Report_180110

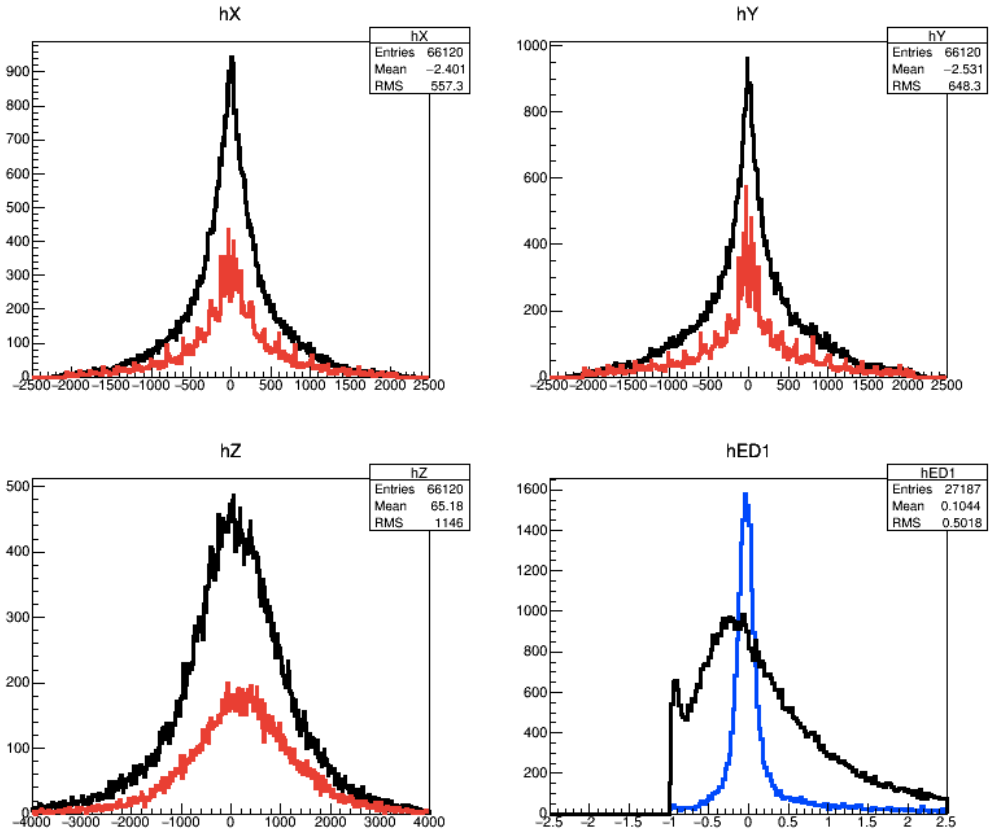
5g Pointing for evaluation of inefficiency

- Momentum estimation using 5 gammas with the condition of
  - Vertex X,Y = 0, Pt = 0 and KLong mass
- In data, pointing accuracy is decided using
  - Difference btw pointing estimation and result from 5g+1g
  - Other way?

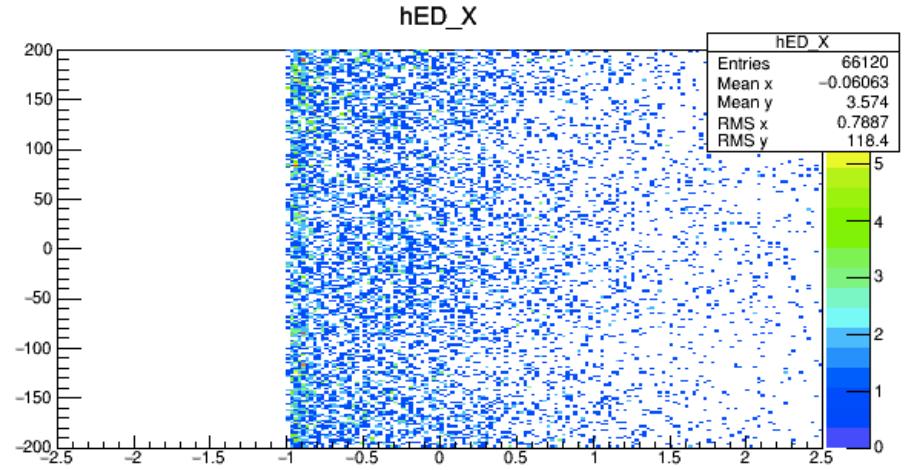
Pointing in M.C.

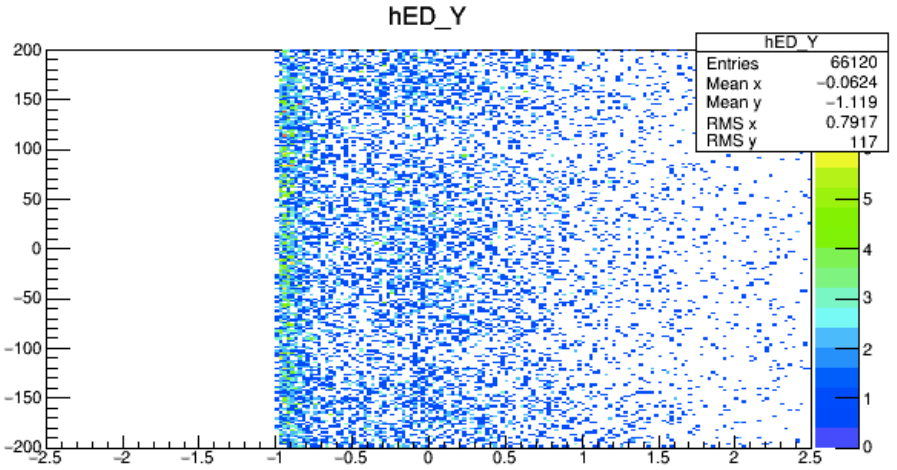
- Firstly, differences btw pointing estimations and M.C.(3pi0) True values are checked

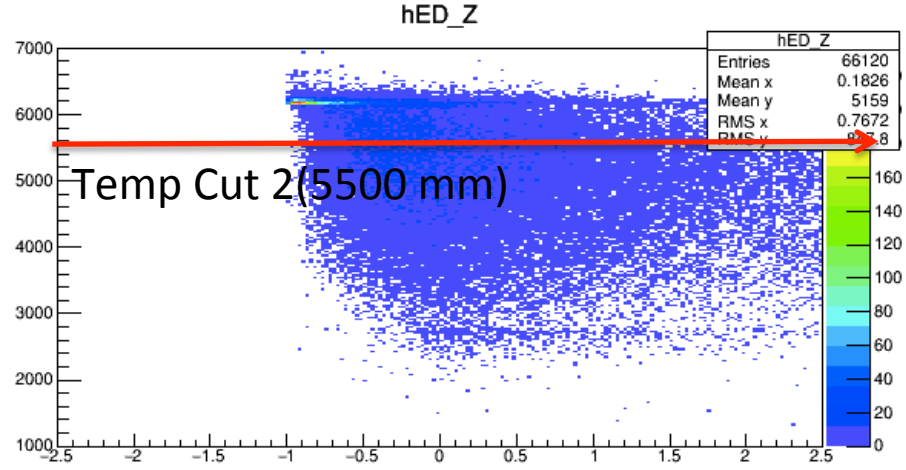
Red Line : Pointing – Barrel
Black : Pointing – M.C.
Blue : Barrel – M.C.

