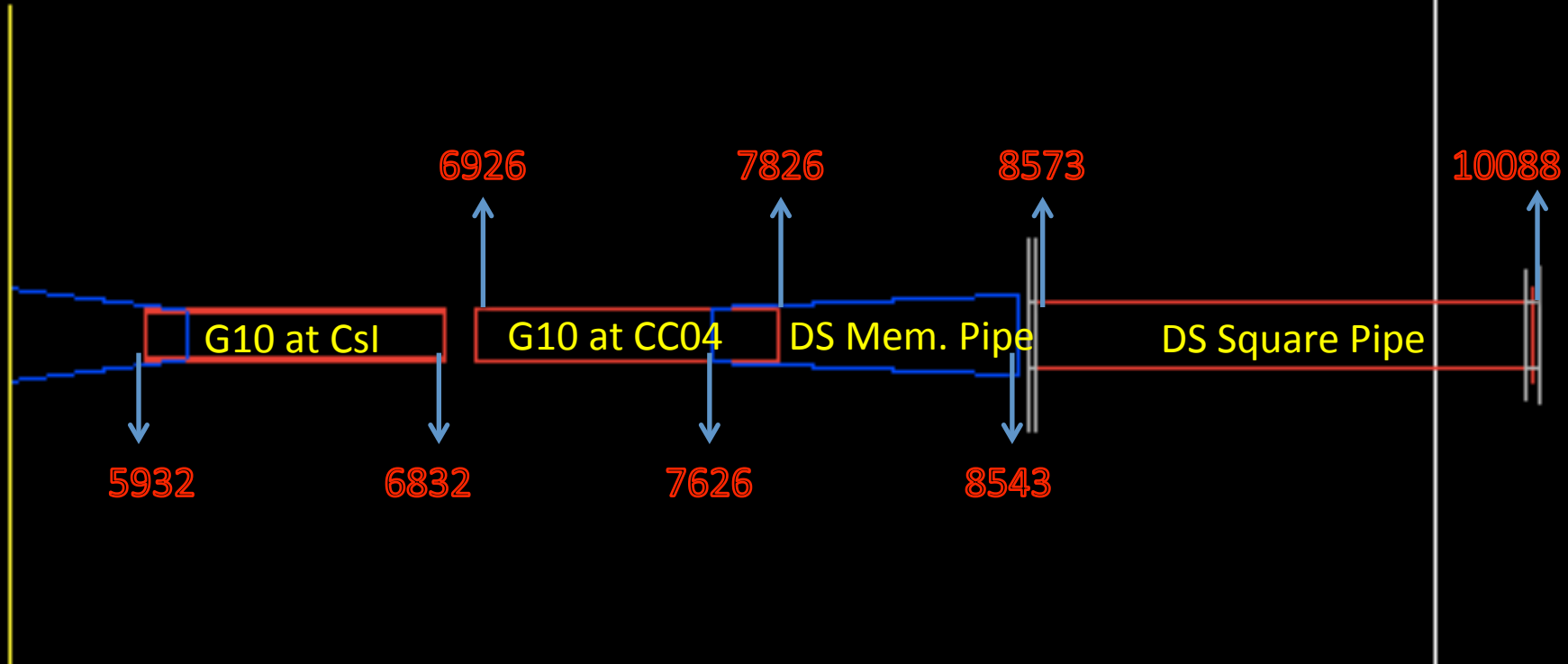


Interaction Position With Recycle data

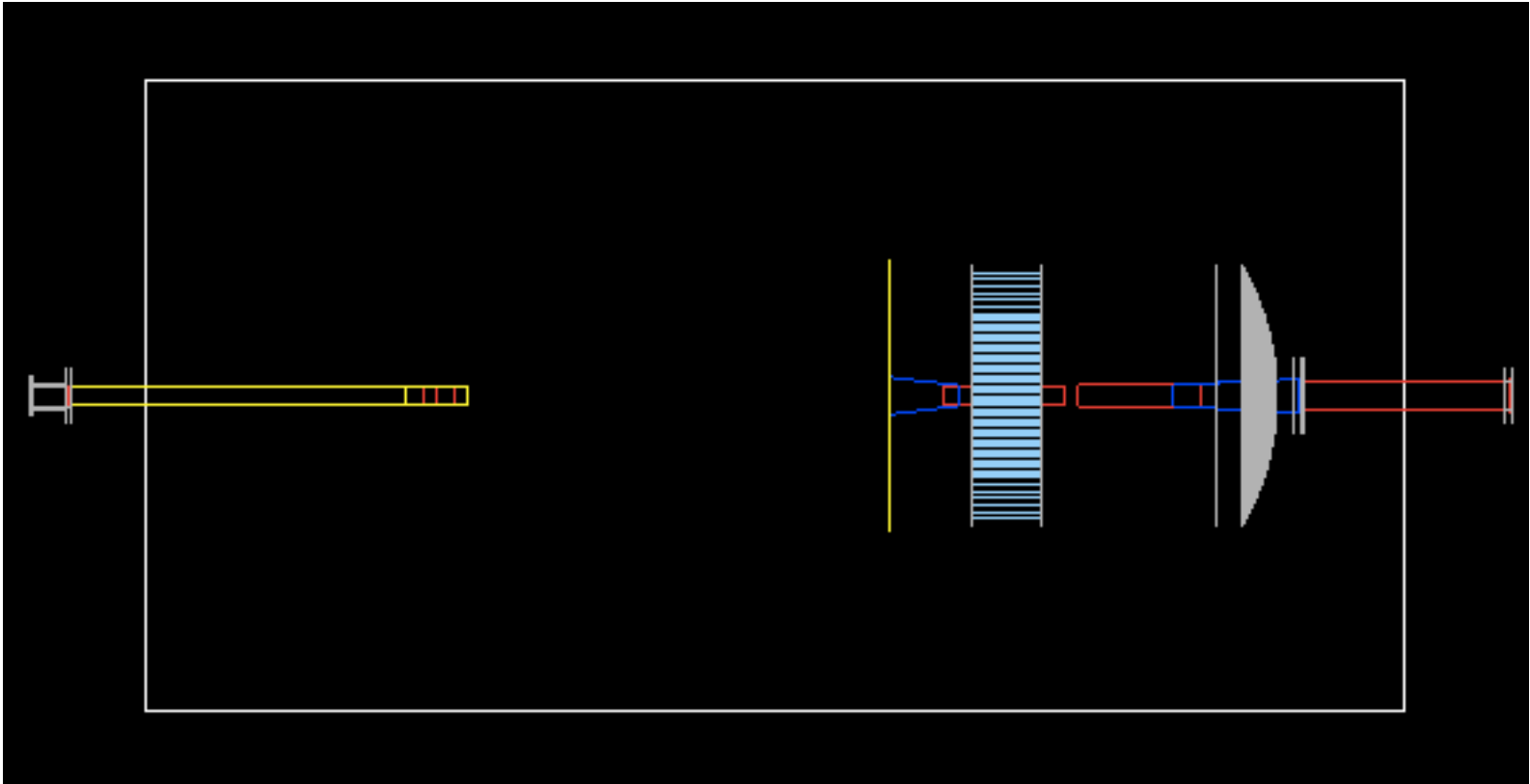
#KL = 500*2e7*1000



Coordinates



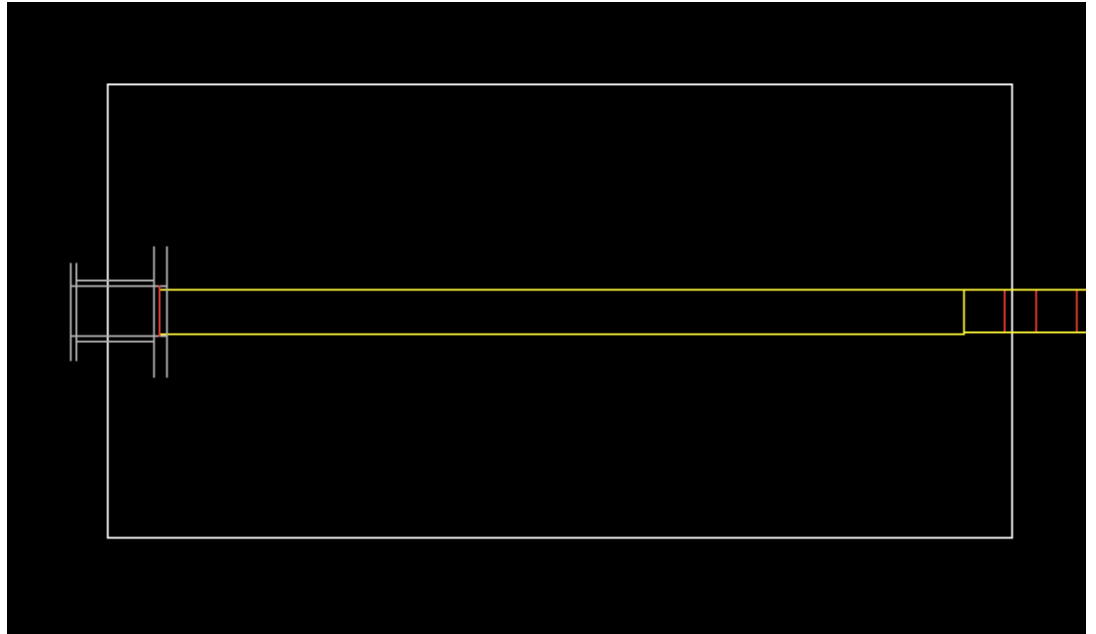
Membrane Geometry



- Csl + Membrane drawing
- Strategy
 - Divide membrane into 2 parts
 - Upstream / Downstream
 - Change Downstream geometry
 - Add SensitiveDetector at the end of Downstream geometry

