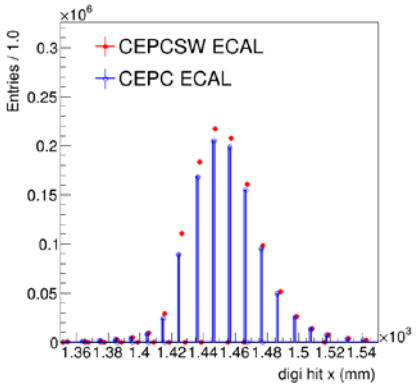
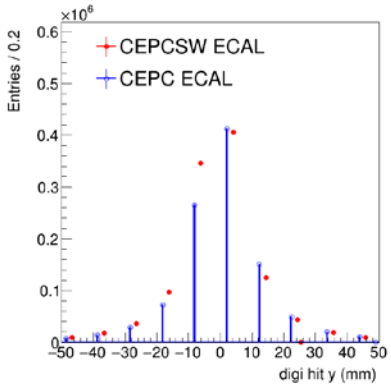
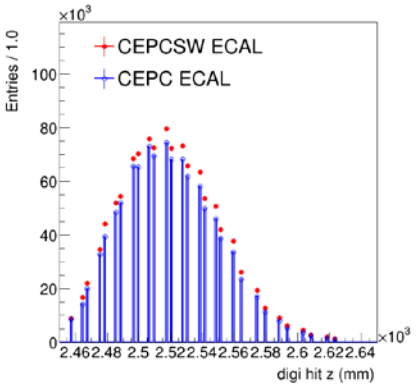
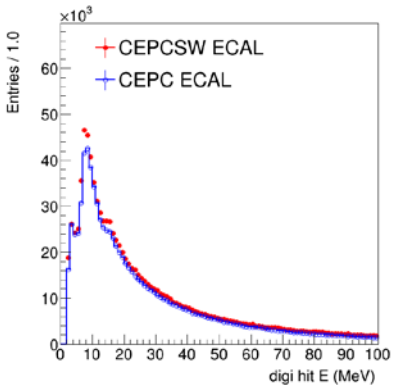
ECAL Endcap+

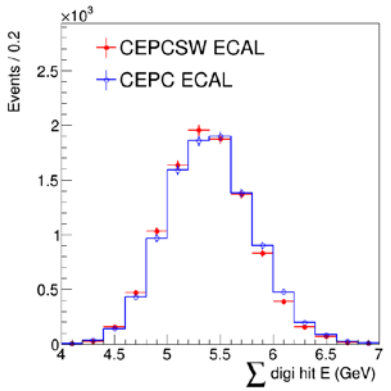
- 10000 events for γ(E=5GeV, $\theta = 30^{\circ}, \phi = 0$), B filed.
- Digi hit distributions. Change the calibration constant from [48.16, 96.32] to [46.538, 93.077]

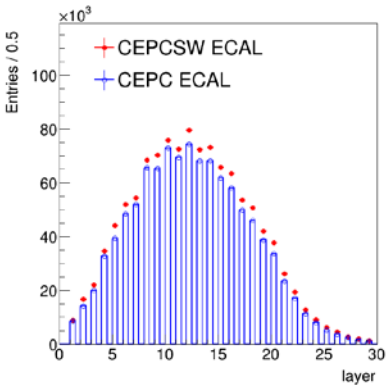




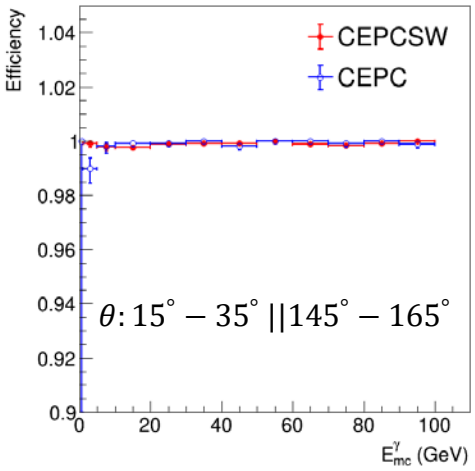


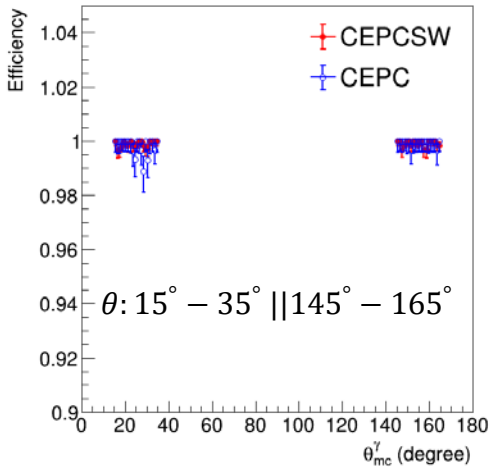


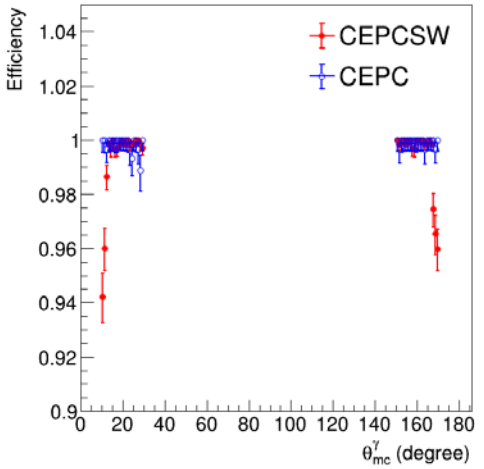




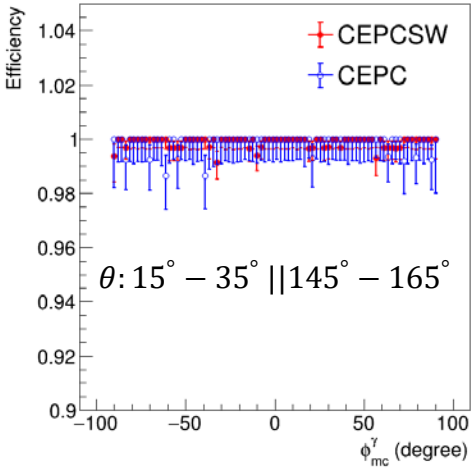
Efficiency of γ reconstruction (Ecal only)

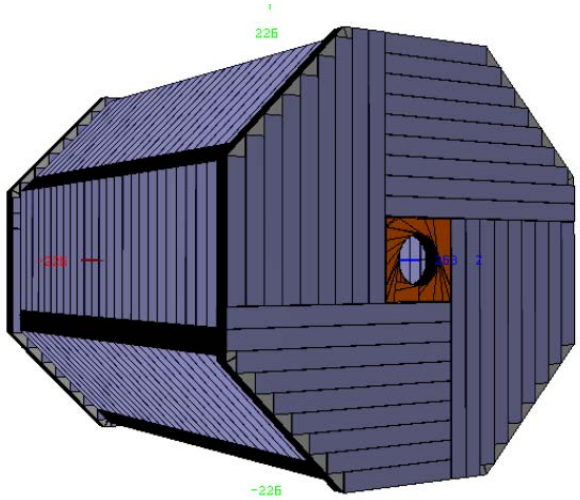




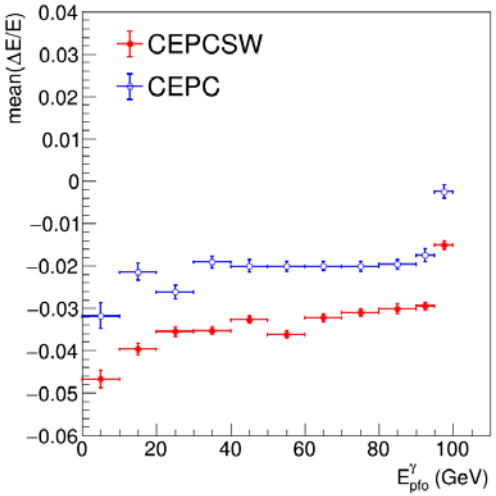


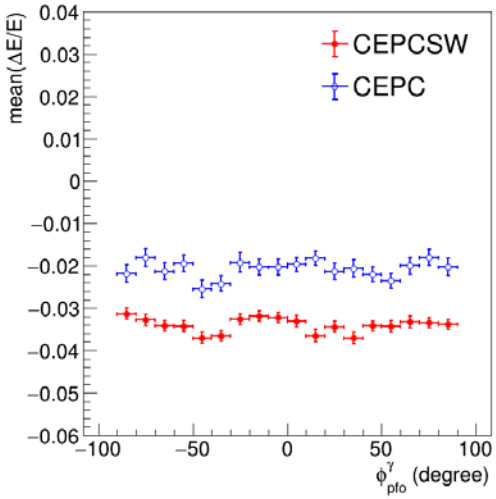
the CEPCSW in $\theta(10^\circ - 15^\circ)$ region has lower efficiency