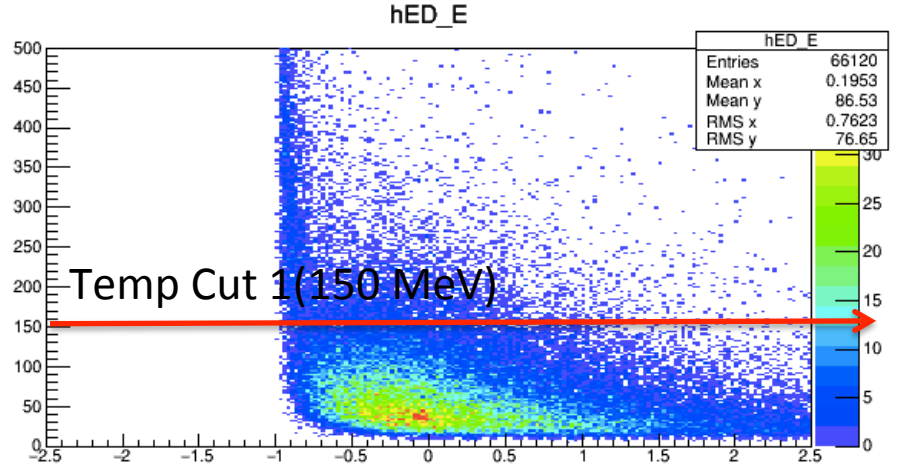


Scatter plots related to Energy Diff

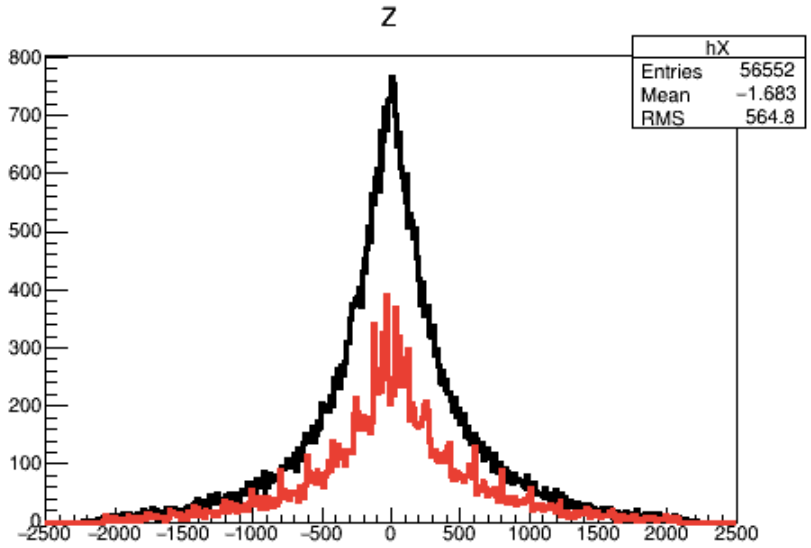


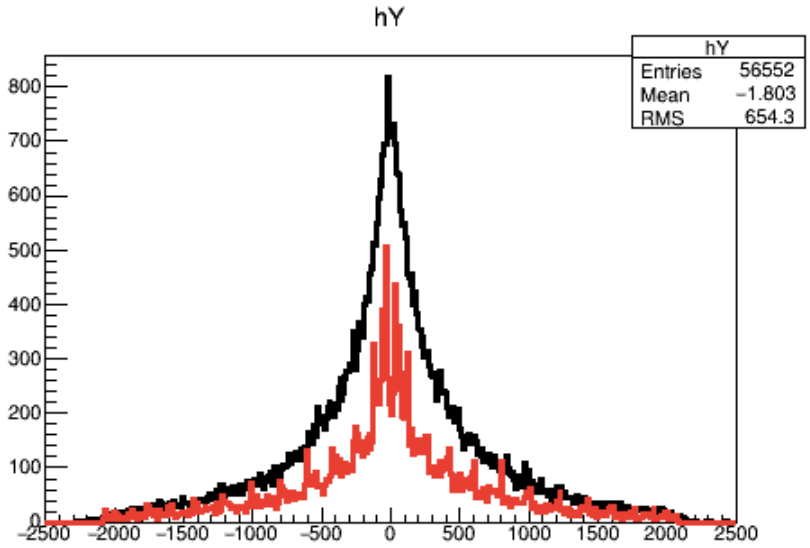


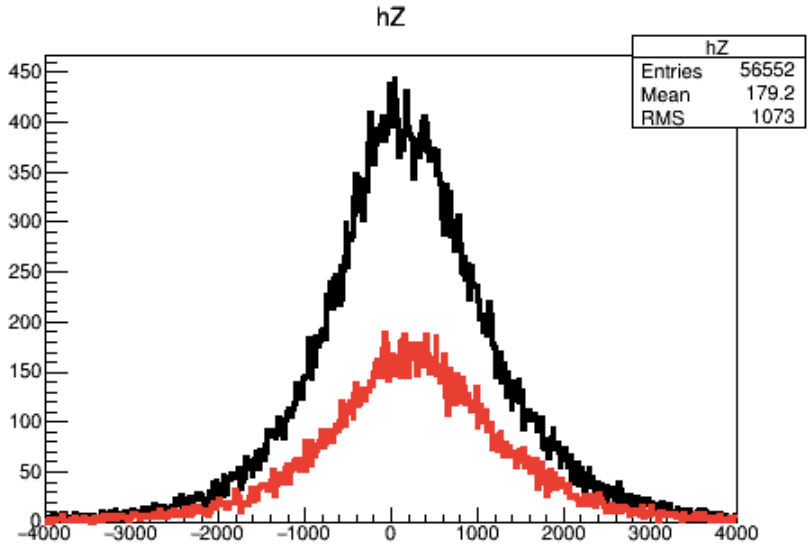


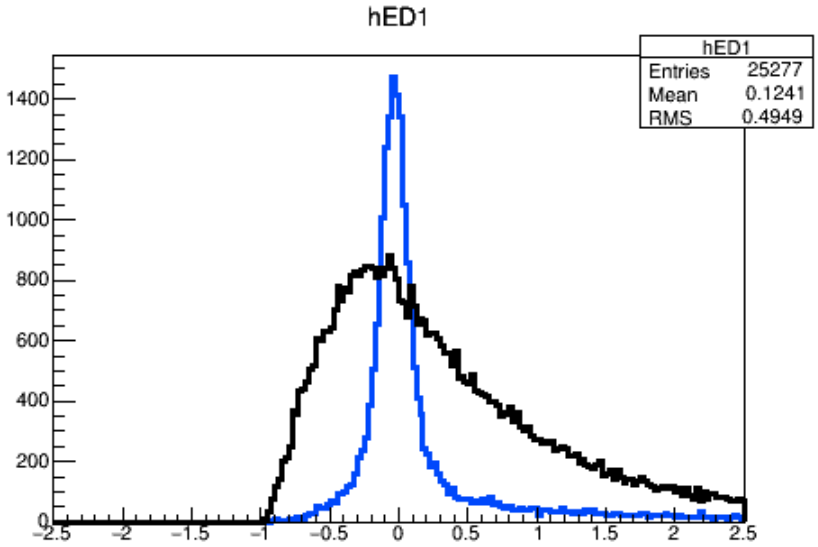


After Cut 1


Z
hX
Entries 56552
Mean −1.683
RMS 564.8

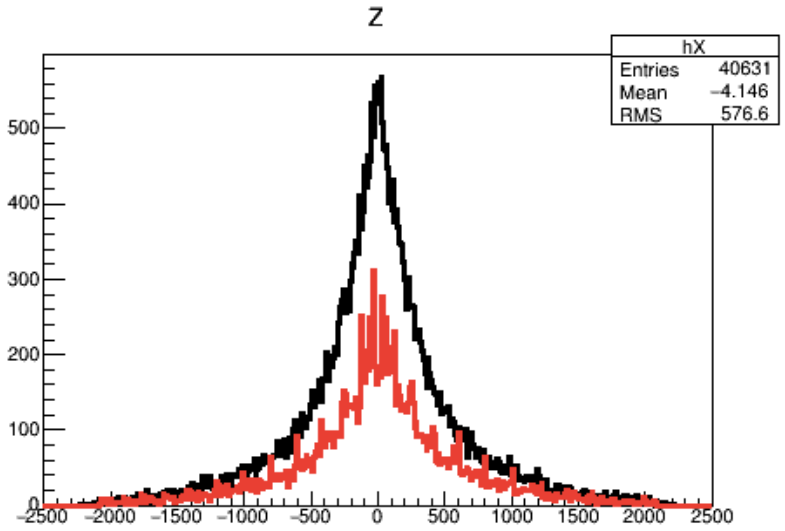

hY
hY
Entries 56552
Mean −1.803
RMS 654.3

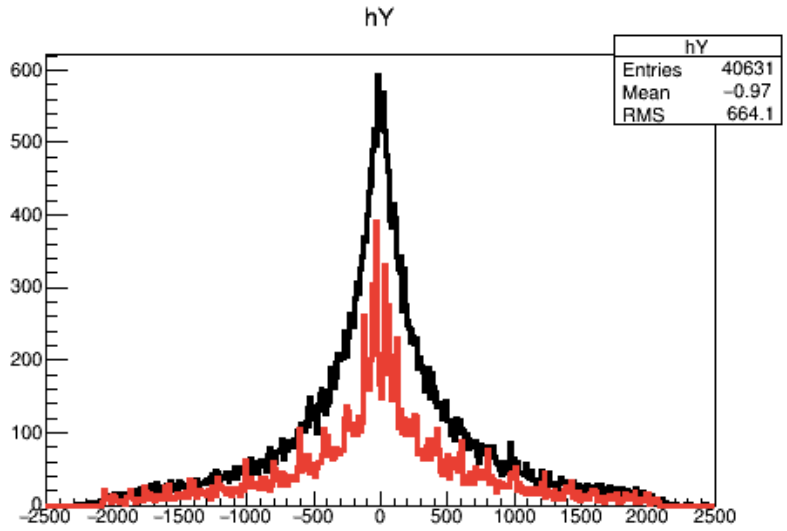

hZ
hZ
Entries 56552
Mean 179.2
RMS 1073

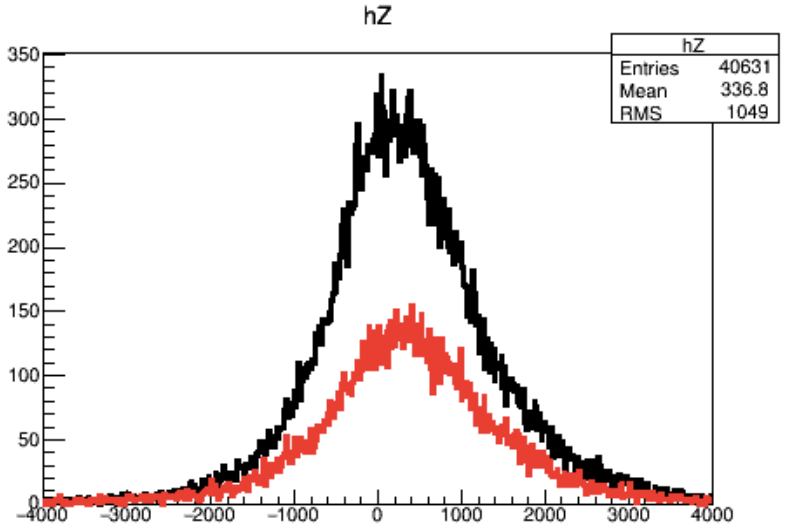

hED1
hED1
Entries 25277
Mean 0.1241
RMS 0.4949

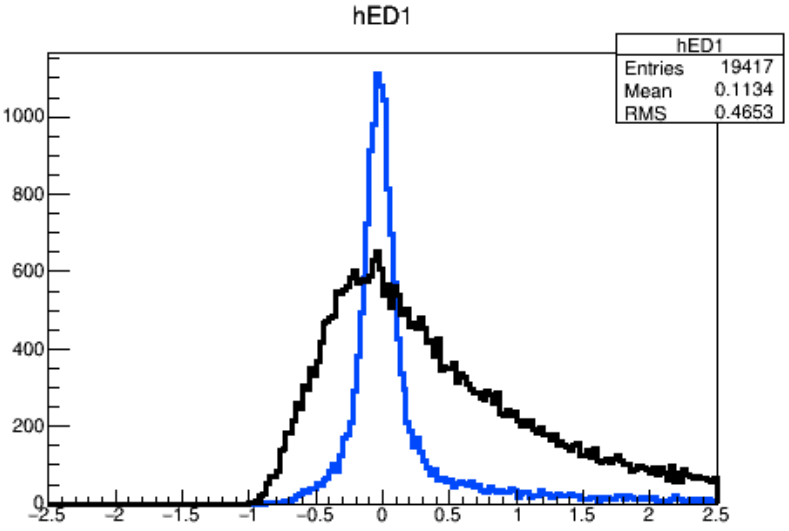