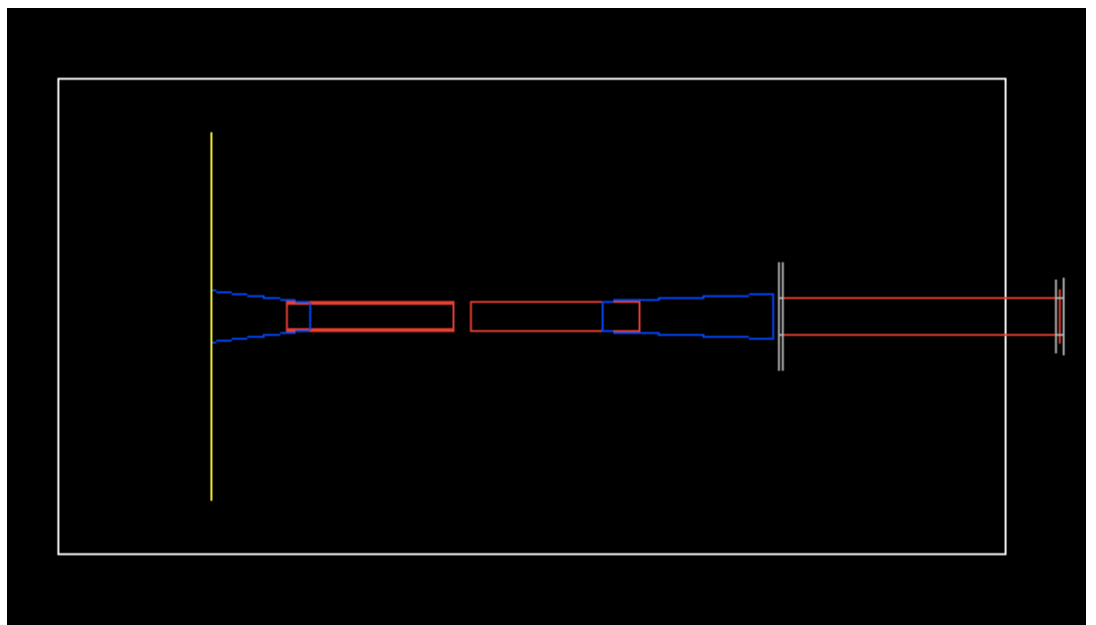
decomposition

Up



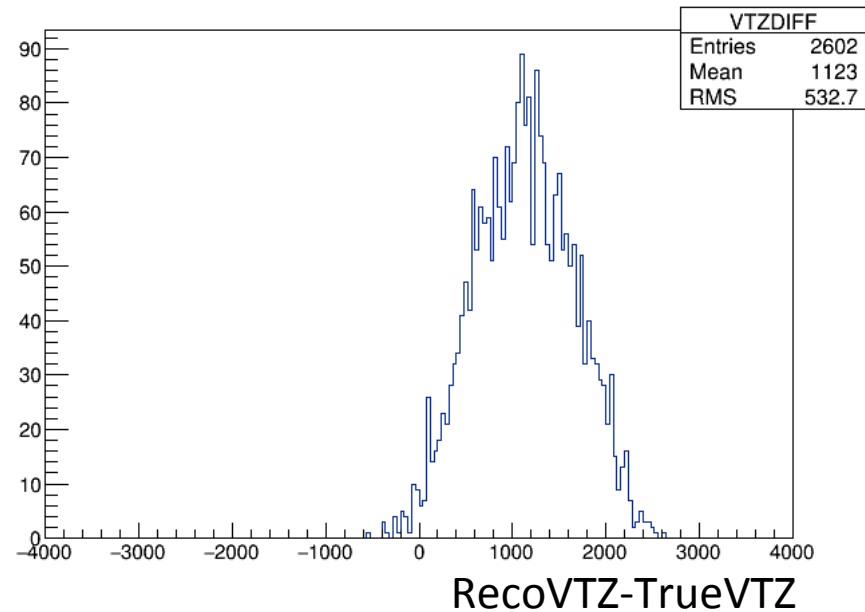
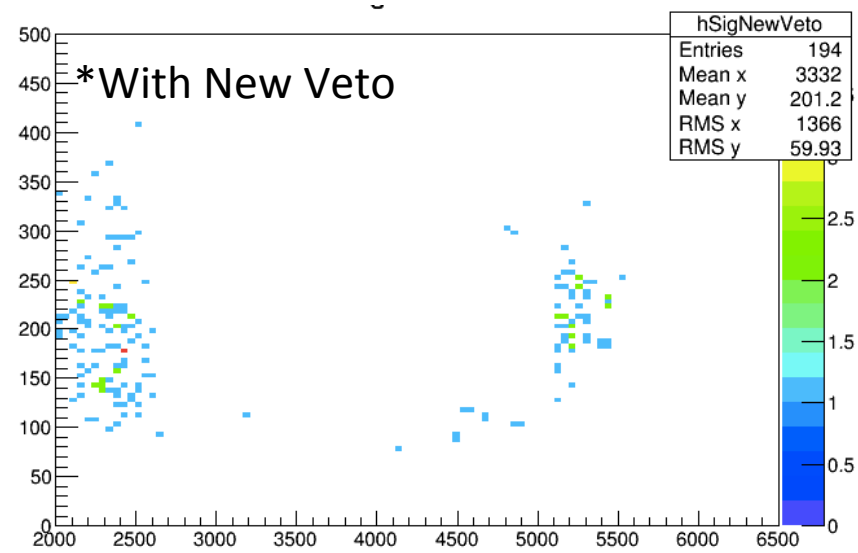
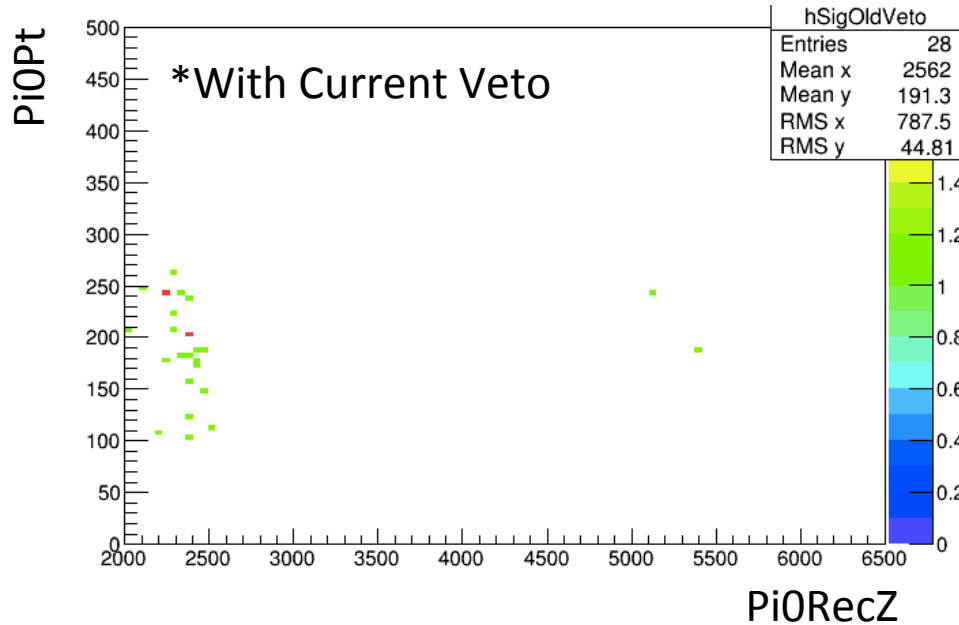
Done