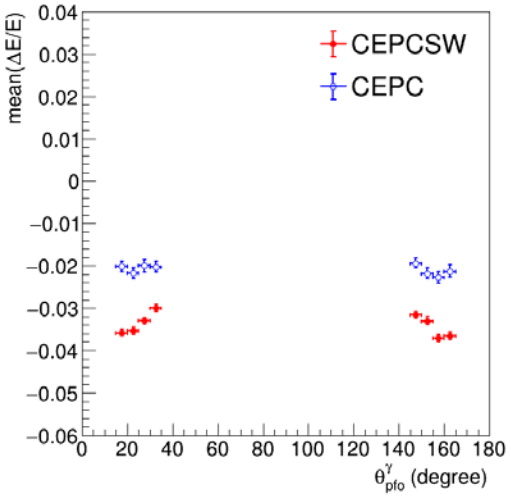


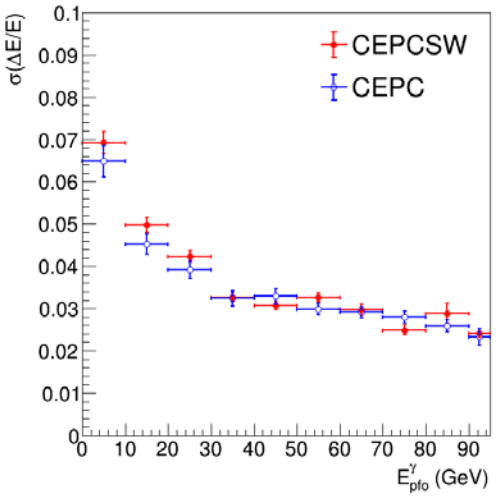


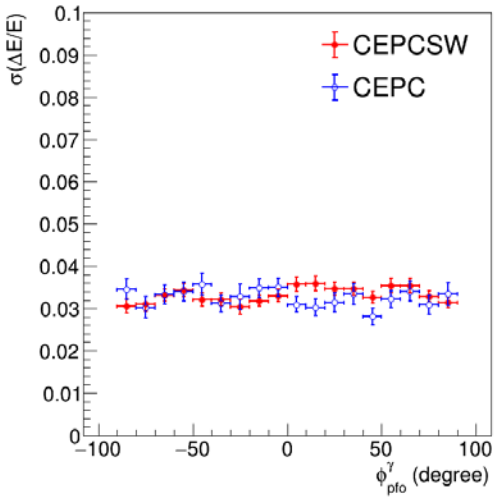
physics performance check (rec E) (Endcap)

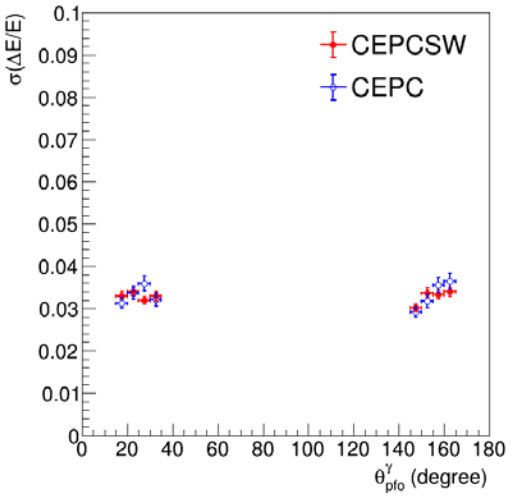




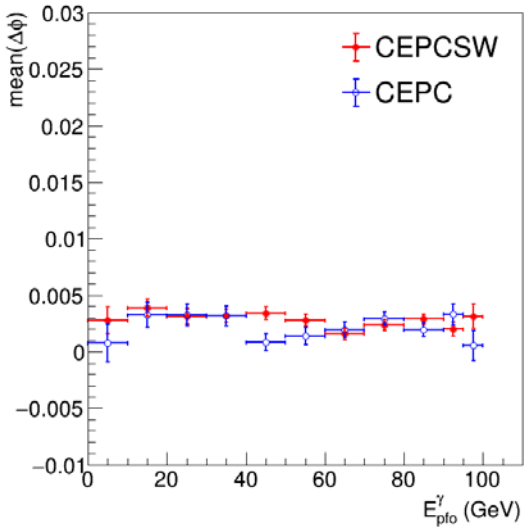


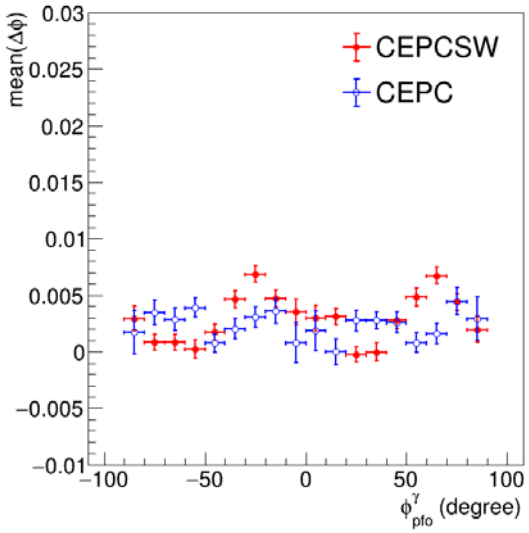


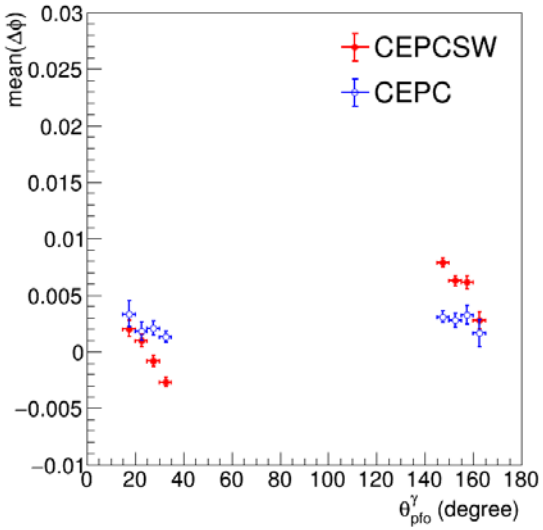


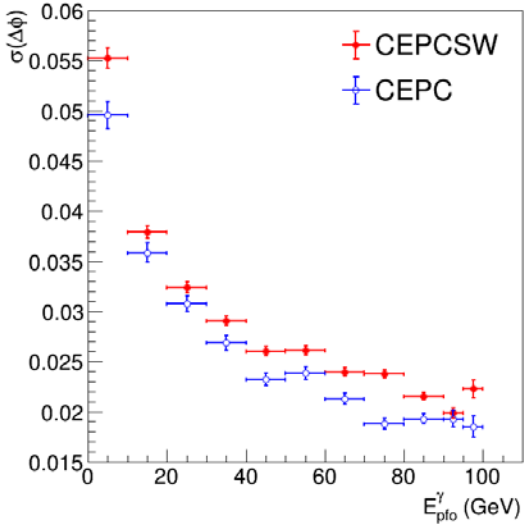


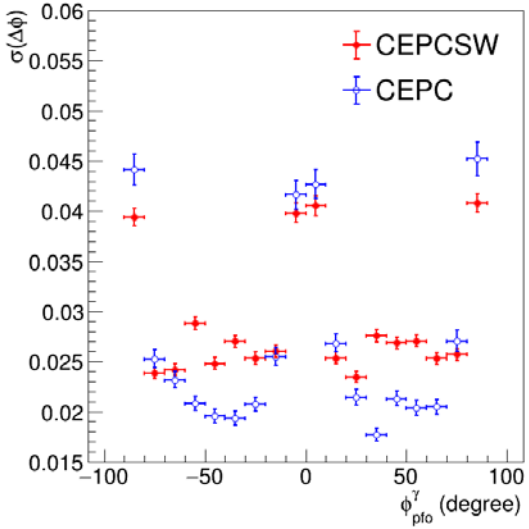
physics performance check (rec ϕ) （ Endcap ）

