

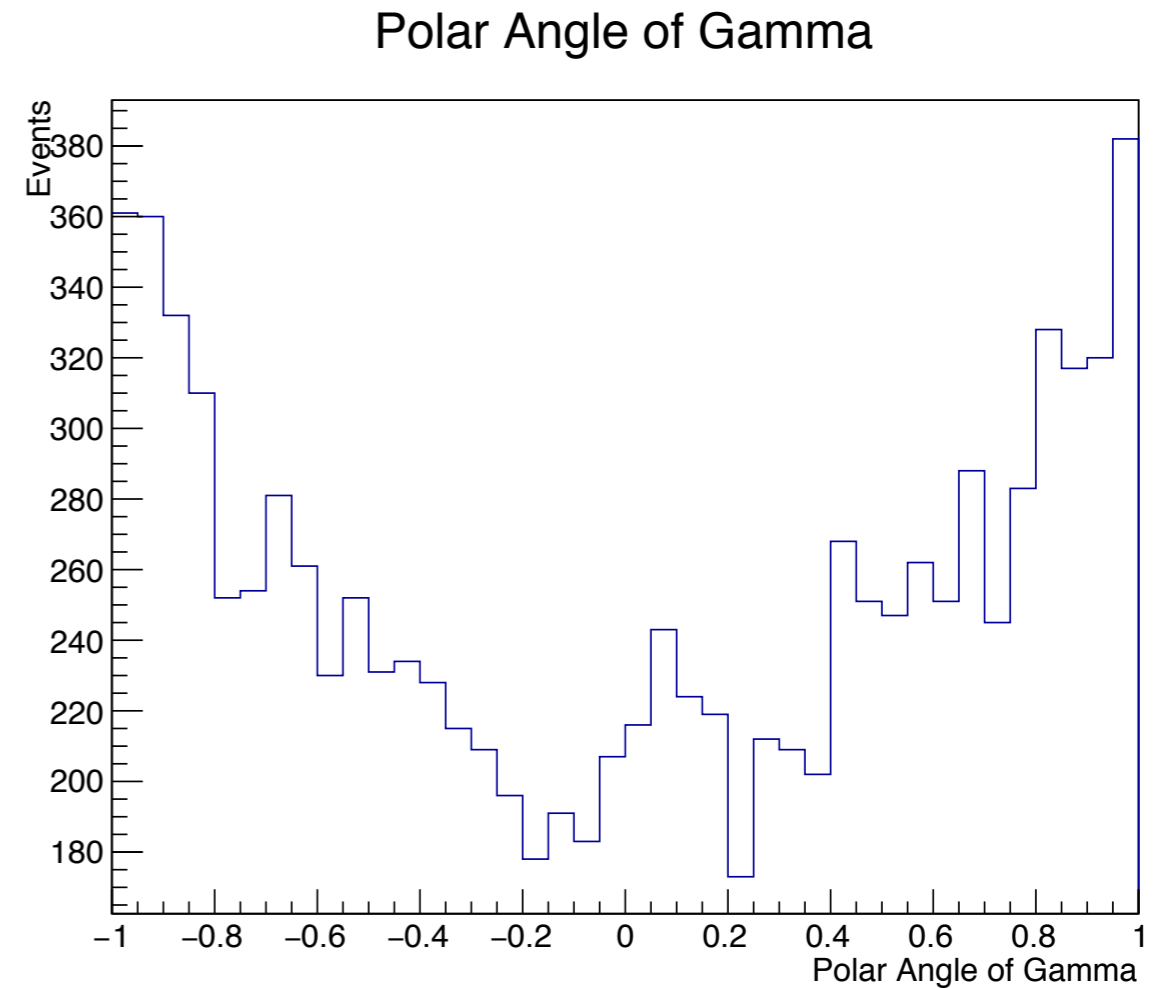
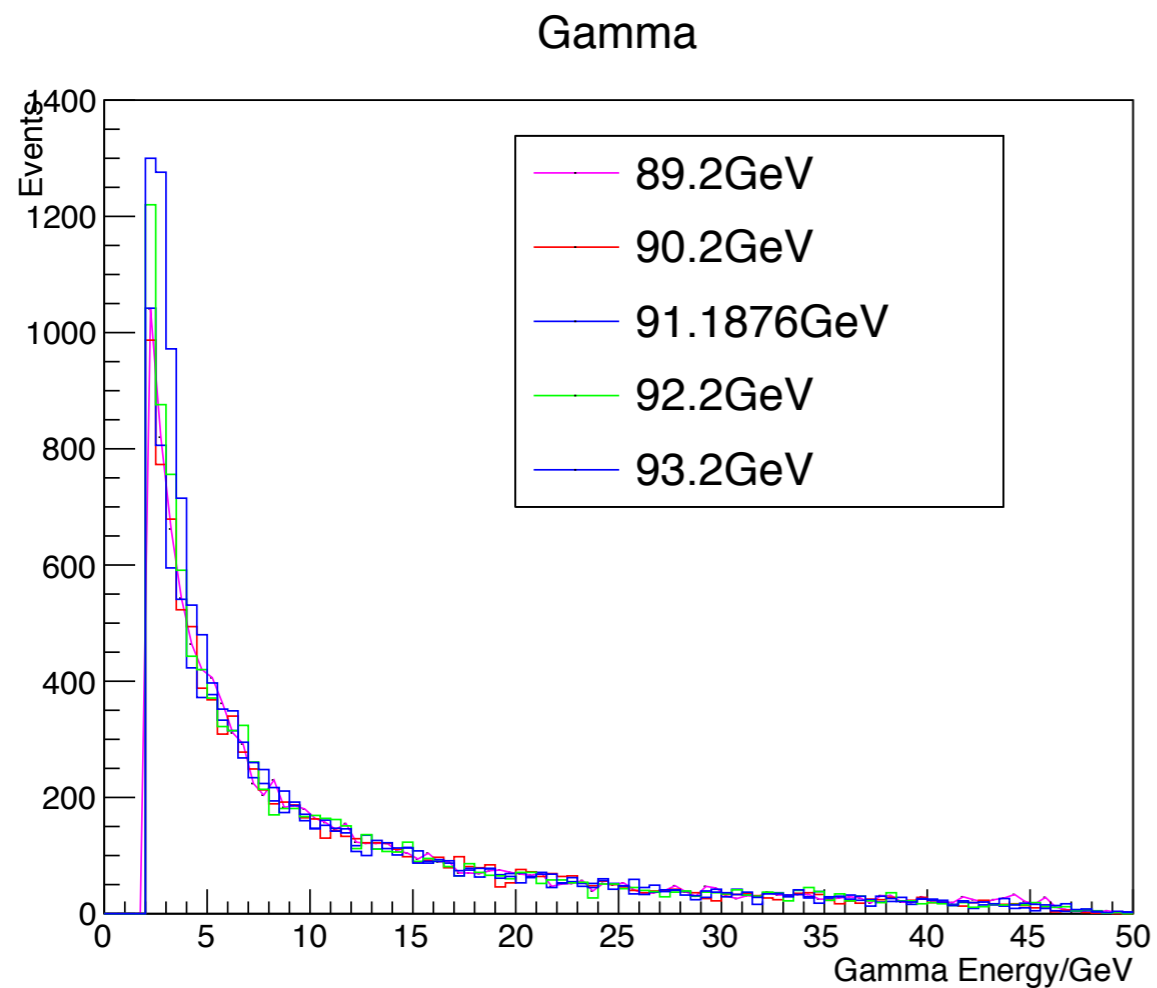
# $A_{\text{FB}}$ Measurement in Z-Pole Run