Down



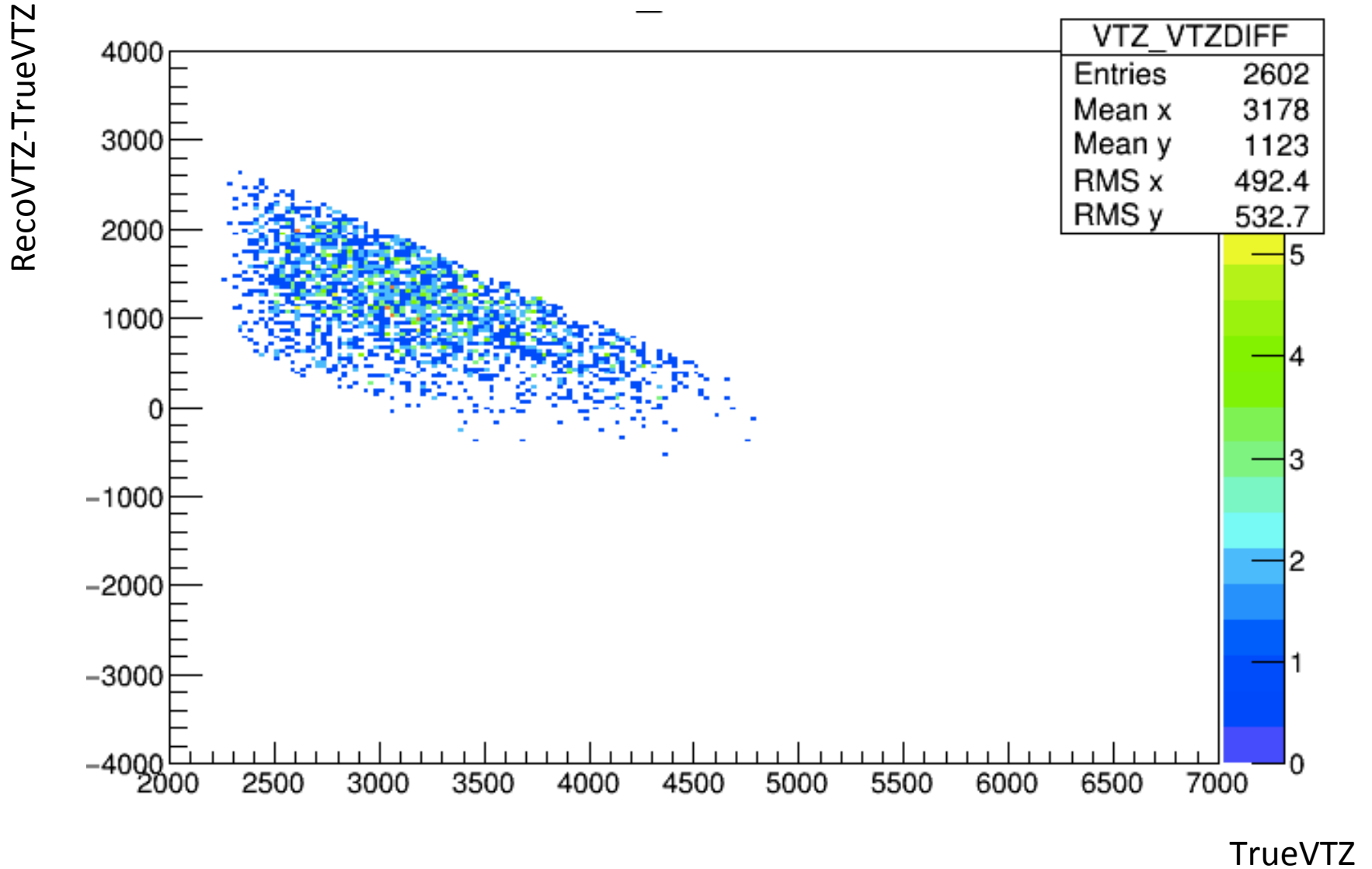
Back splash recovery

Run62 physics trig



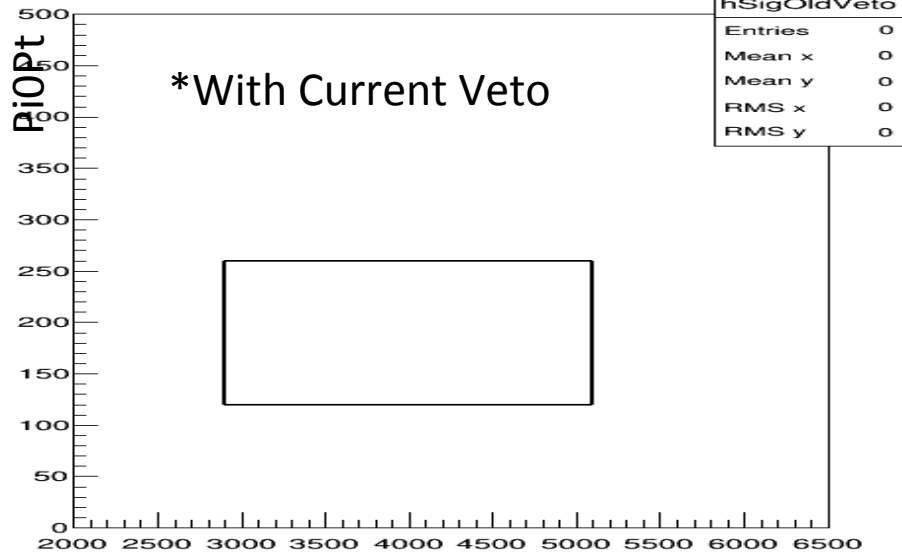
- Vertex reconstruction is crucial
 - It is hard for KLpi0pi0, KL3pi0 events to reconstruct vertex of kaon with two gammas

Vertex reconstruction

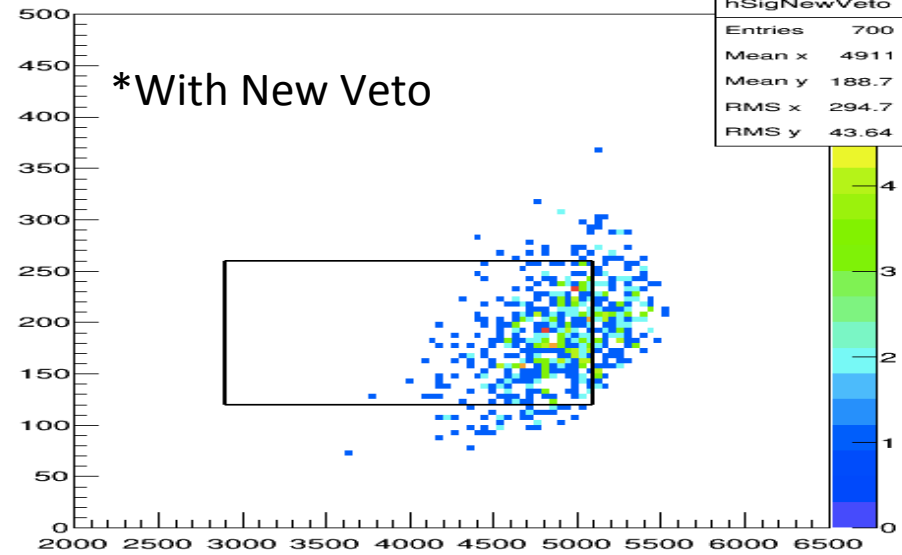


MC (KL3pi0)