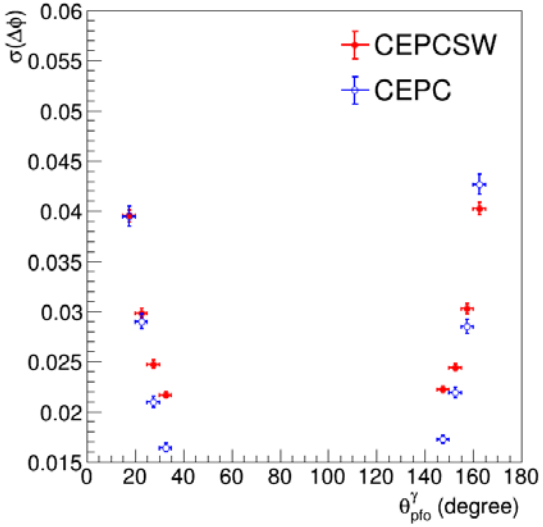




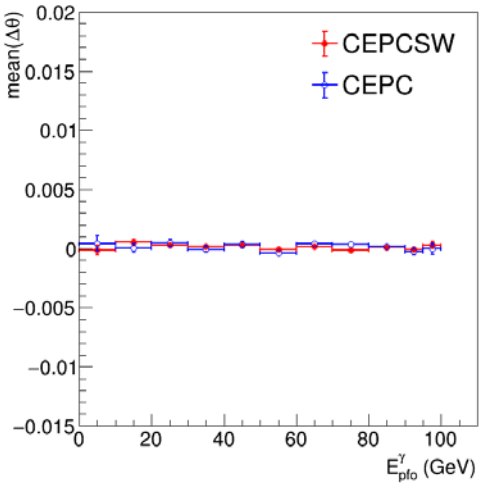


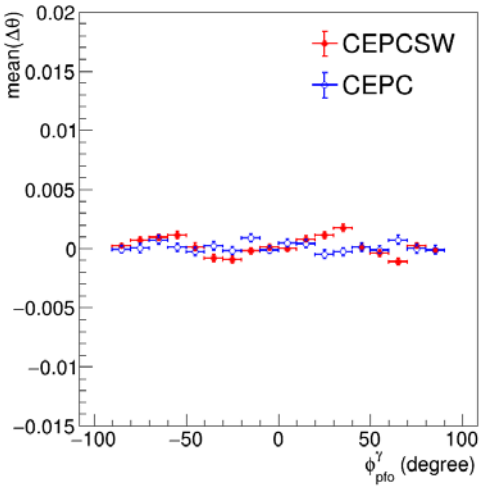


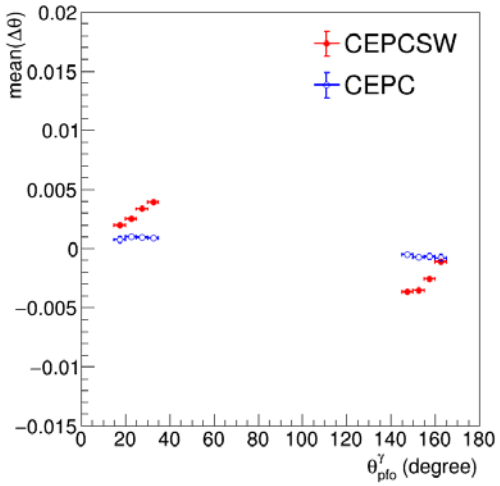


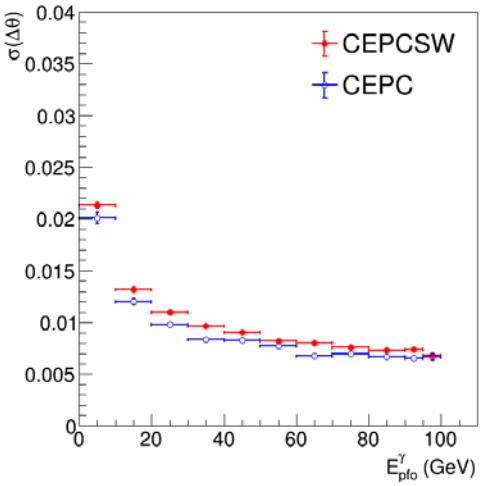


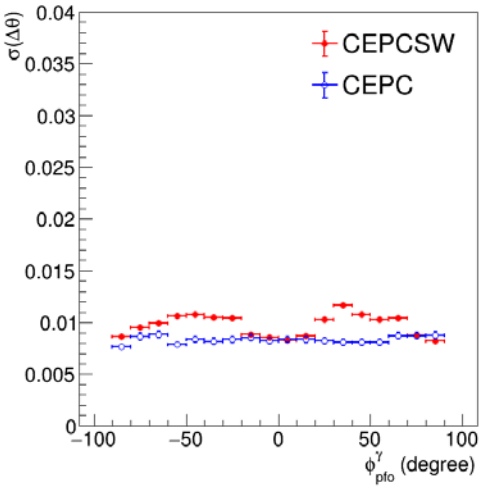
physics performance check (rec θ) （ Endcap ）

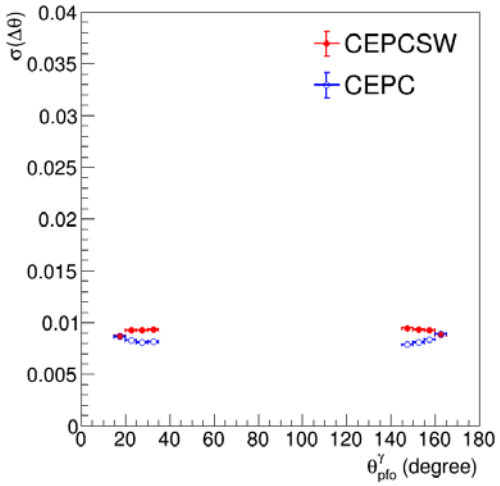






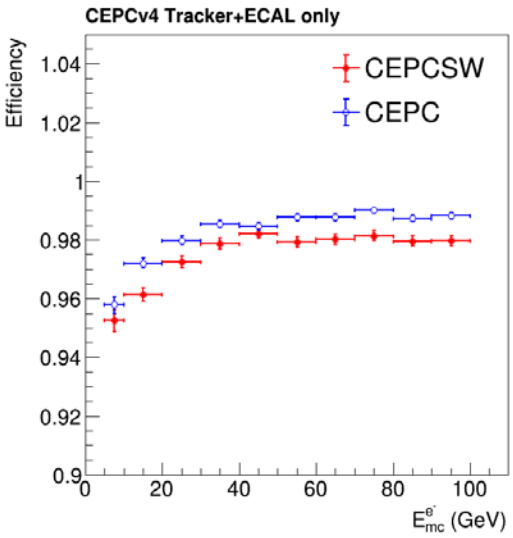


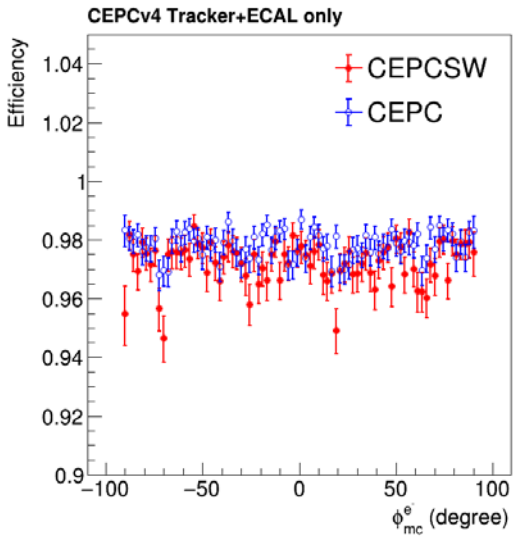


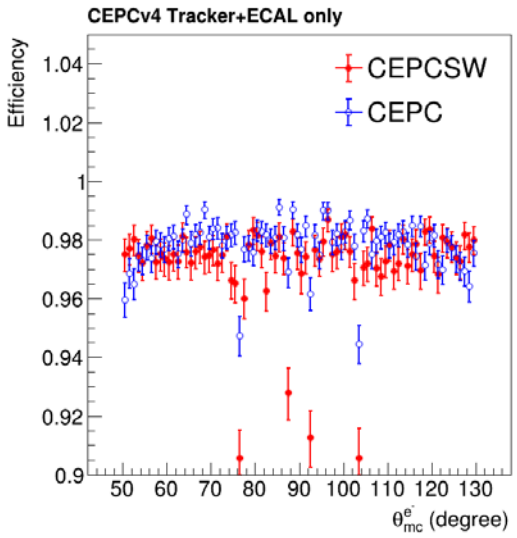


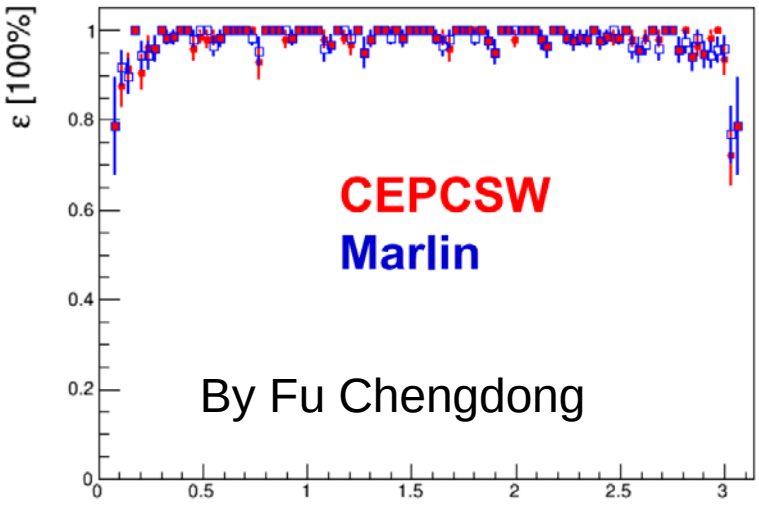
Tracker+Ecal check (Barrel)