After Cut 2

Hard to reconstruct energy





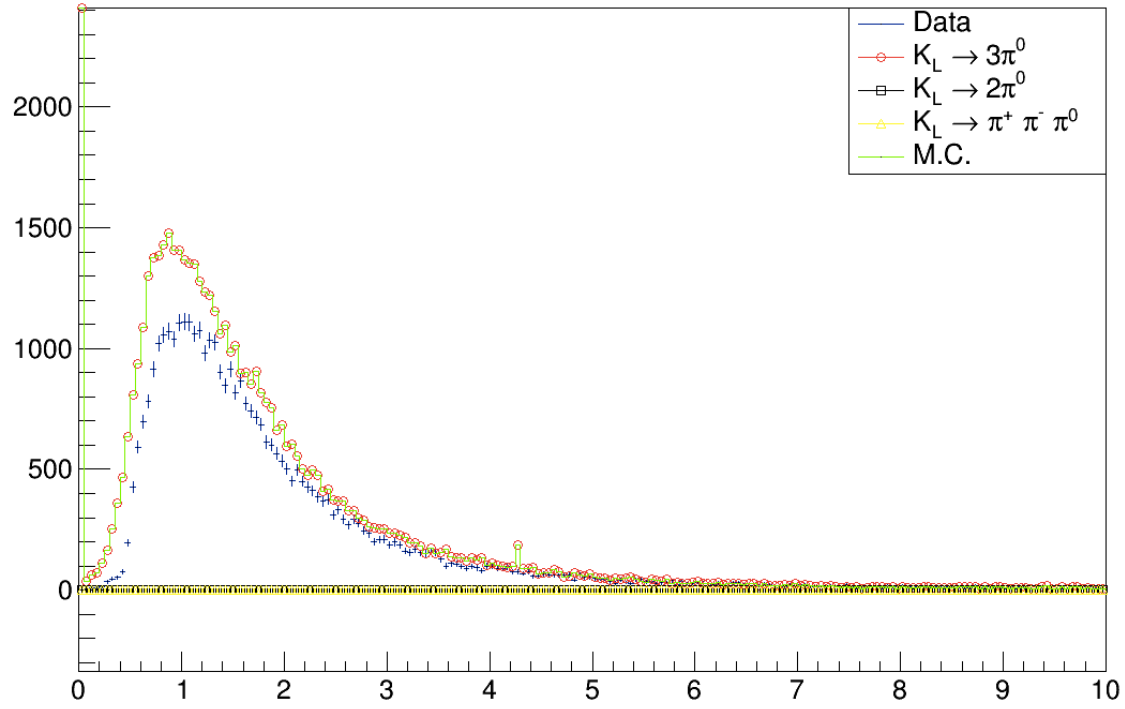


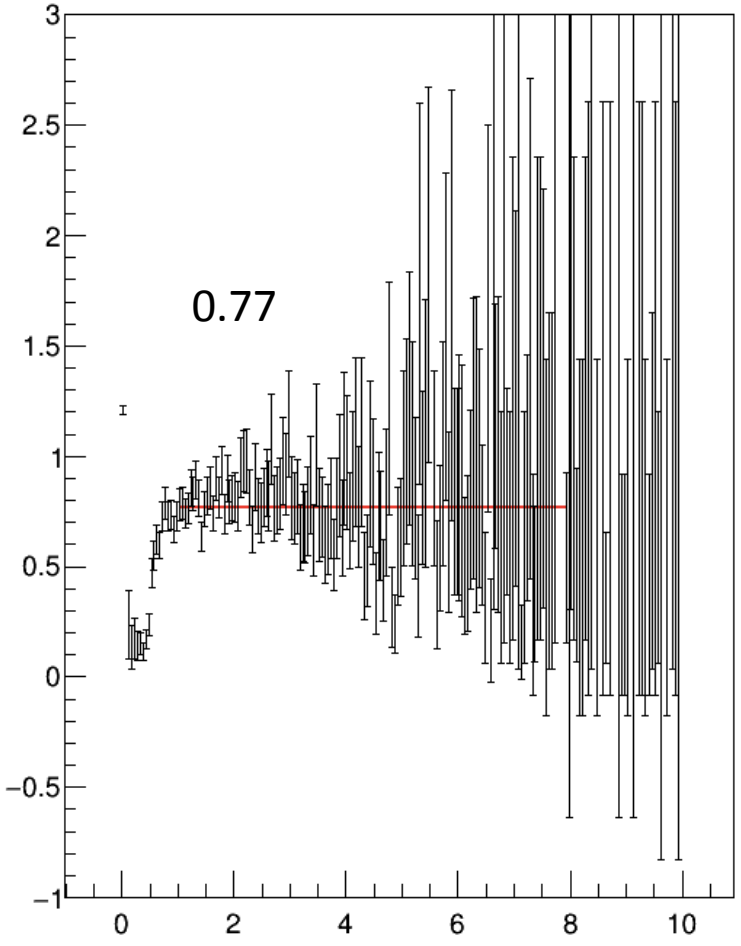


KLpi0pi0 for Inefficiency of Barrel

- Status
  - Need to understand discrepancy of CBAR deposit energy
- Different Kinematic Cut Bit is used
  - CutCondition -> MyCutCondition
    - CutCondition for klpi0nunubar
    - MyCutCondition for 3pi0, pi0pi0, 2gamma

Main Barrel Energy Deposit in g6ana event





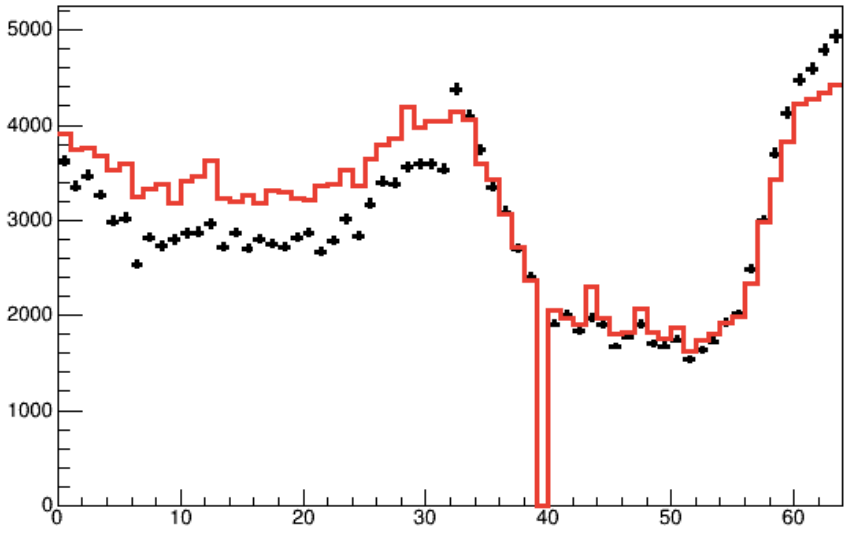
What is source of difference?

Main Barrel Distributions

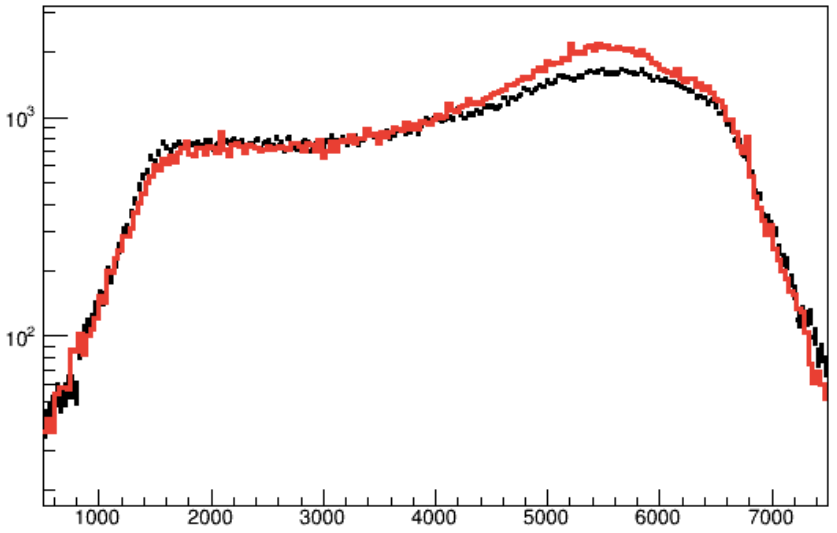
(CBARModuleEne>0.5 MeV)