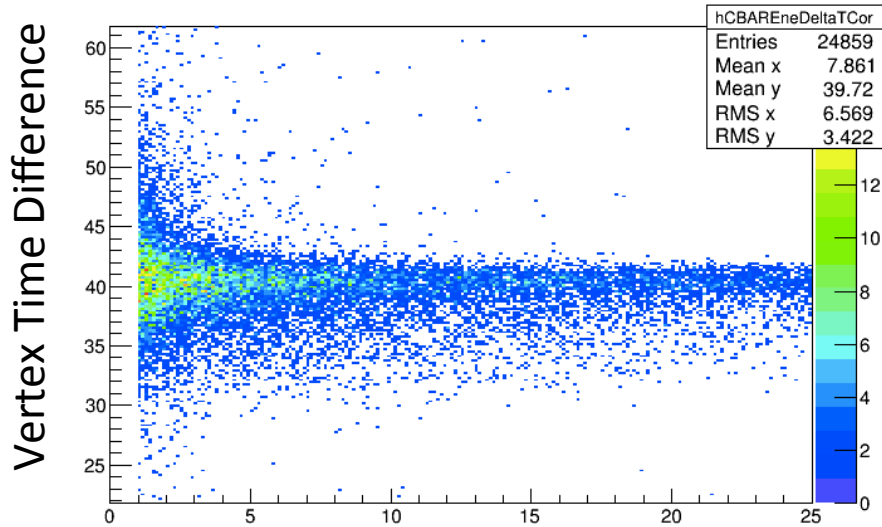
hSigOldVeto



hSigNewVeto

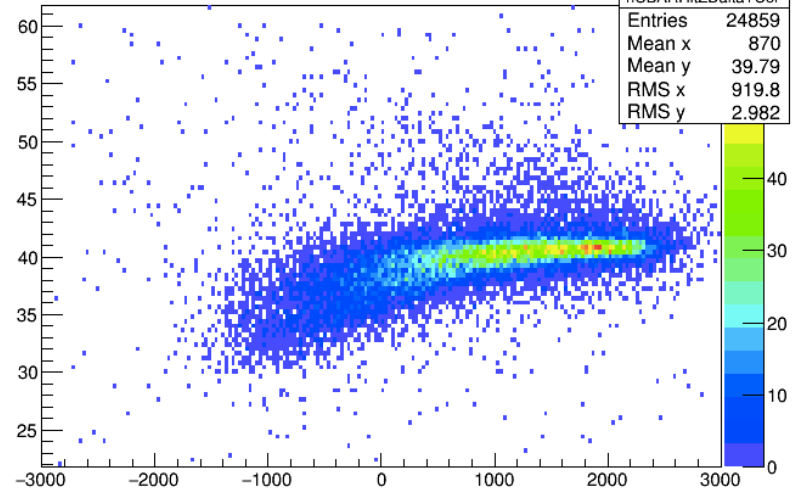


Pi0RecZ



EDEP

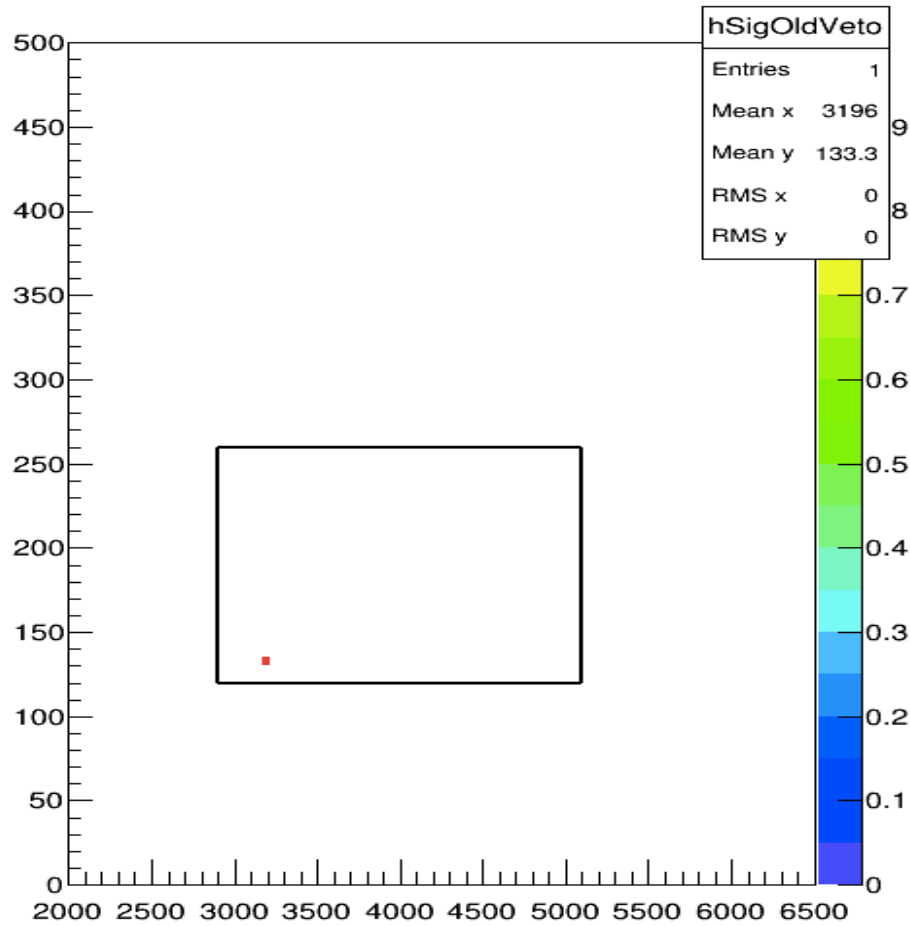
hCBARHitZDeltaTCor



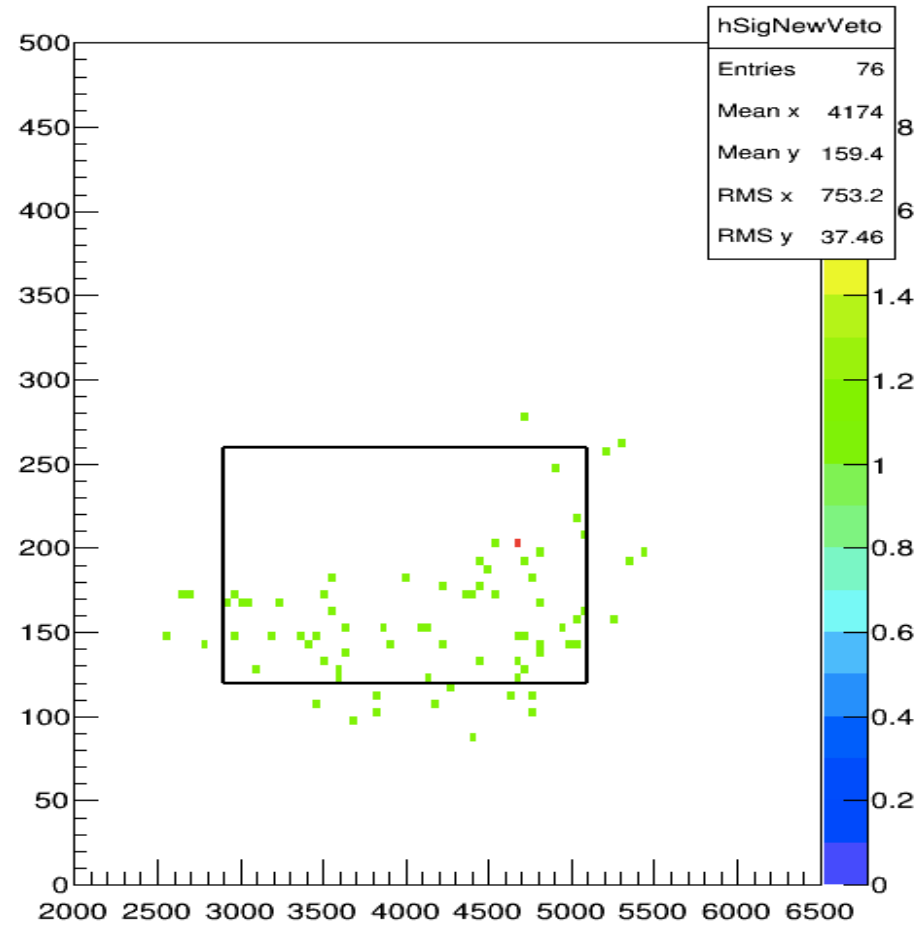
Gamma HitZ Position

MC ($\pi^0\pi^0$)