Using single electron event for check



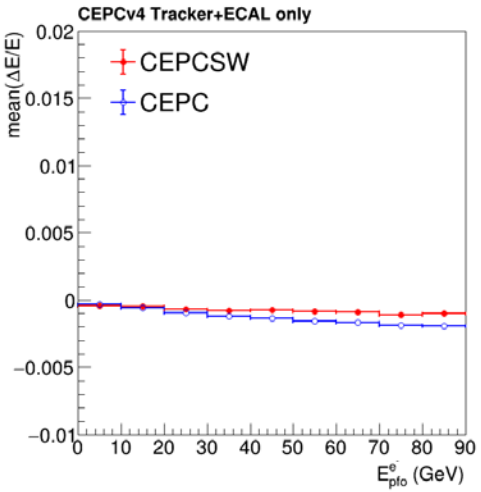


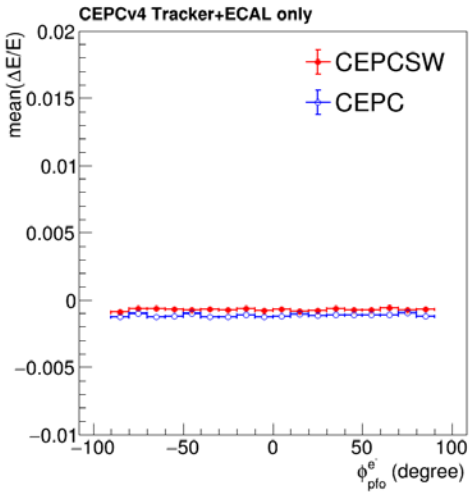


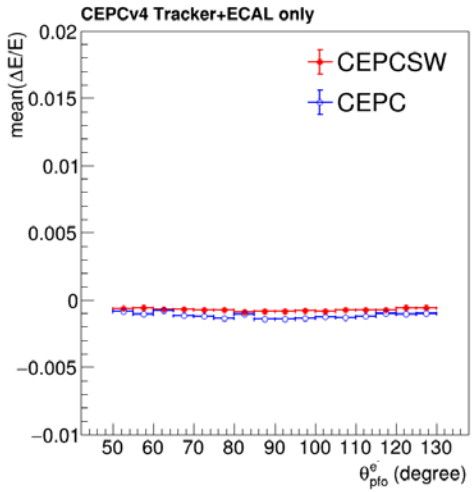


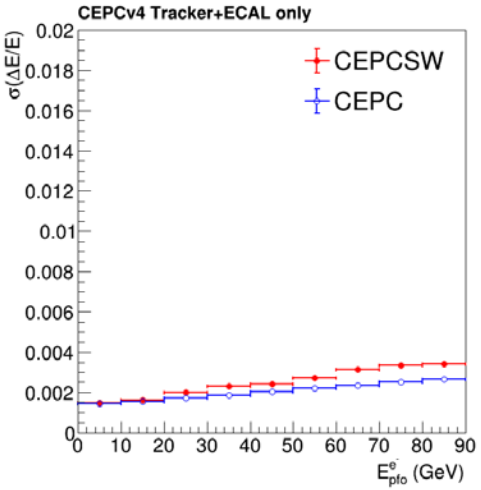
physics performance check (rec E) (Barrel)

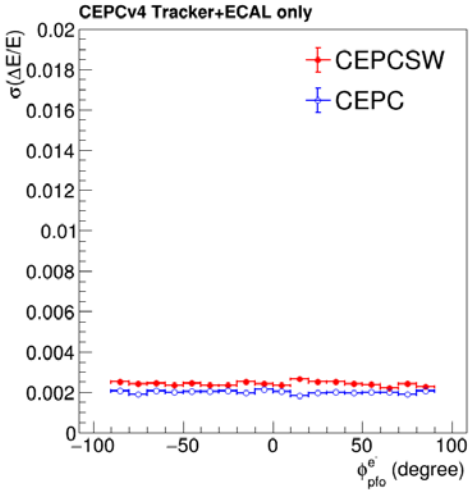
Using single electron event for check

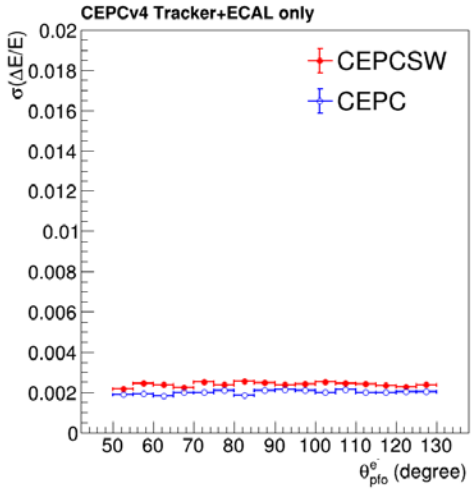






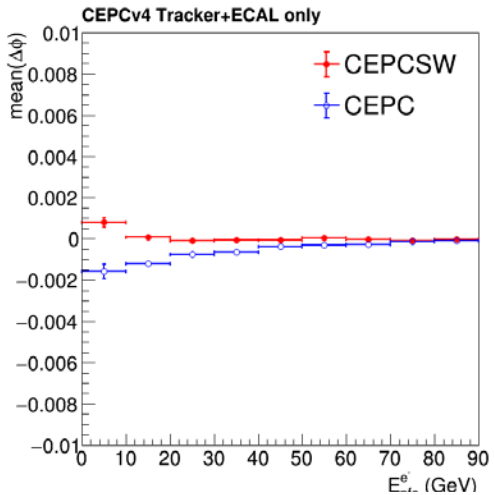


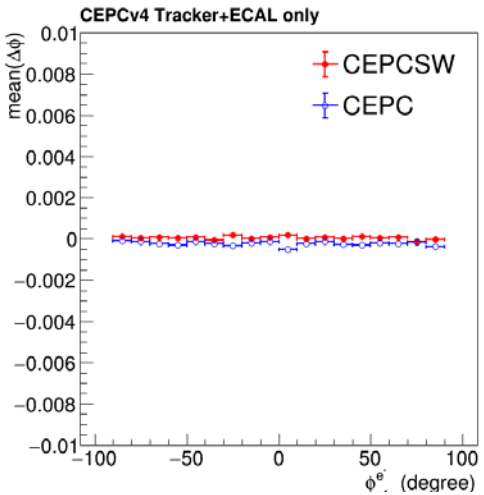


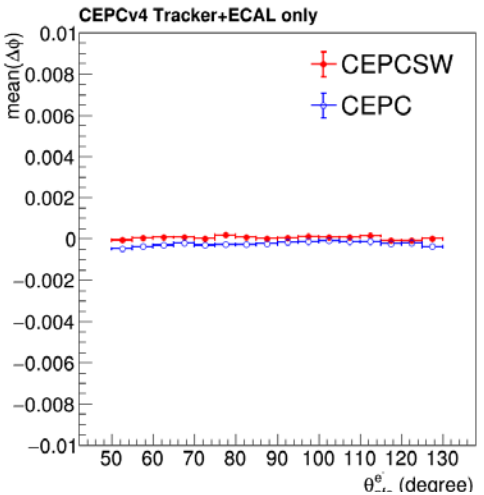


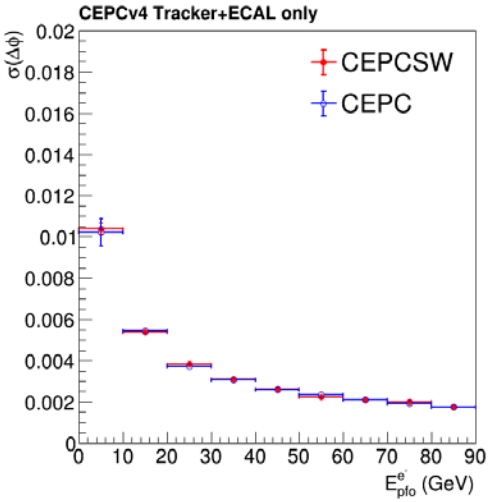
physics performance check (rec ϕ) (Barrel)

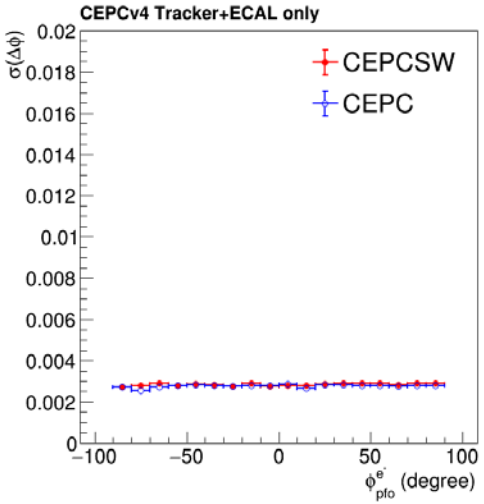
Using single electron event for check

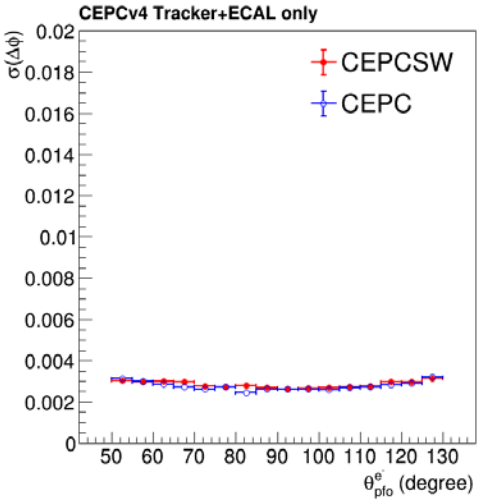






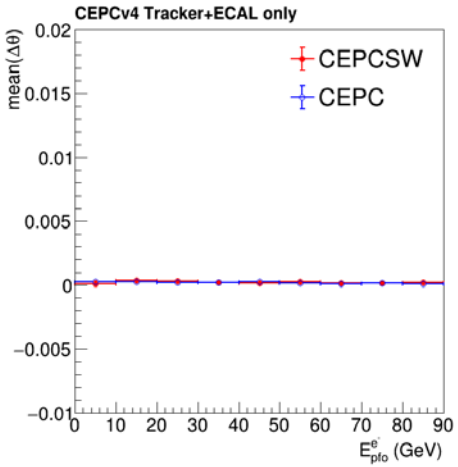


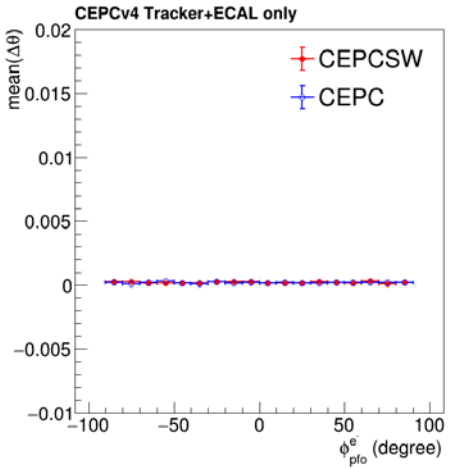


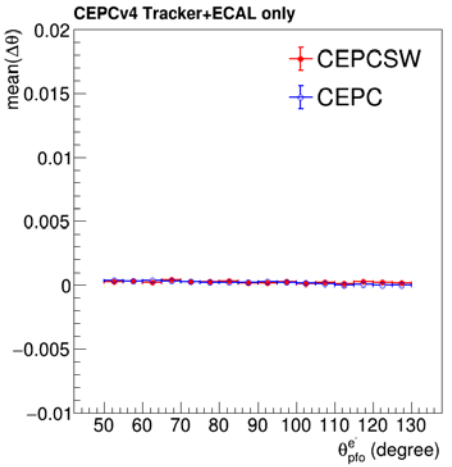


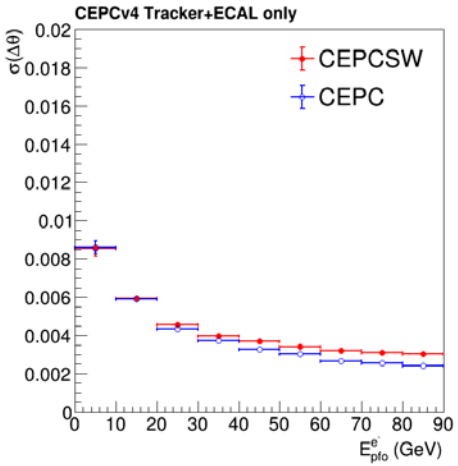
physics performance check (rec θ) (Barrel)