Black : Data
Red : 3pi0 MC

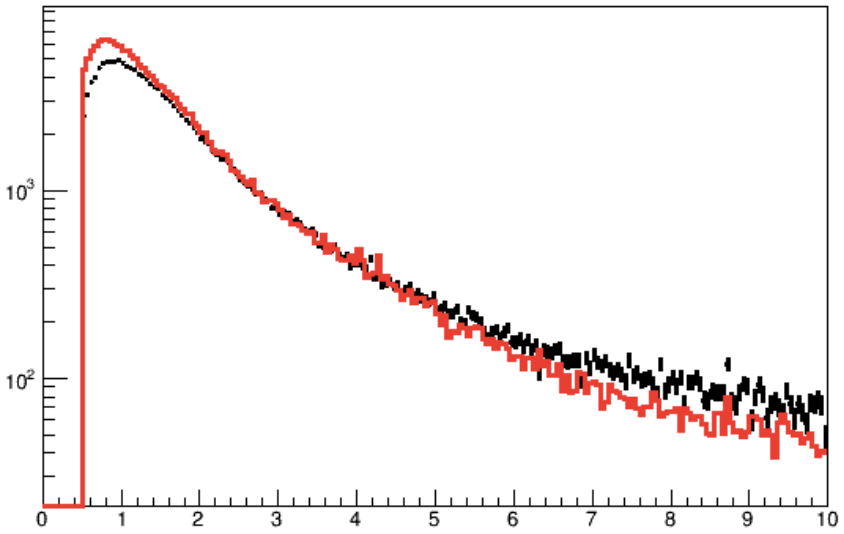
hCBARModuleModID



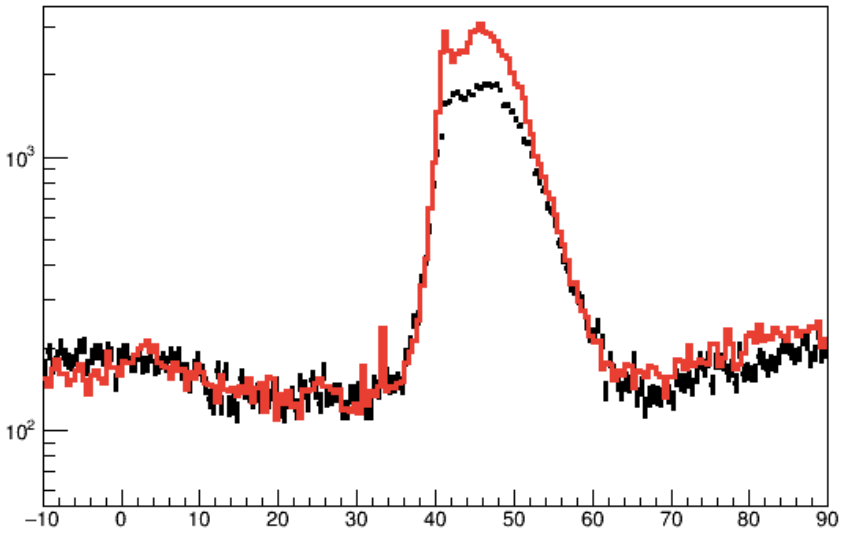
hCBARModuleHitZ



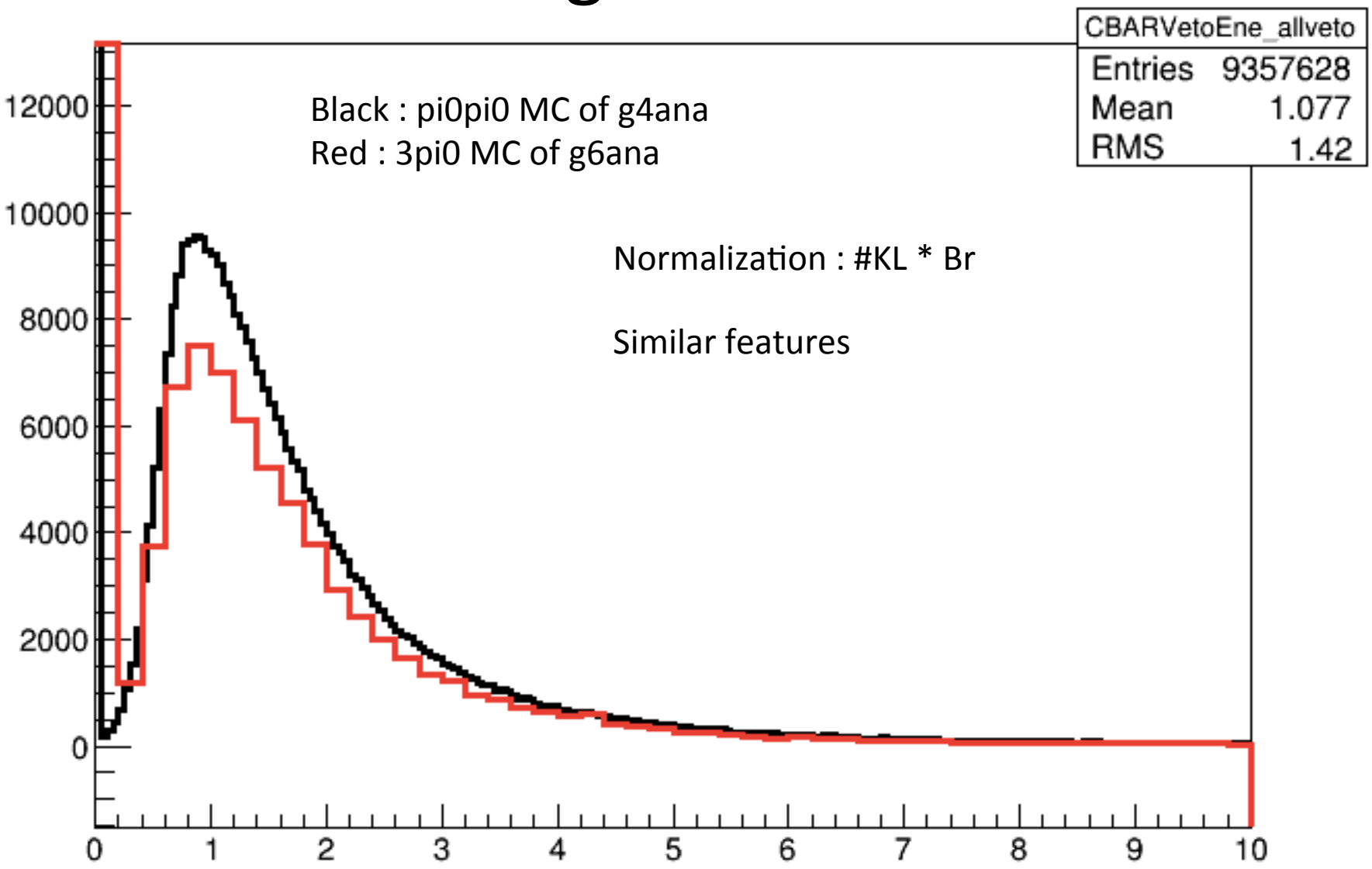
hCBARModuleEne



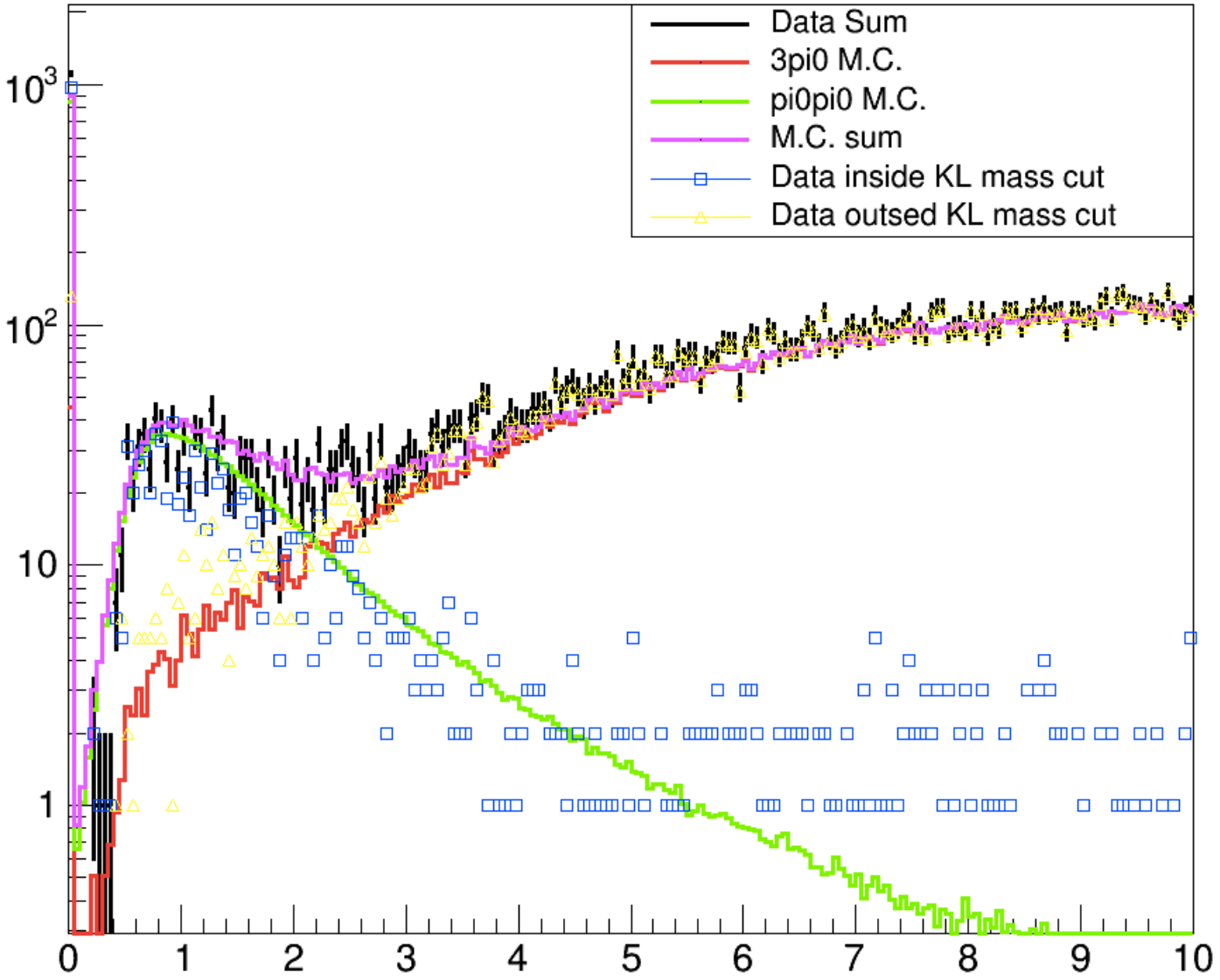
hCBARModuleDeltaTime



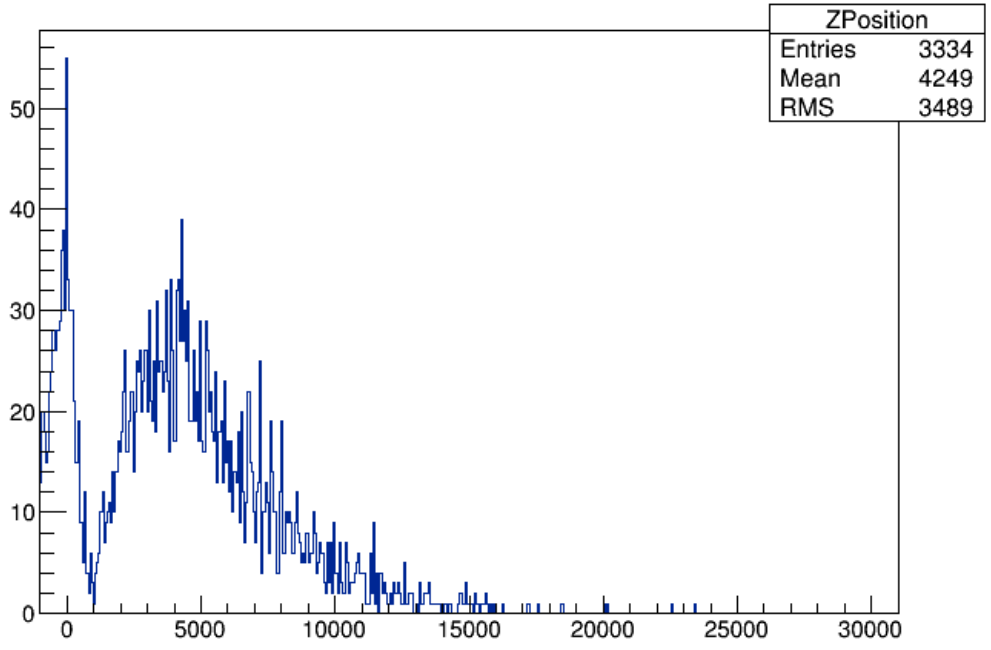
Energy deposit of CBAR at signal mode



Energy deposit of CBAR at pi0pi0