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# Outline

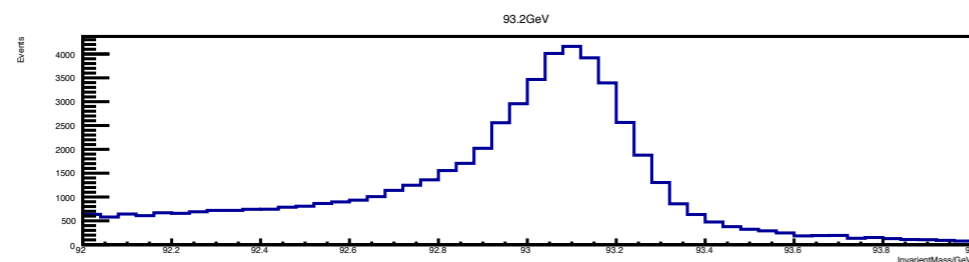
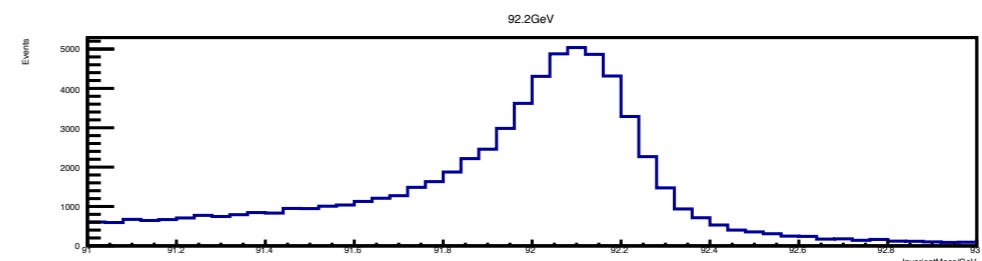
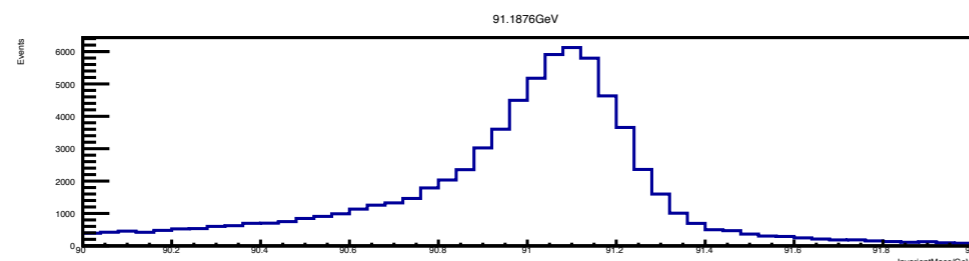
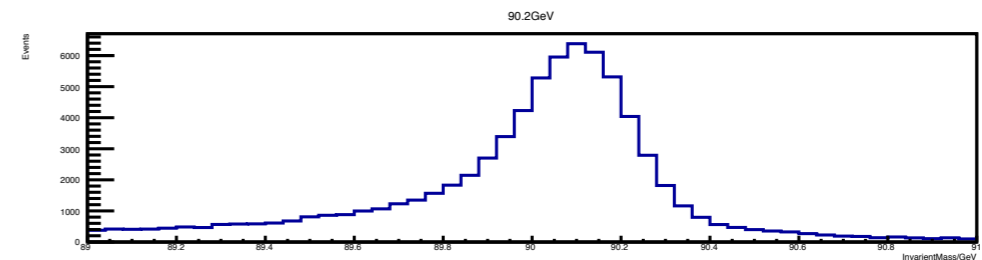
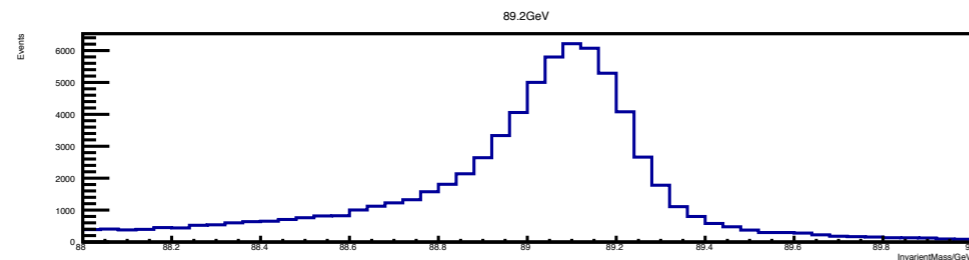
- Reconstruct Photons
- Invariant Mass
- Efficiency

# Reconstruct Photons



There are a few photons with energy of 45 GeV, photons show a similar asymmetry as muons.