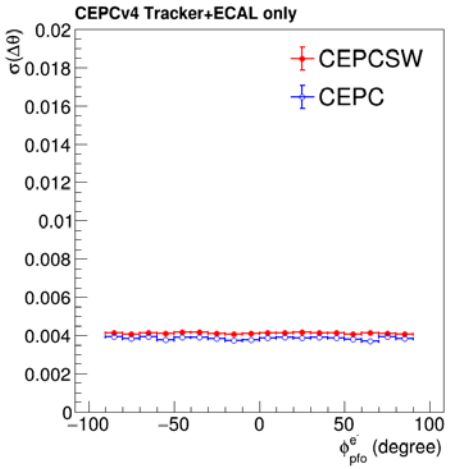
Using single electron event for check

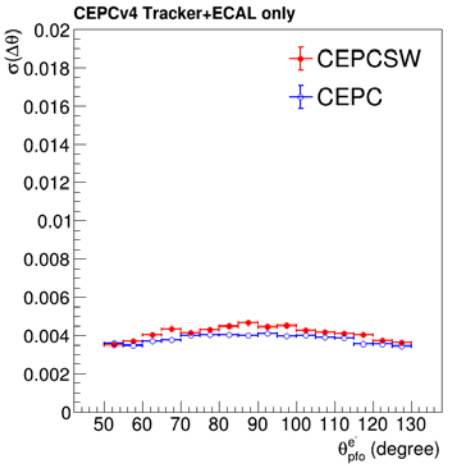






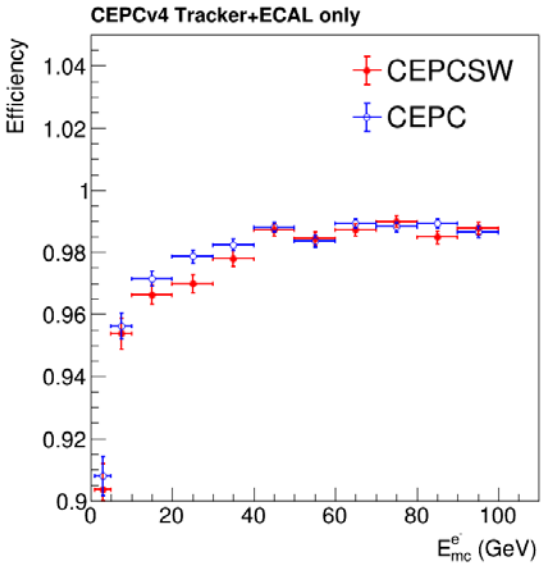


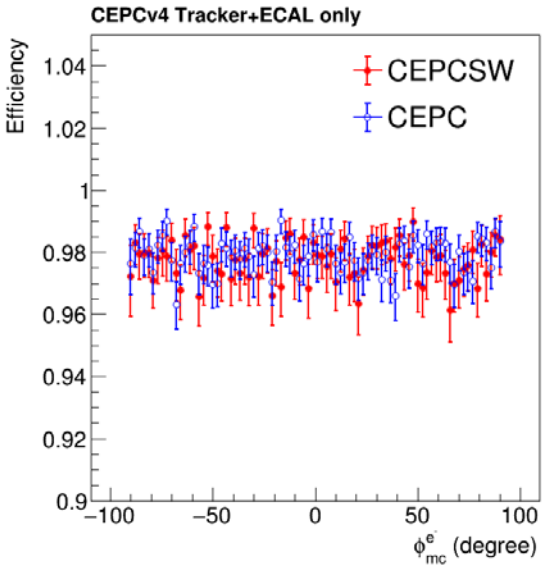


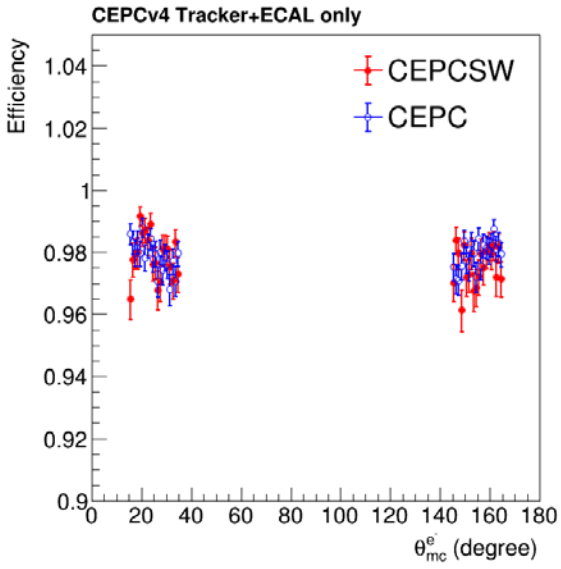


Tracker+Ecal check (Endcap)

Using single electron event for check

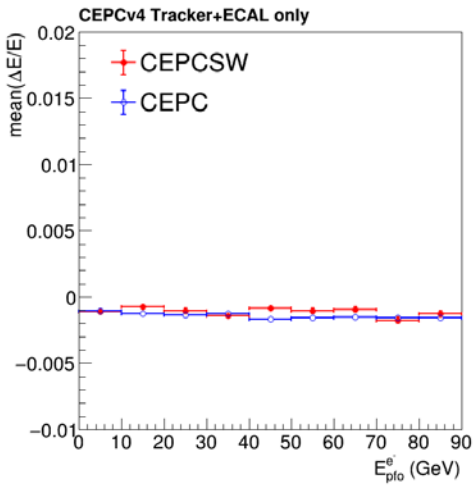


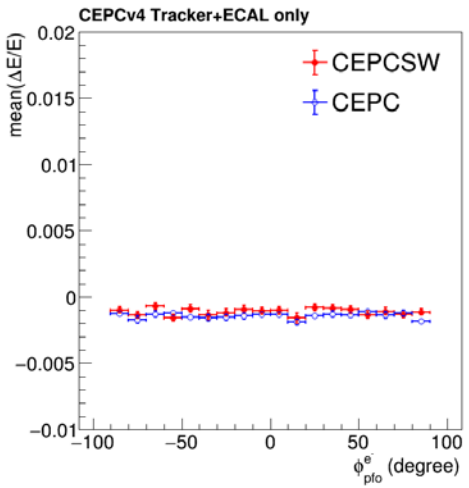


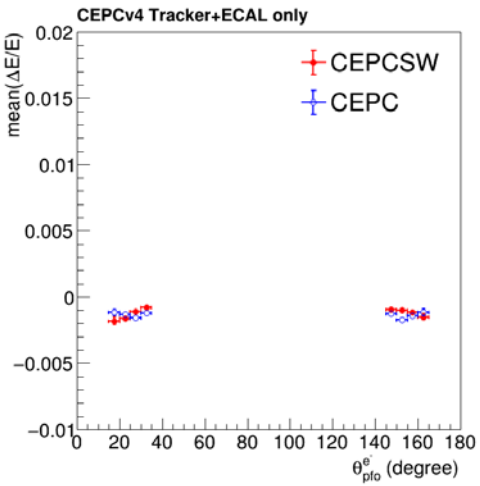


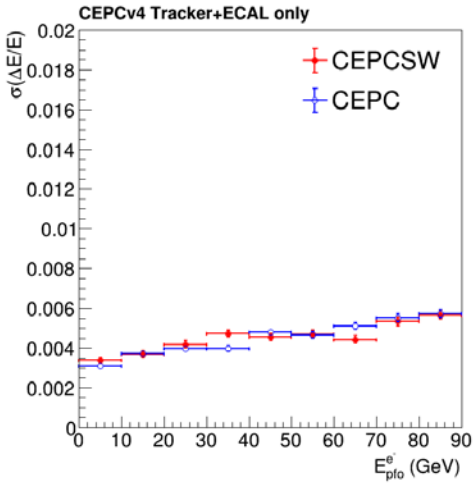
physics performance check (rec E) (Endcap)