hSigOldVeto



hSigNewVeto



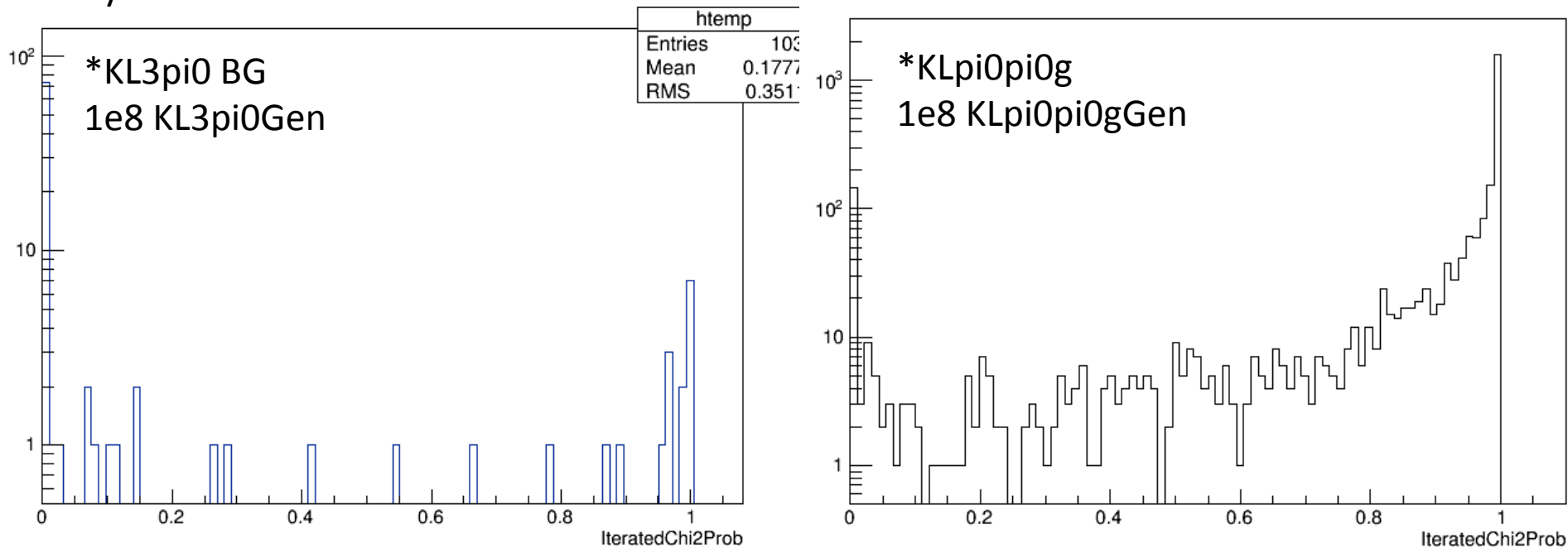
Kinematic Fit on KLpi0pi0g

Chi2 Probability

Selection

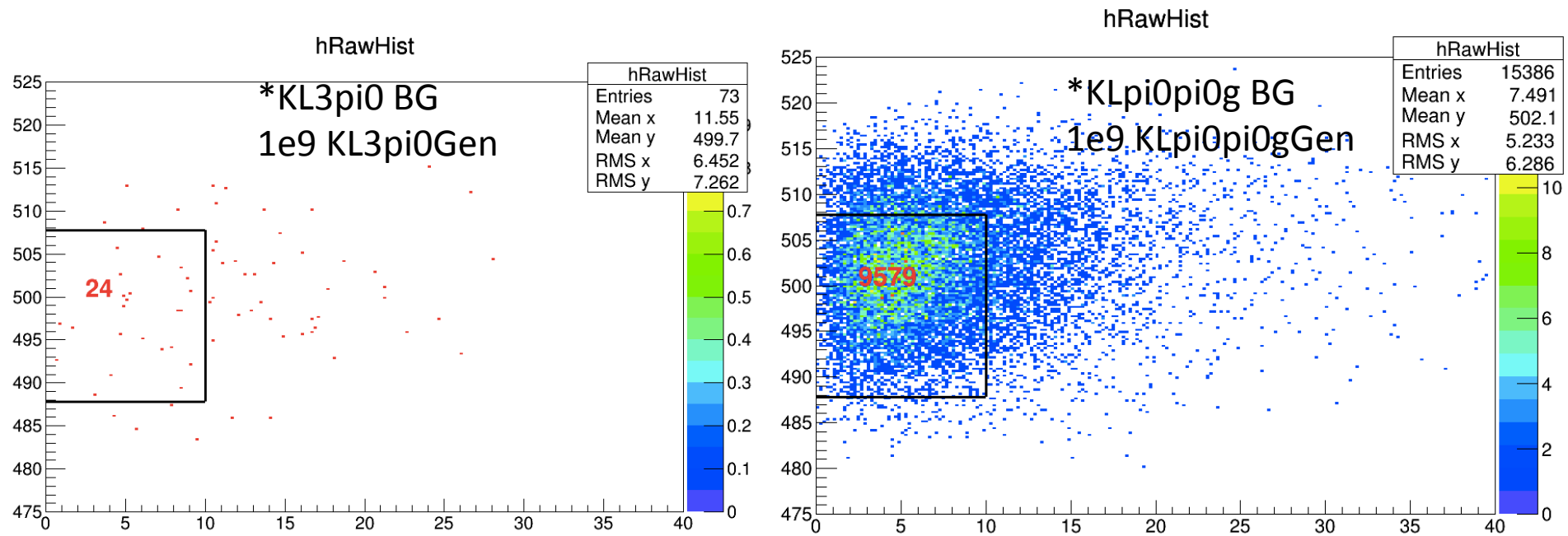