# Invariant Mass



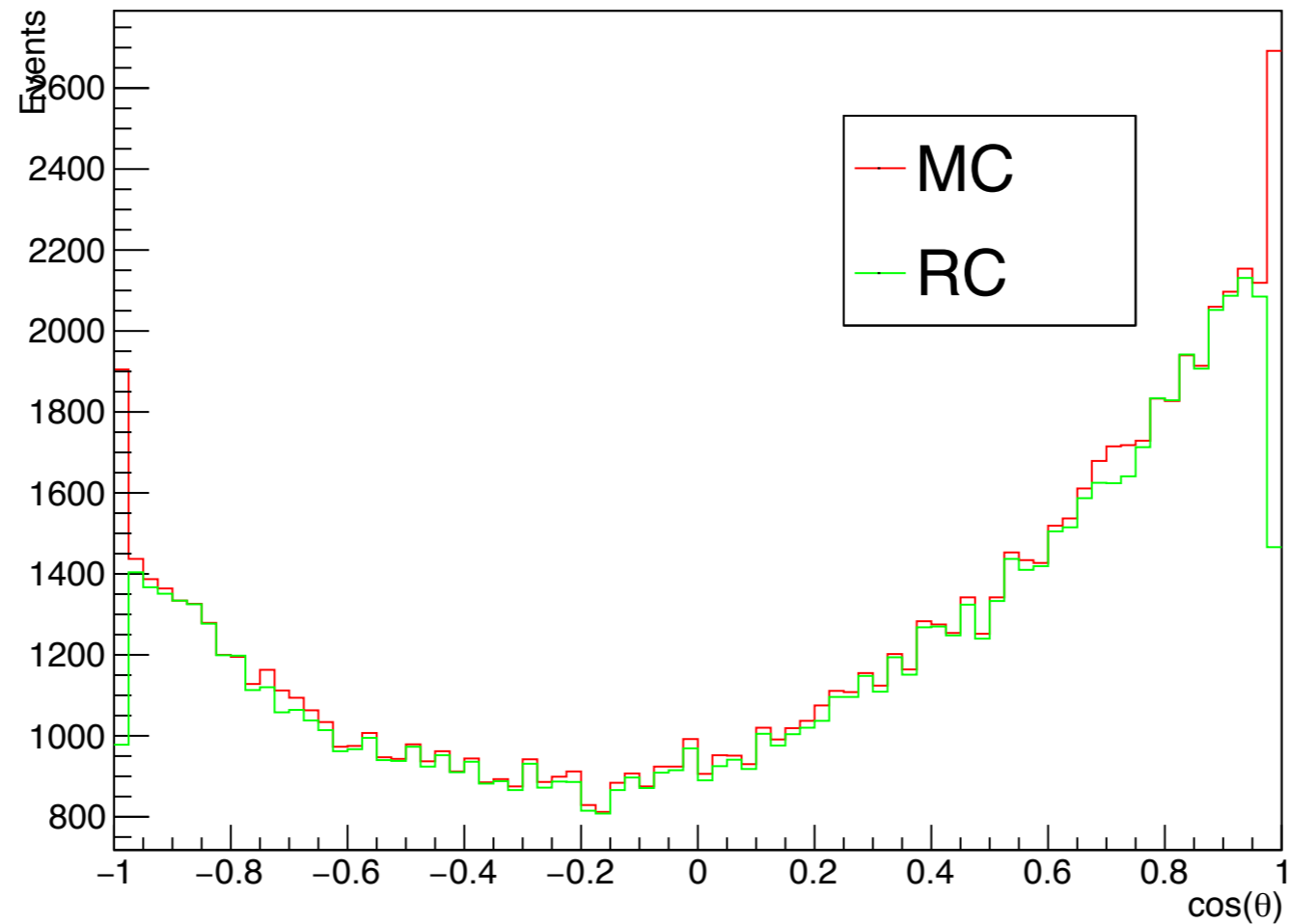
Resolution of invariant mass is about 0.3 GeV.