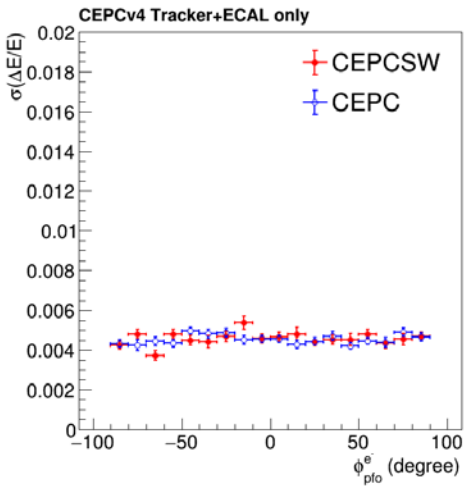
Using single electron event for check

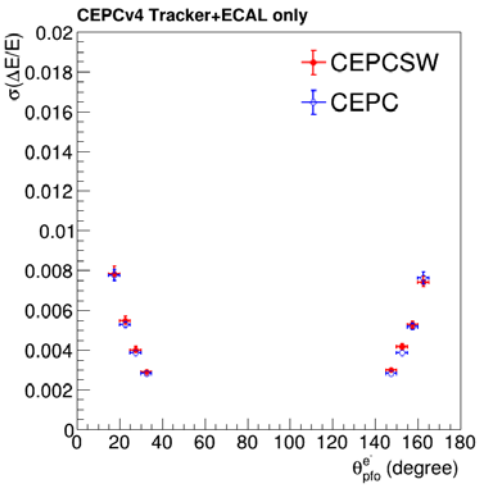






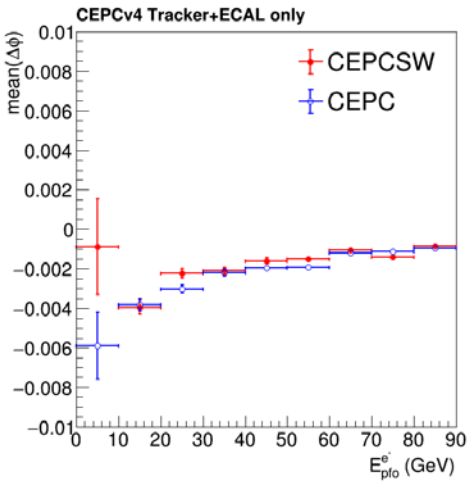


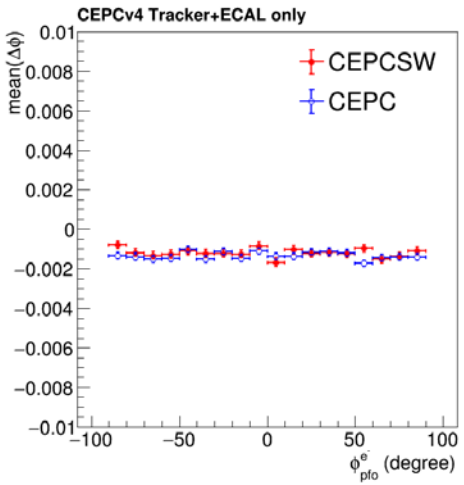


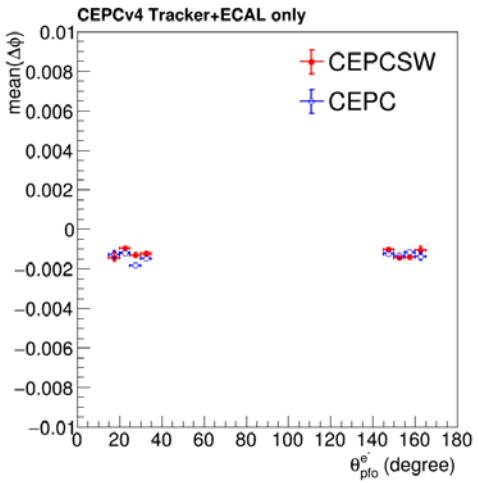


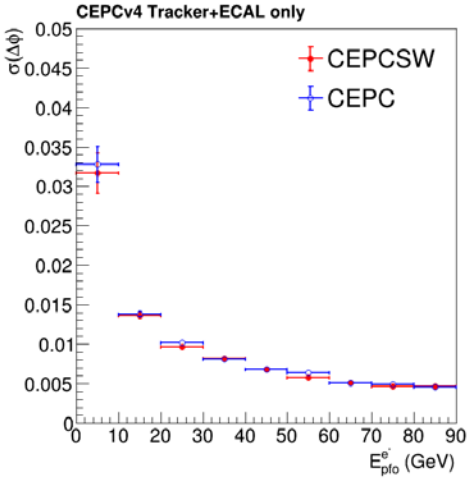
physics performance check (rec ϕ) （ Endcap ）

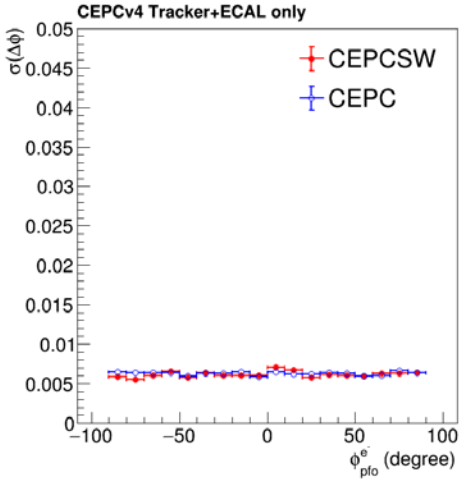
Using single electron event for check

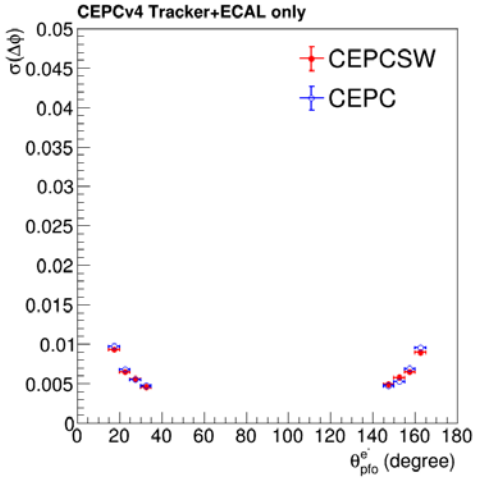






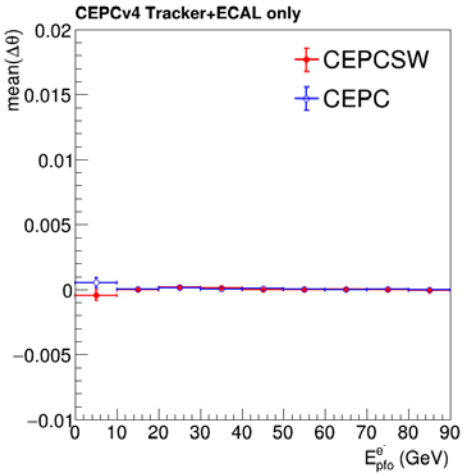


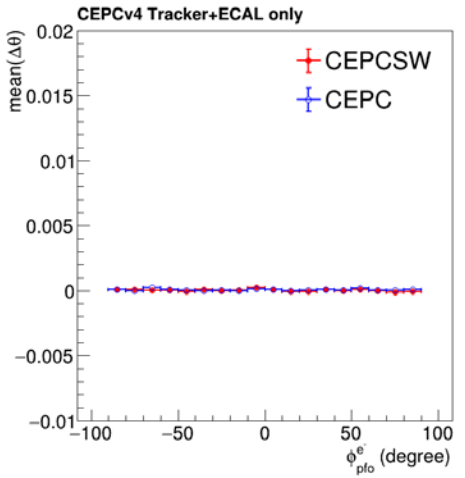


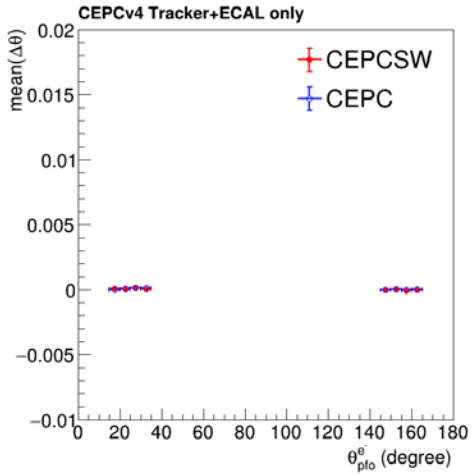


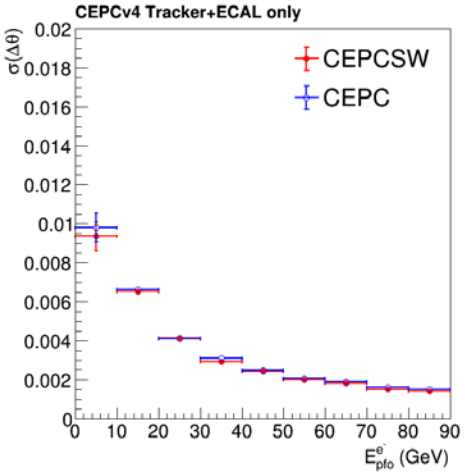
physics performance check (rec θ) （ Endcap ）