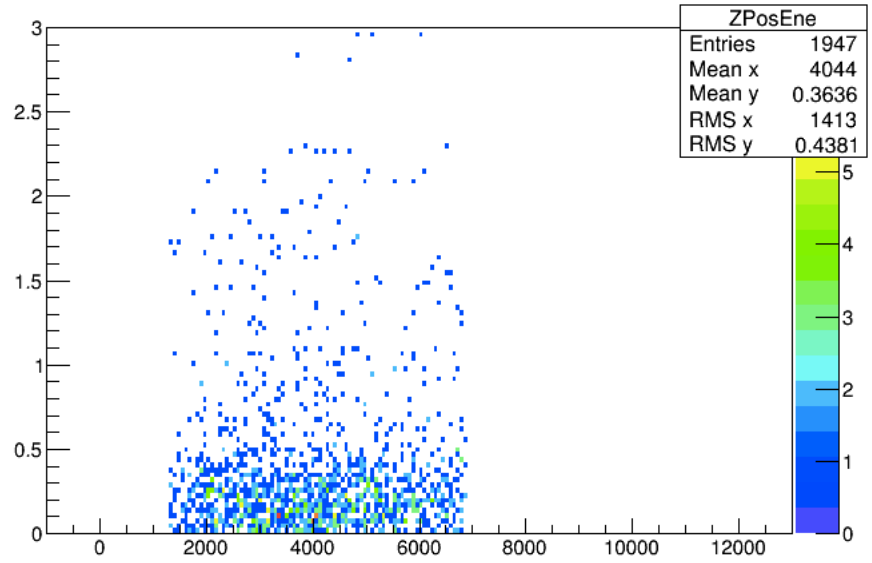


3pi0 background of pi0pi0 two missing gammas



Z position with extrapolation to CBAR radius

Ene



Z

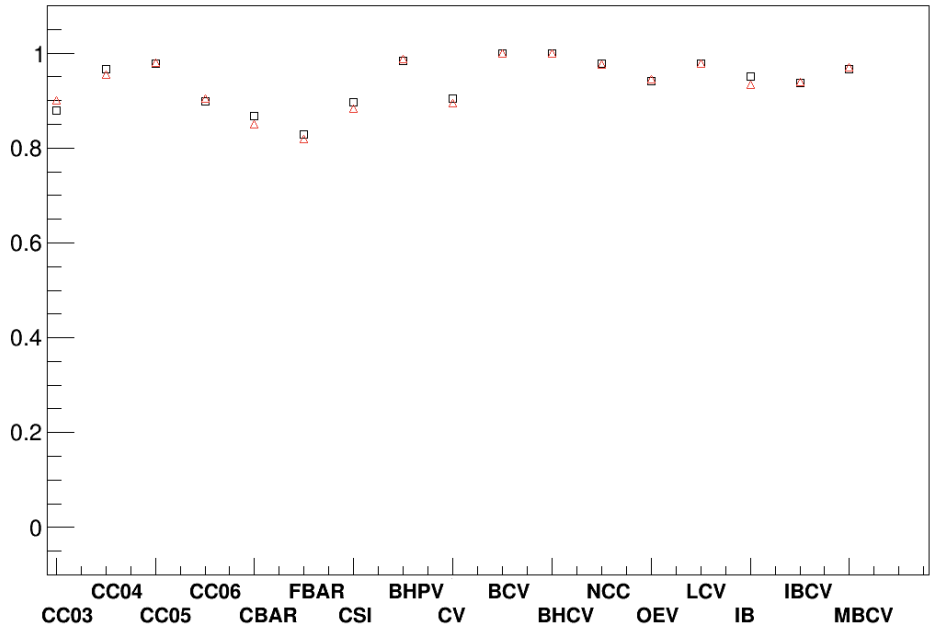
In total BG,
~7/8 : fusion
~1/8 : missing two gamma

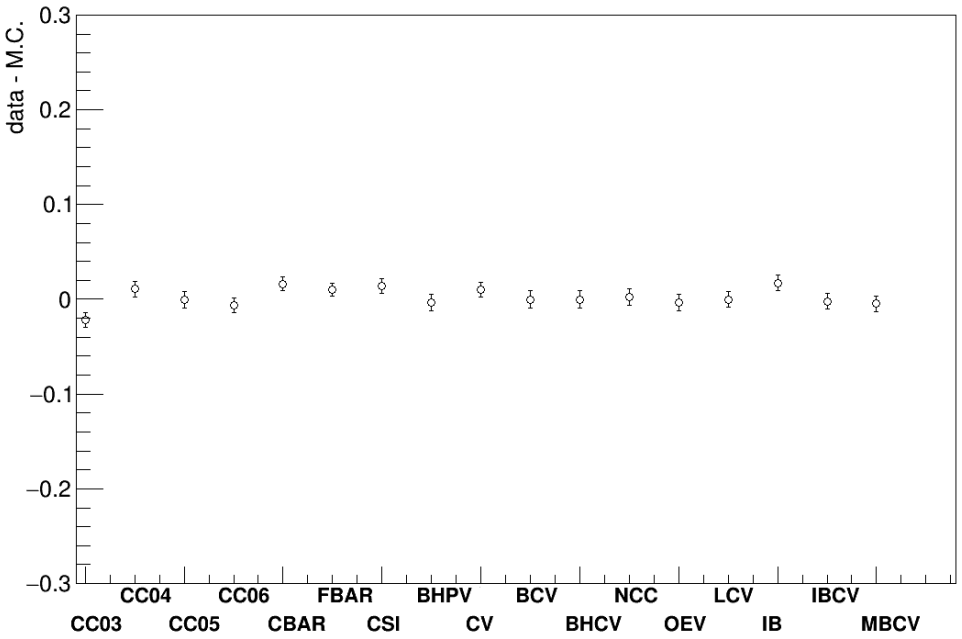
Run69 Status Update

- New M.C. files are made by E14AnalysisSuite

KL3pi0

- KL Flux : 3.73 -> 3.66 (shinohara san : 4.05)