For beam energy less than Z Pole (off-shell), the peak is beam energy.

For beam energy more than Z Pole (on-shell), if a photon of 1 or 2 GeV is emitted, the cross section is multiplied by  $\alpha$  (1/137), so the left tail of 92.2 GeV and 93.2 GeV is bigger but there is no peak at 91.1876 GeV.

# Efficiency

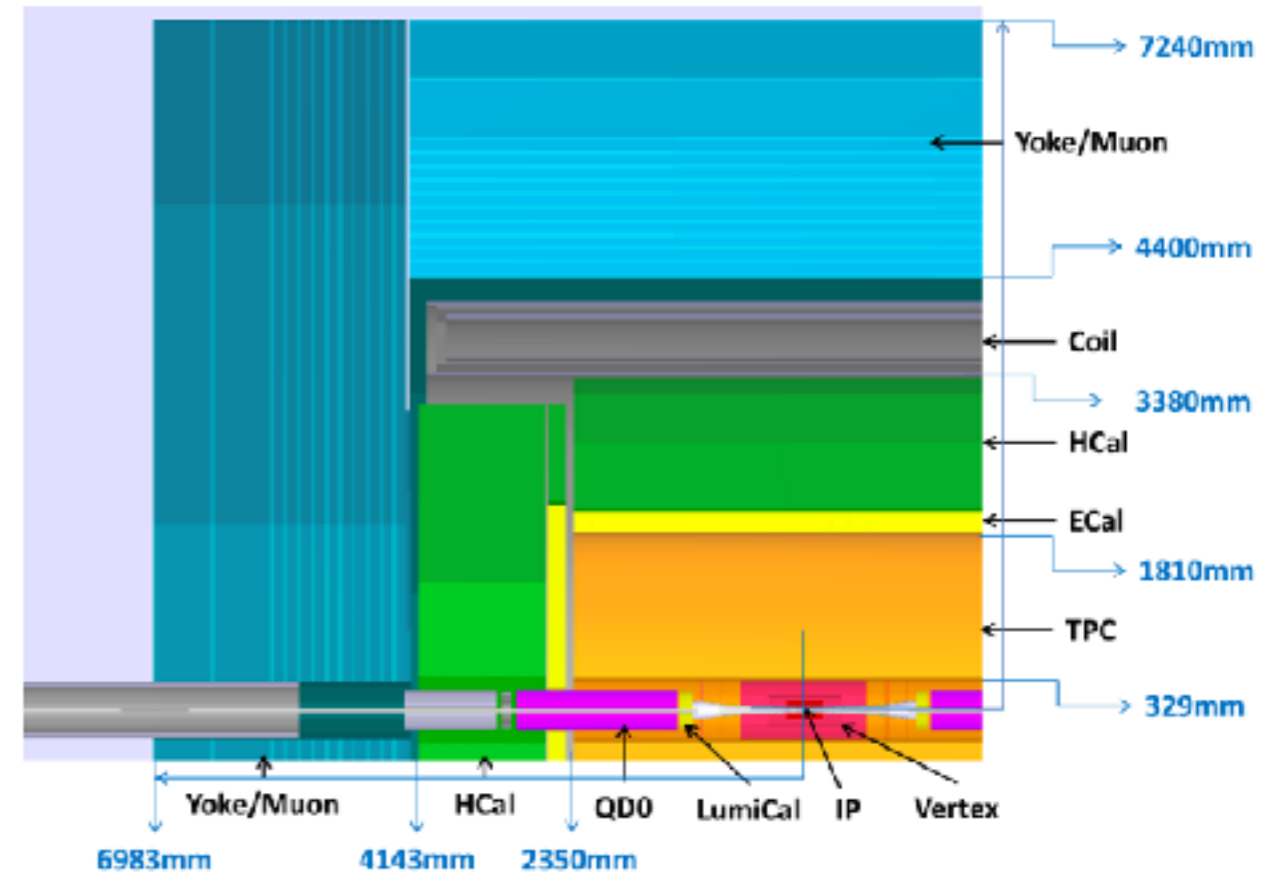