KinematicalCut == 0

MyVetoCondition ==0



Additional selection : Prob > 0.8

Signal Box

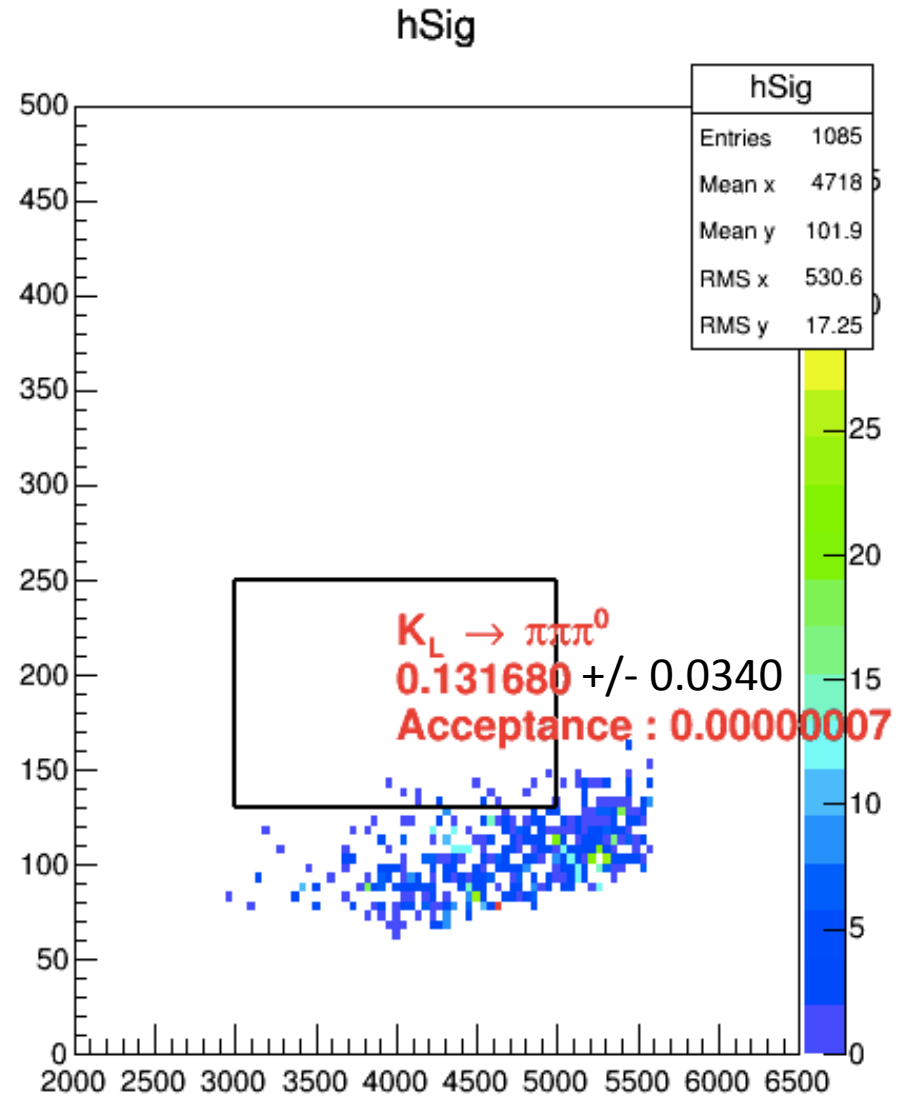
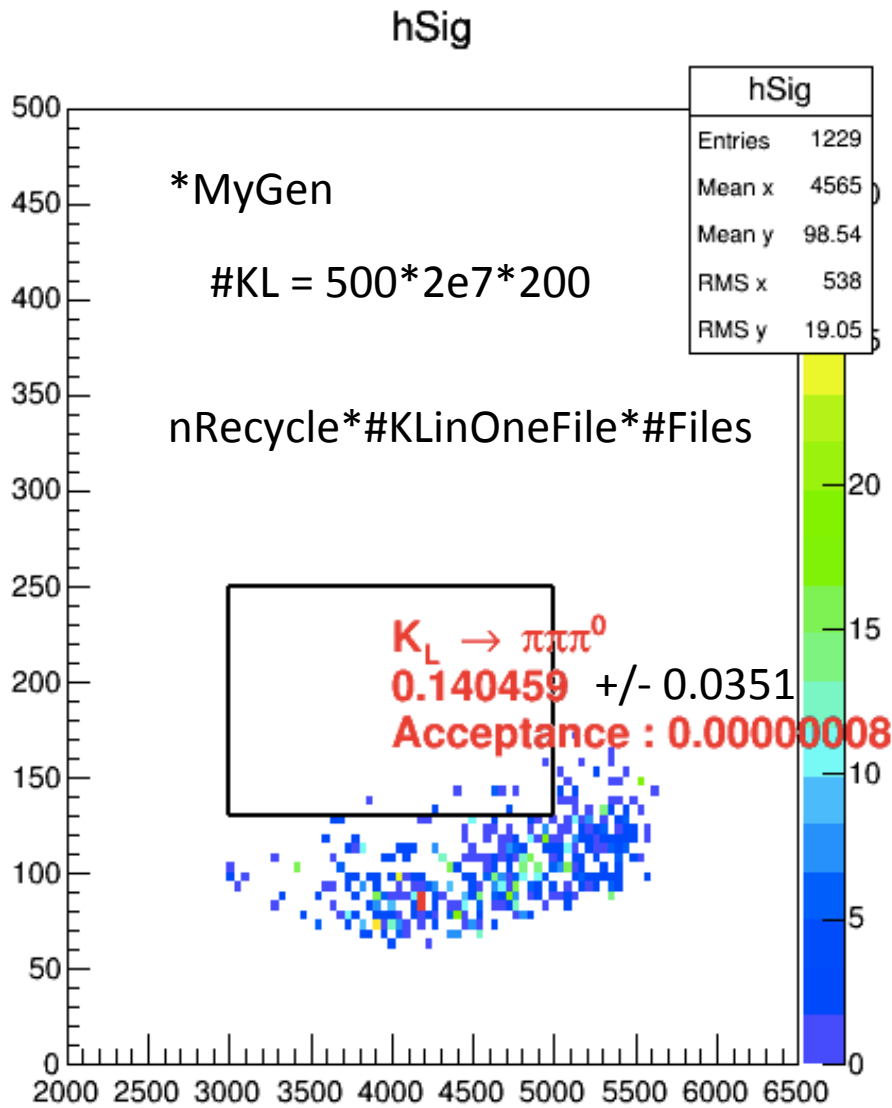