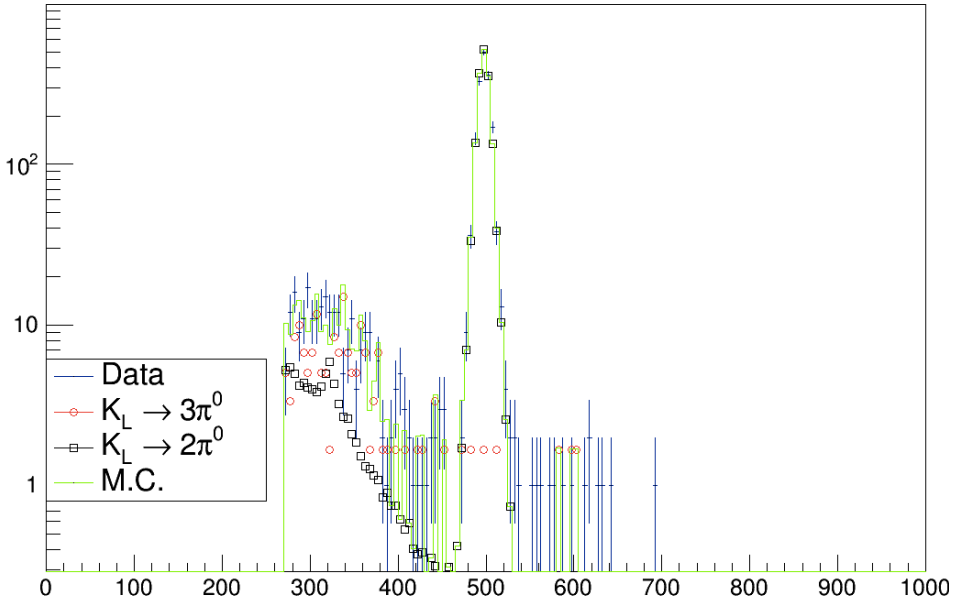




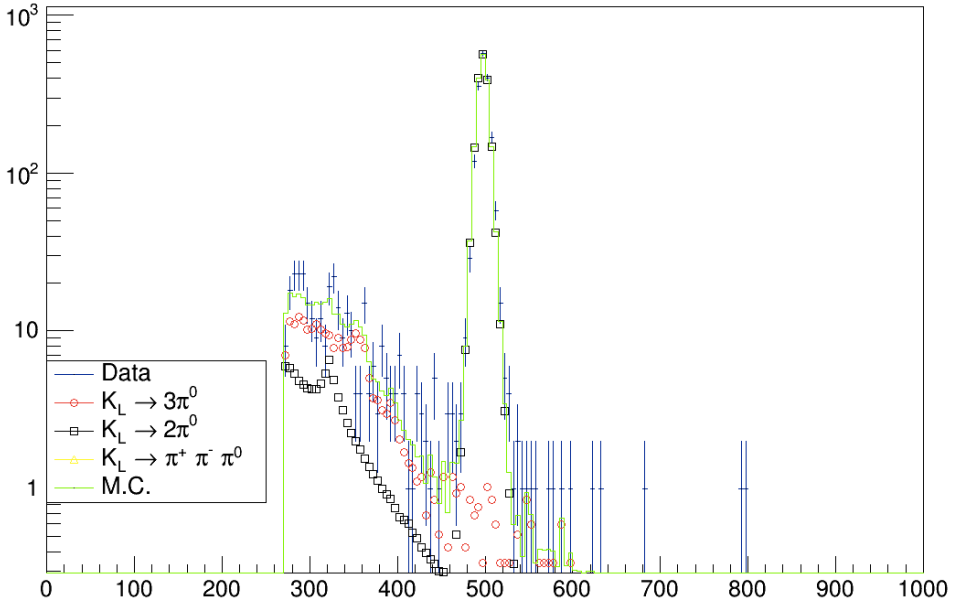
- All good agreements

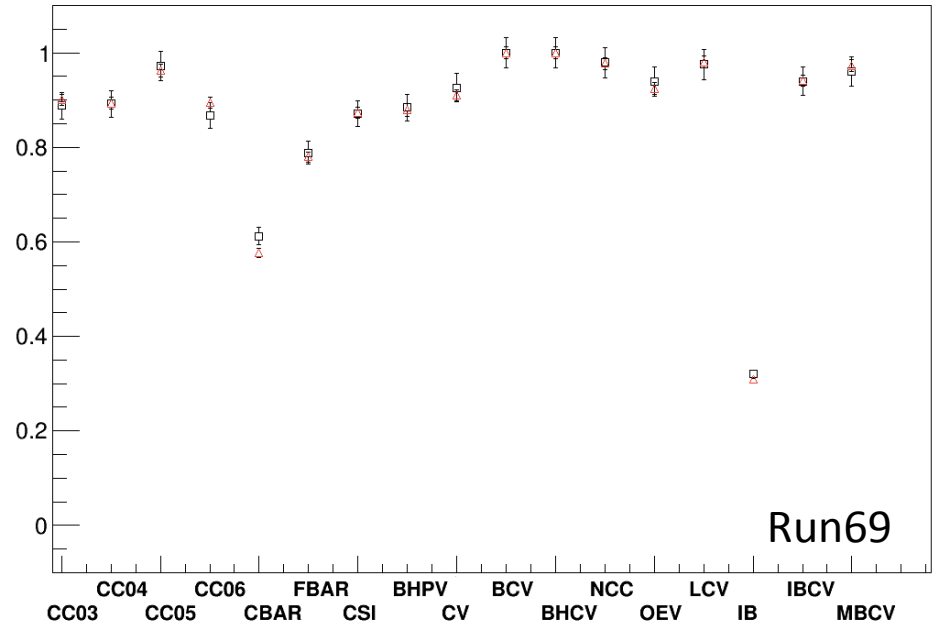
KLpi0pi0

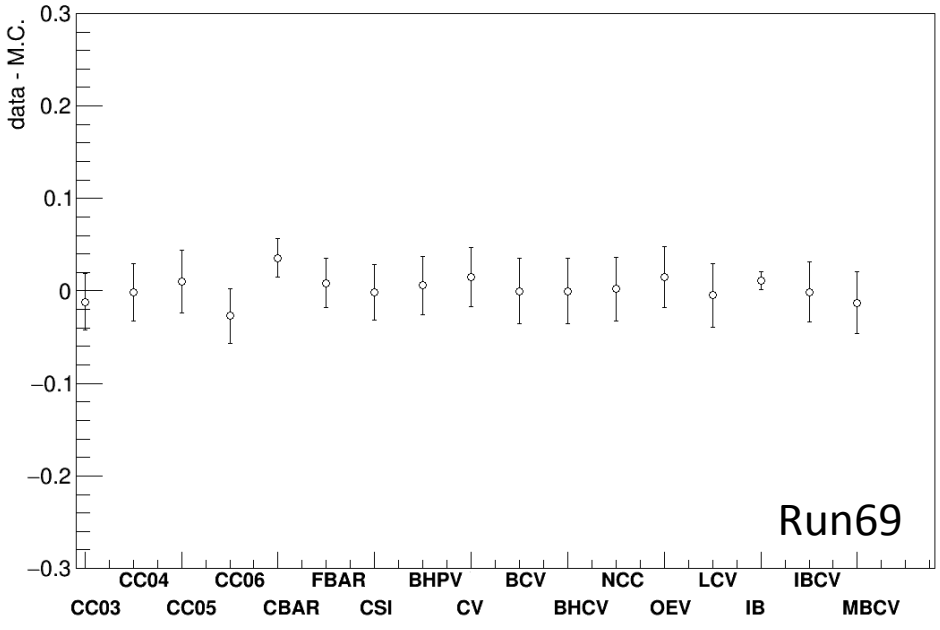
Run69



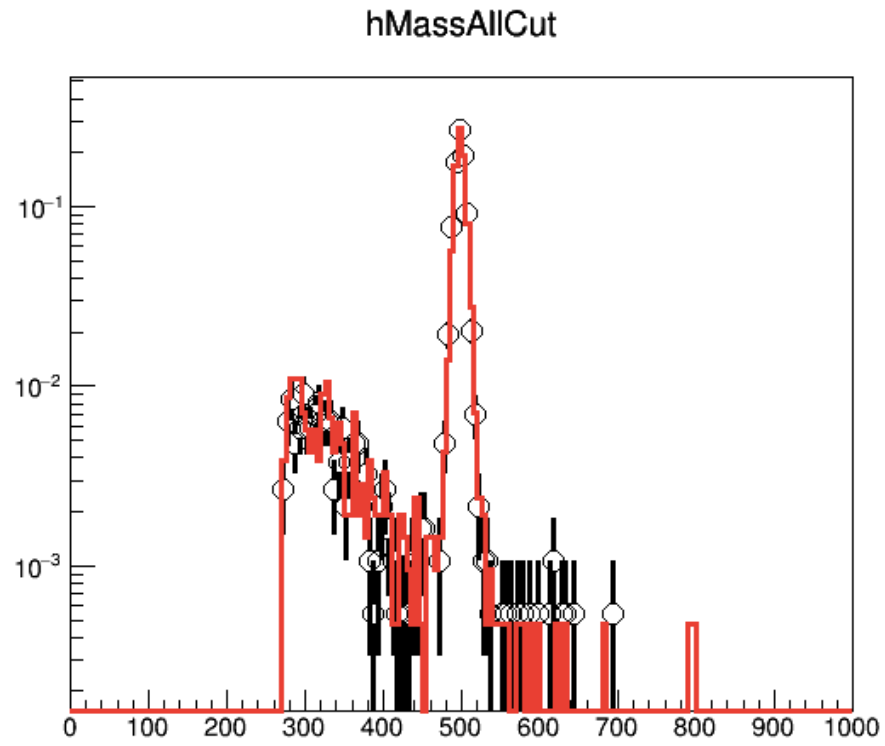
Run62



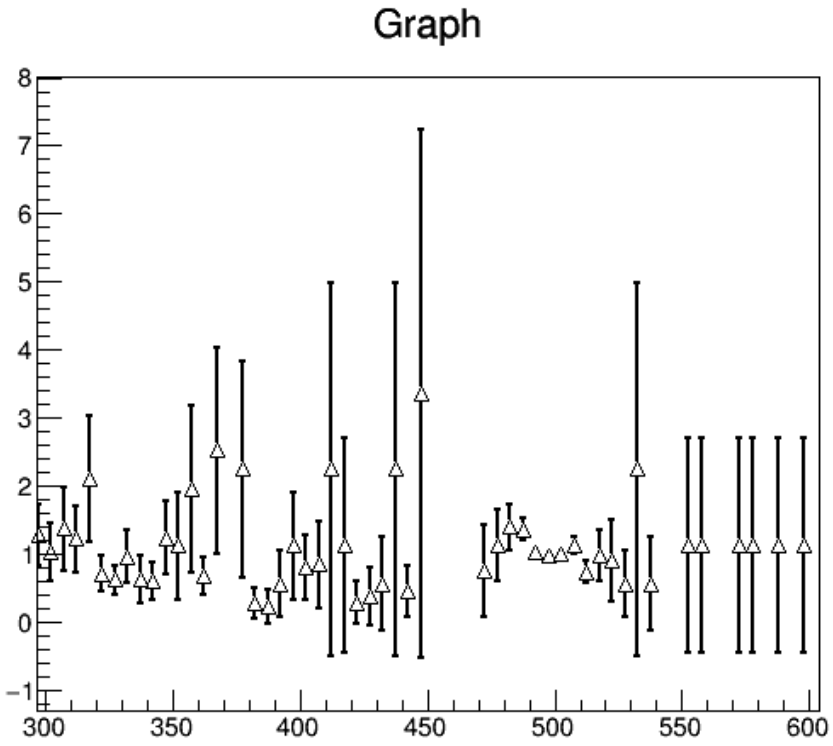




Run62 vs Run69



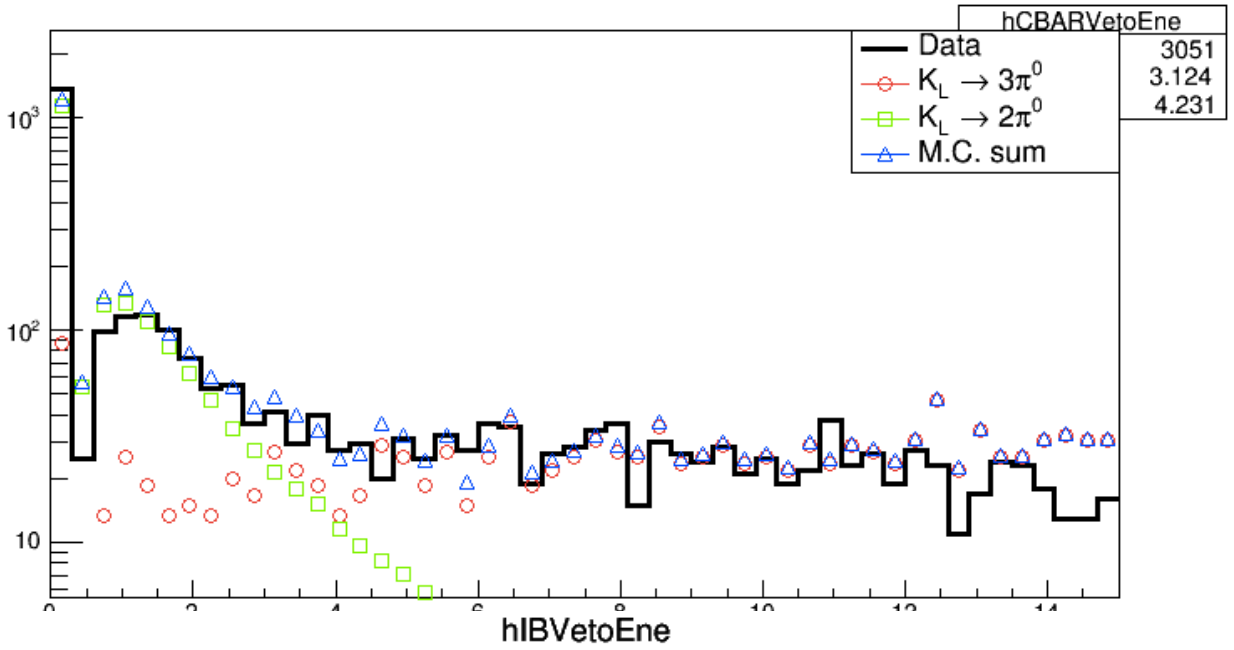
Black : Run69
Red : Run62



Run69 / Run62
Area normalization

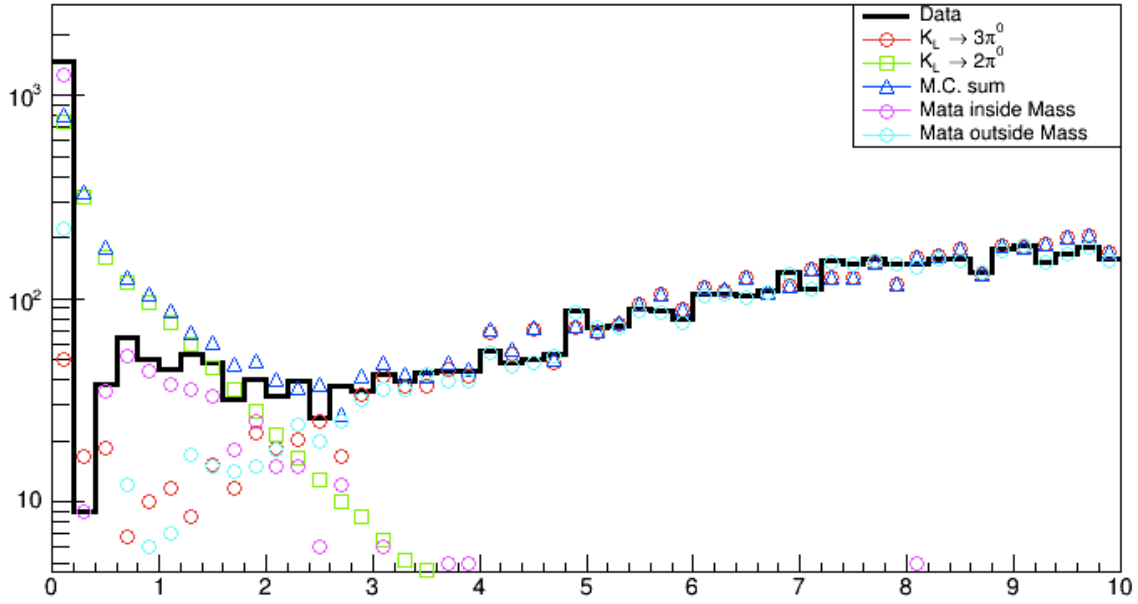
Barrel Energy Deposit