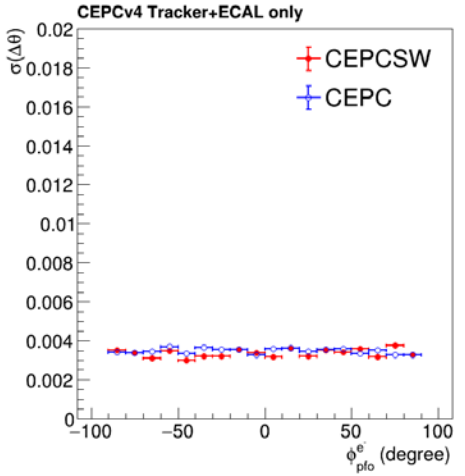
Using single electron event for check

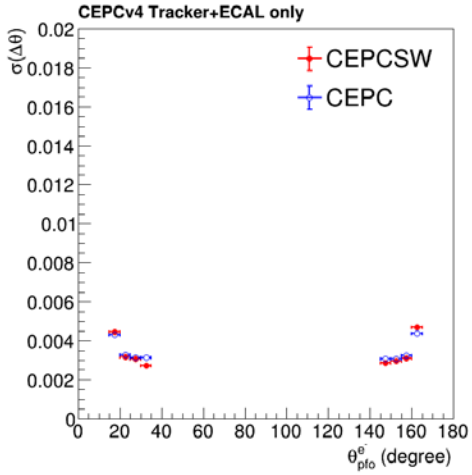












summary

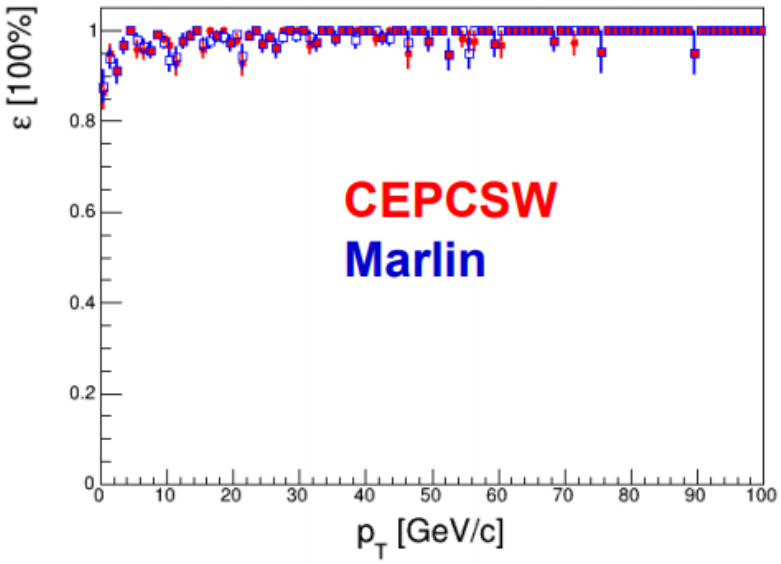
- The ECAL barrel between CEPCSW and CEPC is almost the same.
- The ECAL endcap between CEPCSW and CEPC still has a bit difference in Geometry.
- The electron reconstruction results are close between CEPCSW and CEPC, except in some barrel region, the electron reconstruction efficiency in CEPCSW is a bit lower.

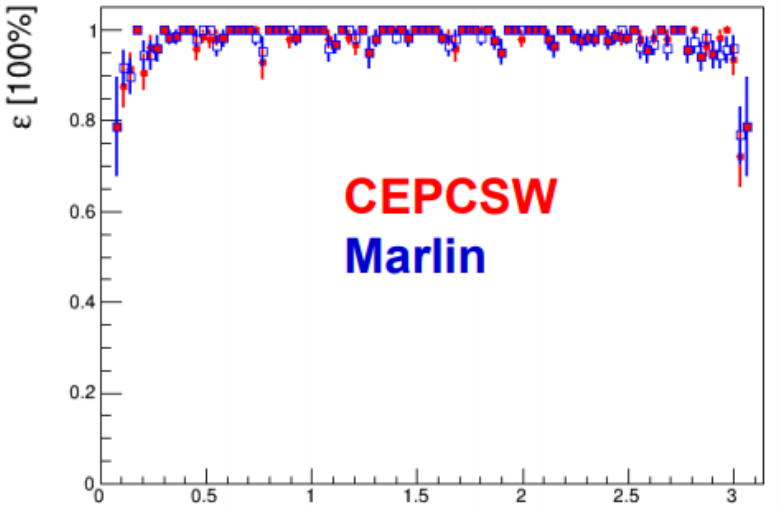
Thank You !

謝謝

Tracking Efficiency

- Fake tracking efficiency definition
  - $\varepsilon = N_{macthed\_track}/N_{MC(primary)}$
  - $|par_{fit}-par_{MC}| < 5\sigma_{par}$ (par=d0, phi0, ω, z0, tanλ)
- Same muon sample (5000) by MokkaC (developed version of Mokka)
  - CEPC_v4 detector model
  - $p \in [0.5, 100.5]$ GeV/c
  - $\theta \in [5°, 175°]$
  - $\phi \in [0°, 360°]$
- Same reconstruction options
- Fake rate:
  - CEPCSW: (1.65±0.19)%
  - Marlin: (1.59±0.18)%

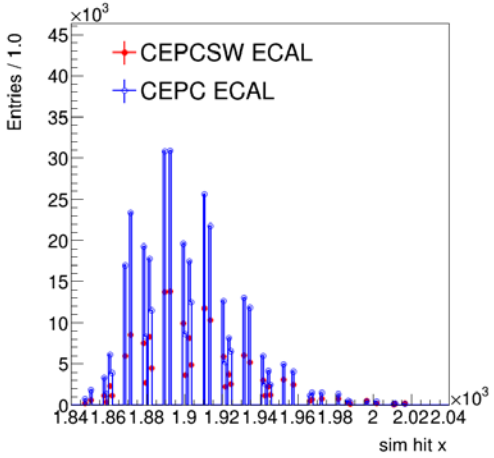


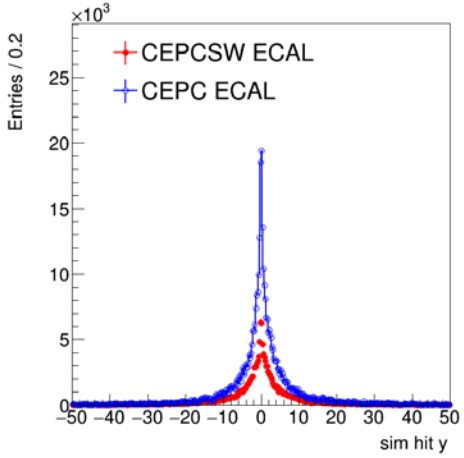


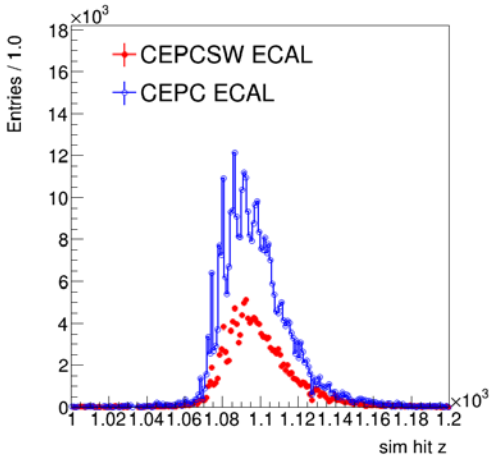
In fact, denotes tracking×detecting

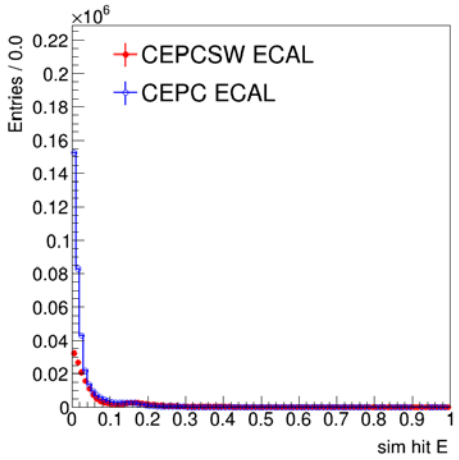
ECAL（Barrel）

- 100 events for γ(E=5GeV, $\theta = 60^{\circ}, \phi = 0$), no B filed.





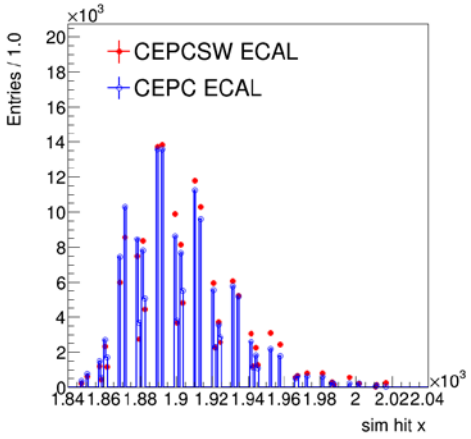


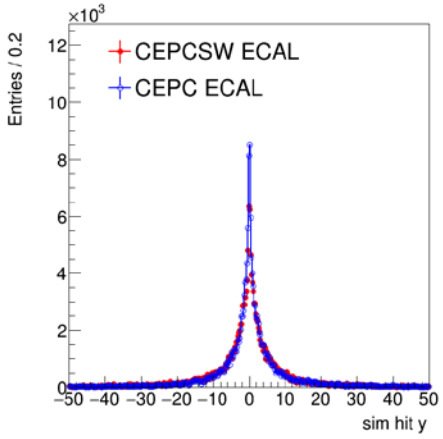


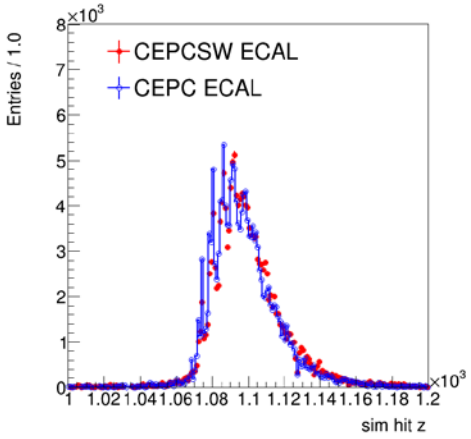
- Check the sim hit distribution between CEPCSW and CEPC (ilcsoft).
- This time the x value seems matched.
- The total number of sim hit is different, maybe related with G4 simulation configurations.
- see normalized one in next slide.