$$\text{Br}(3\pi^0) / \text{Br}(\pi^0\pi^0\text{g}) = 1e6$$

Things to do

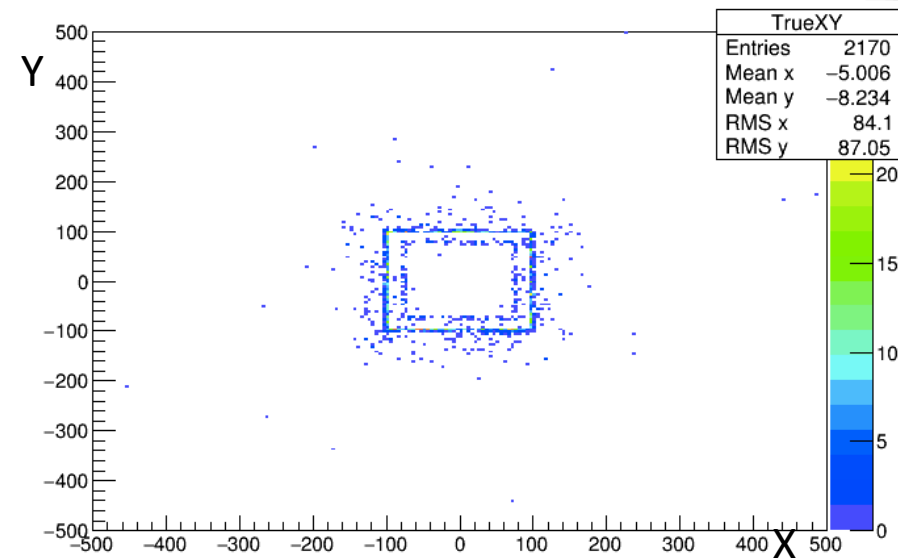
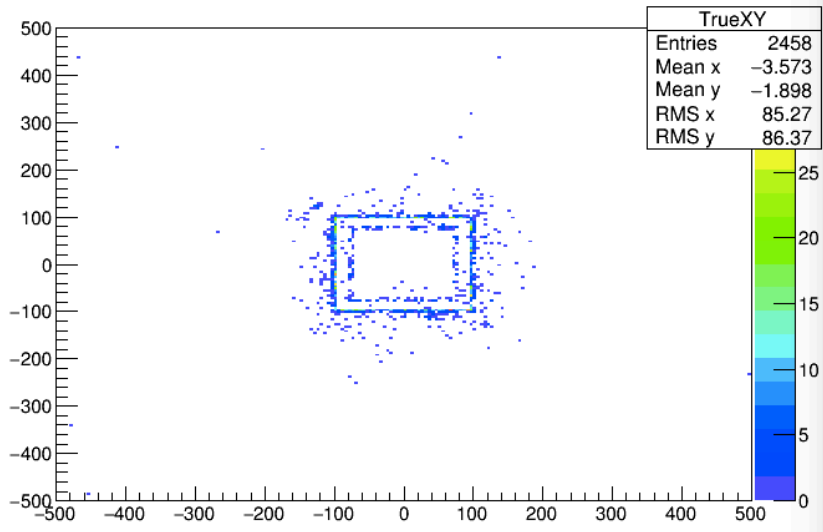
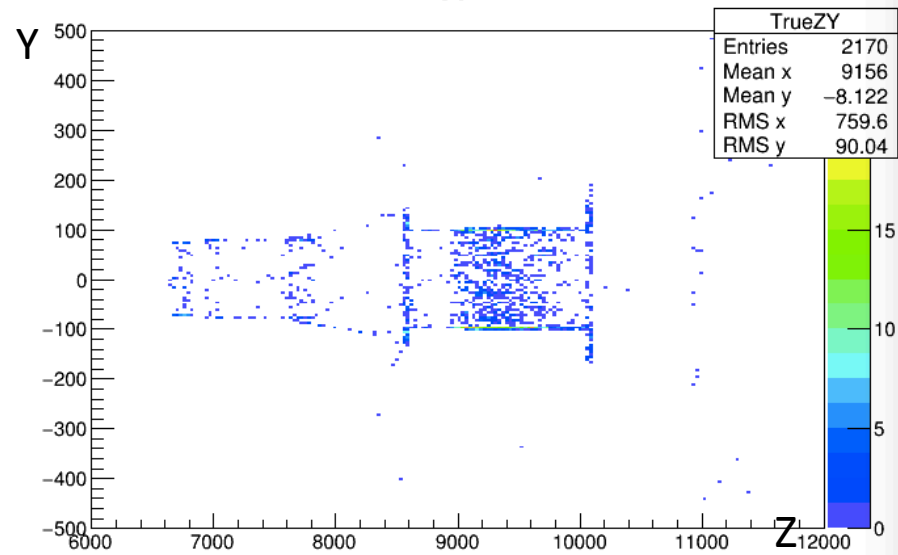
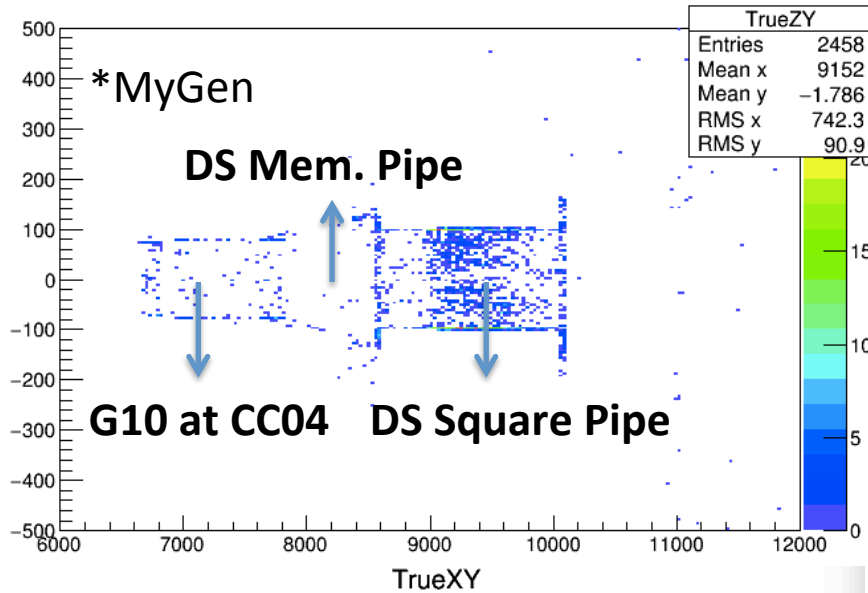
- #KL normalization with regard to Run62 statistics

KLpipi0 MC



- Difference comes from selection of kaon vertex(?)

Particle Interaction Position



Interaction point inside Signal Box