CBAR



All veto except CBAR

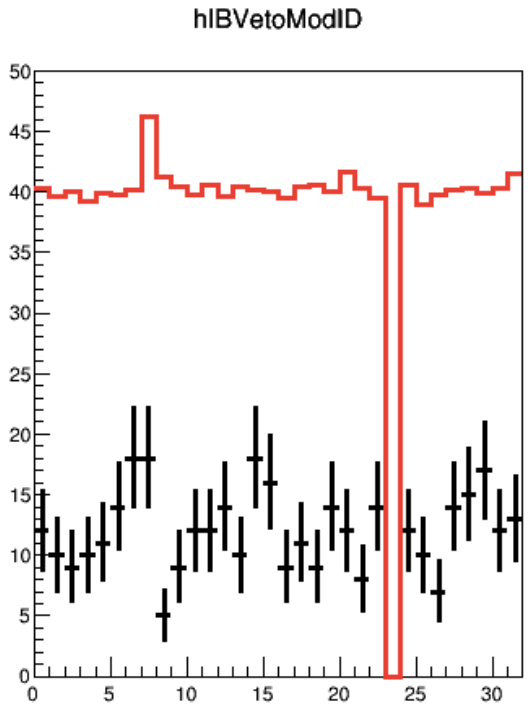
IB

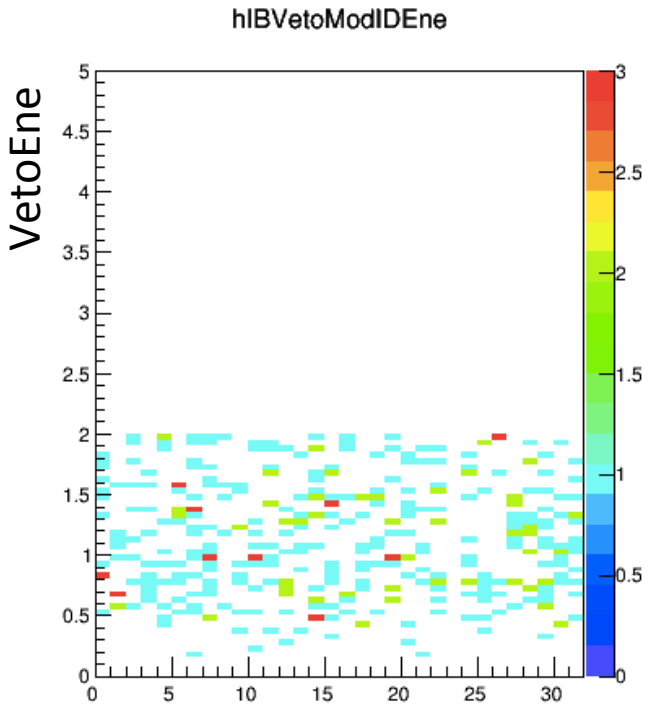


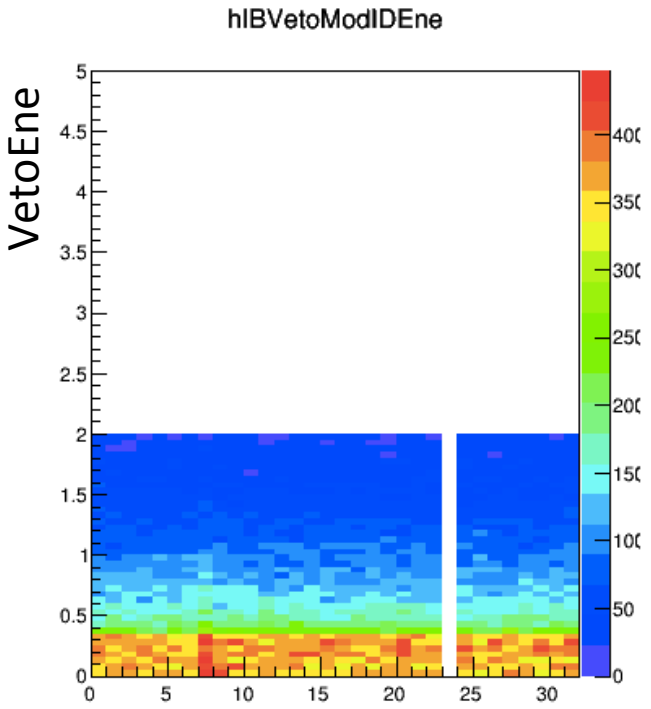
All veto except IB

IB low energy deposit

IBVetoEne < 2.0







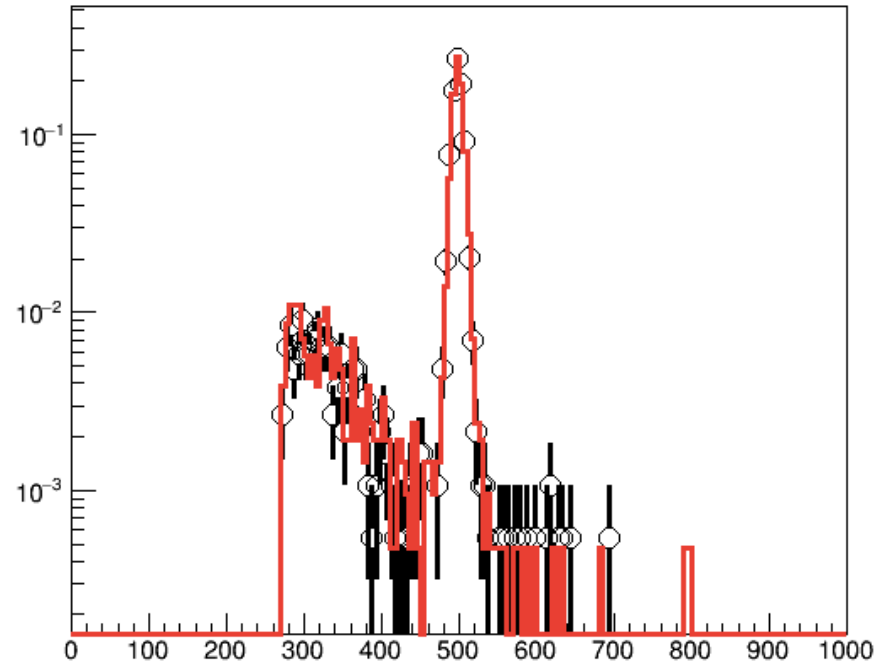
Red : pi0pi0 MC
Black : Data

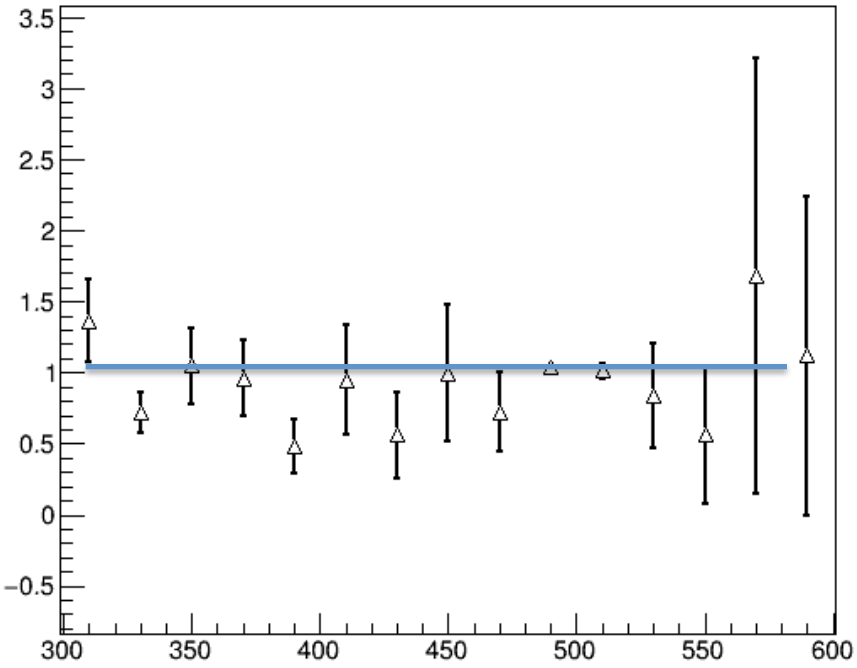
Data

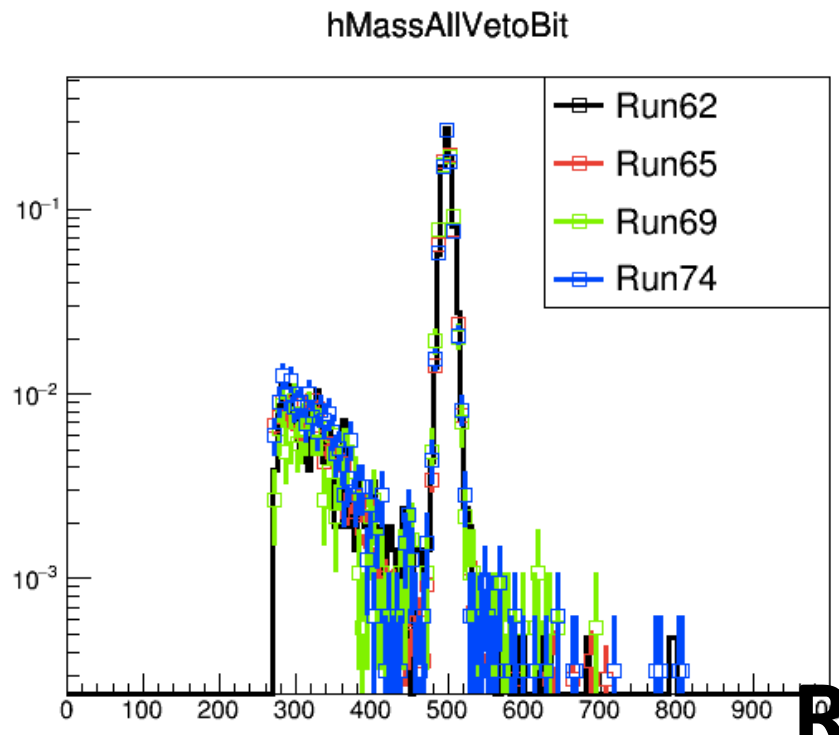
pi0pi0 MC

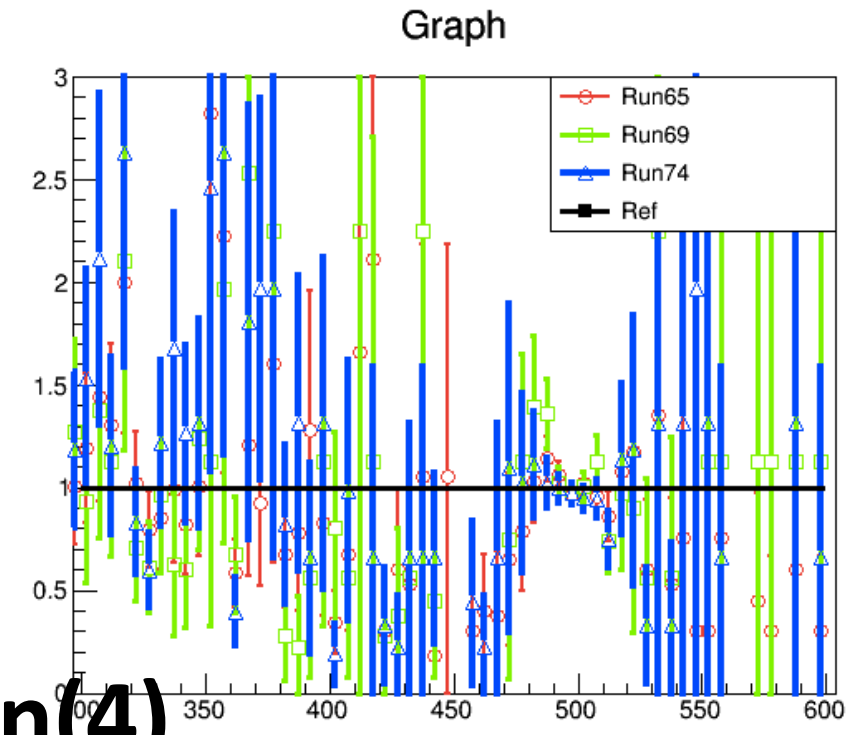
No module dependence

Rebin(4)