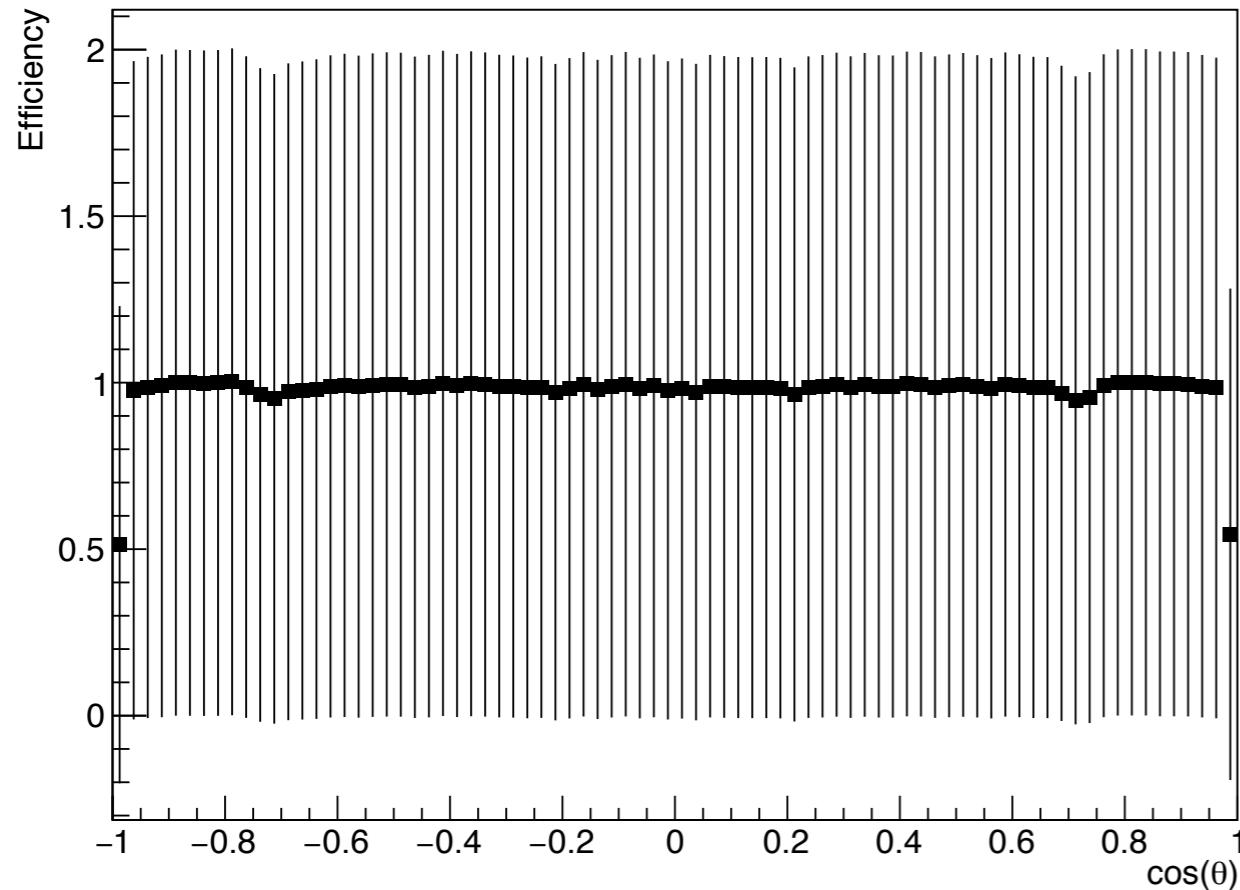
MC



Use Monte Carlo events as total events to calculate efficiency  $\eta = RC/MC$

# Efficiency

Efficiency



Efficiency decreases a half in double sides, due to the acceptance.

There are two lower point at  $|\cos\theta|=0.7$

ECal inner: 0.792 HCal outer: 0.775

There is something wrong with the error, it's always 1.