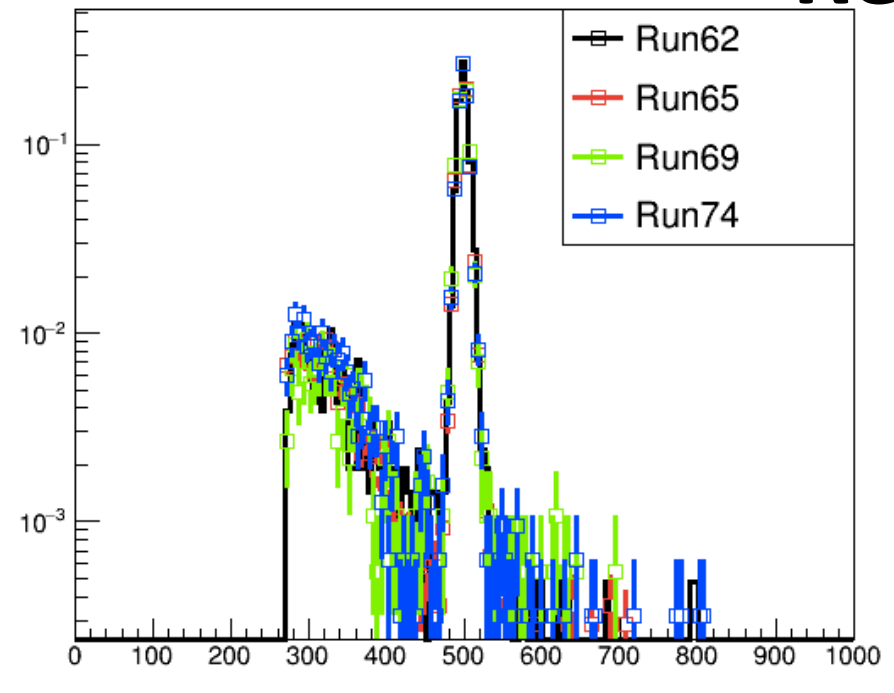

10^{-1}
10^{-2}
10^{-3}
0
100
200
300
400
500
600
700
800
900
1000

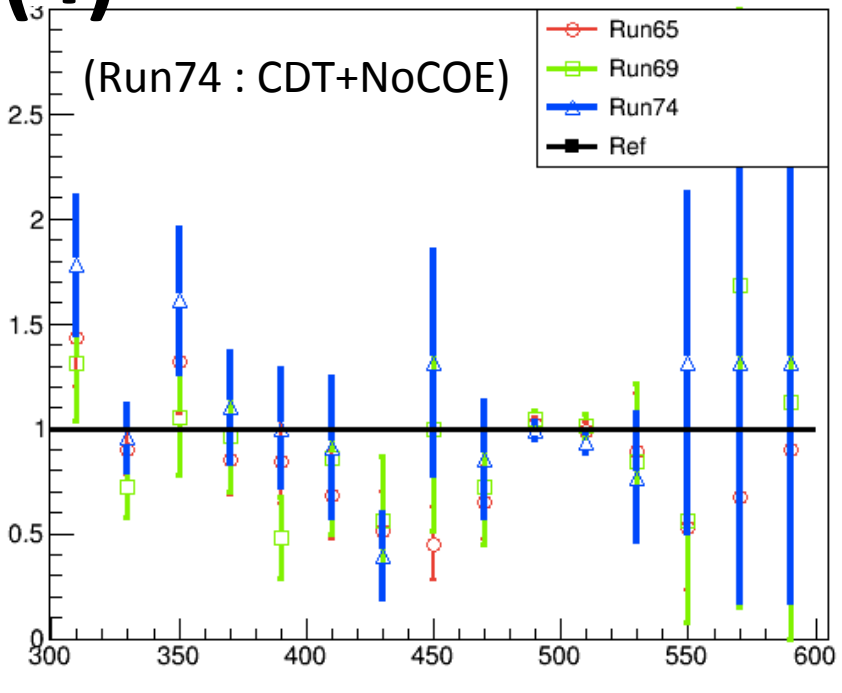

3.5
3
2.5
2
1.5
1
0.5
0
−0.5
300
350
400
450
500
550
600


hMassAllVetoBit
Run62
Run65
Run69
Run74

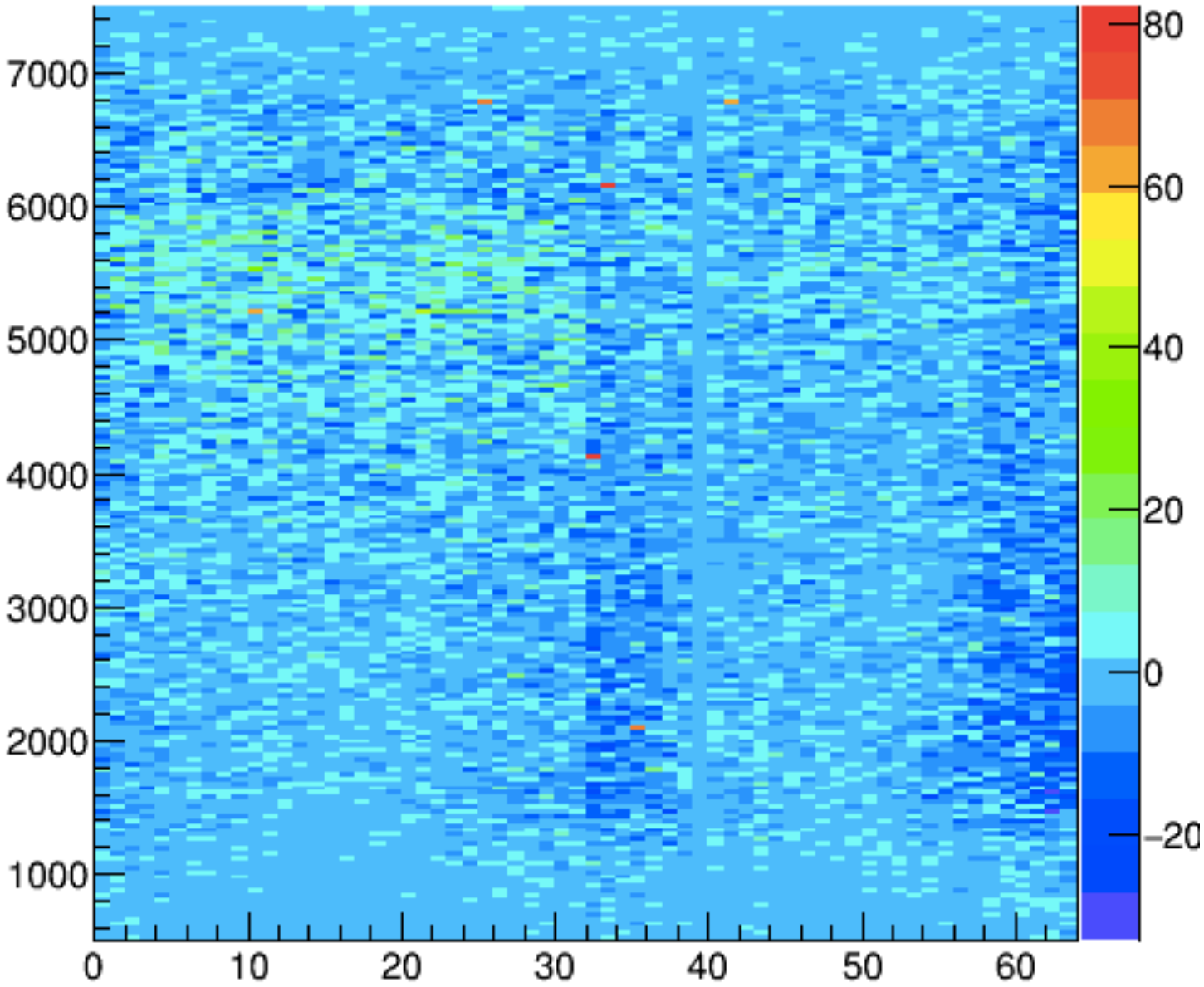

Graph
Run65
Run69
Run74
Ref

Rebin(4)


Run62
Run65
Run69
Run74


(Run74 : CDT+NoCOE)
Run65
Run69
Run74
Ref

M.C. - Data


7000
6000
5000
4000
3000
2000
1000
0
10
20
30
40
50
60
80
60
40
20
0
−20