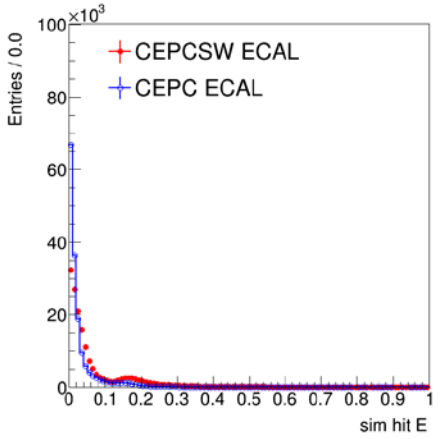
ECAL （Barrel)

- 100 events for γ(E=5GeV, $\theta = 60^{\circ}, \phi = 0$), no B filed.





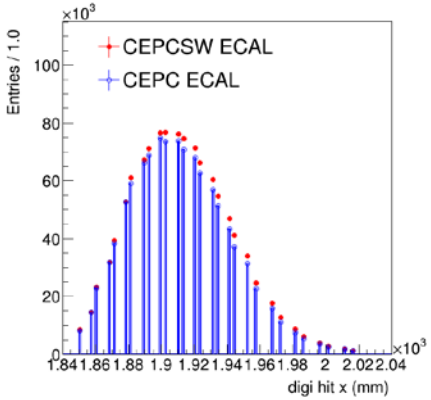


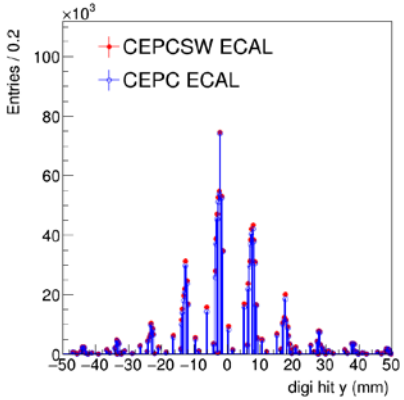


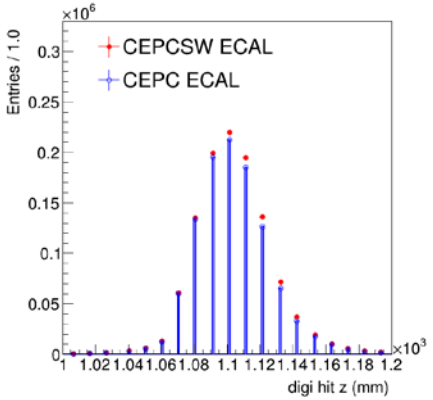
- Normalized in total number of sim hits.
- The shapes of sim hit distribution have some difference, maybe related with G4 simulation configurations.

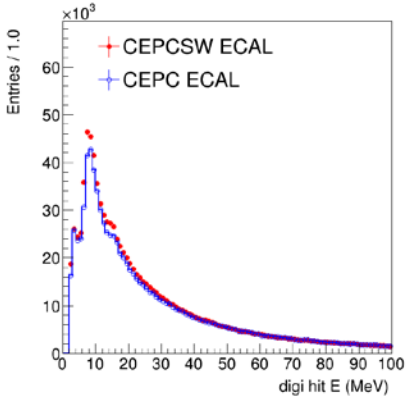
ECAL （Barrel）

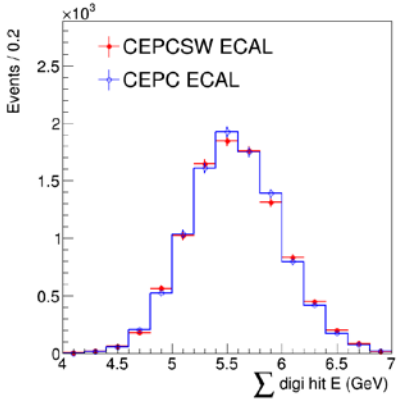
- 10000 events for γ(E=5GeV, $\theta = 60^{\circ}, \phi = 0$), B filed.
- Digi hit distributions. Change the calibration constant from [48.16, 96.32] to [46.538, 93.077]

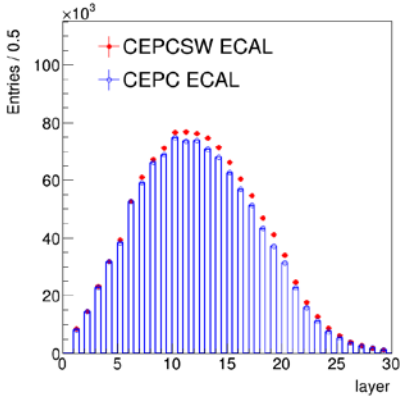




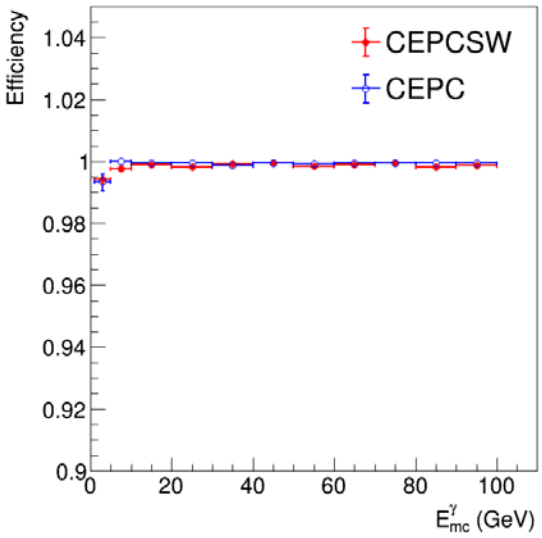


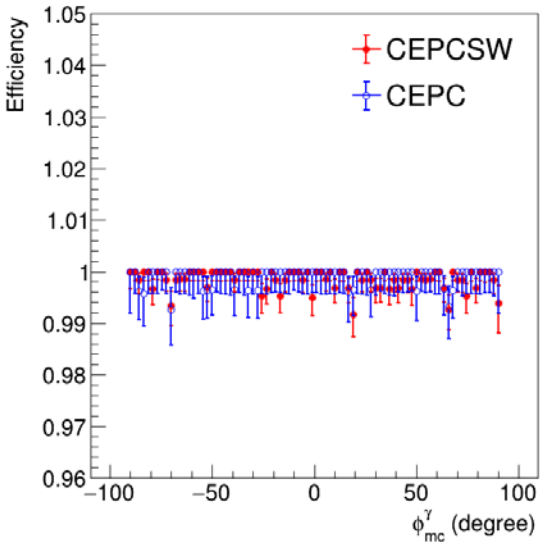


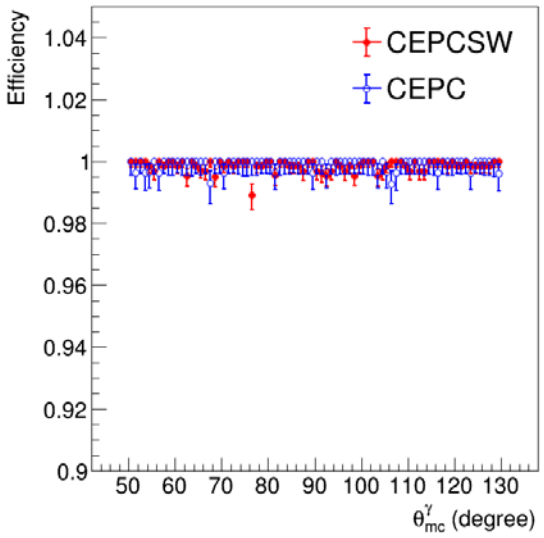




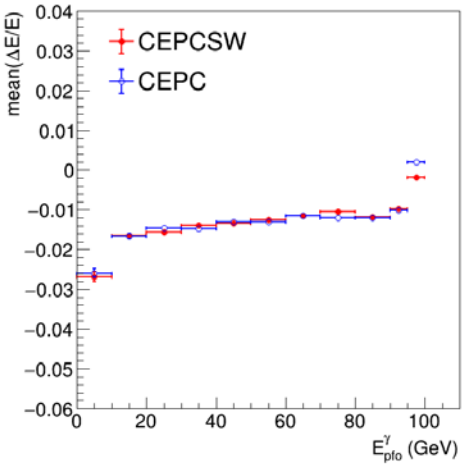
Efficiency of γ reconstruction (Ecal only)

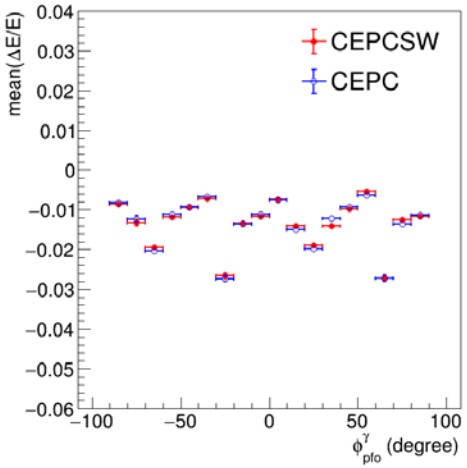


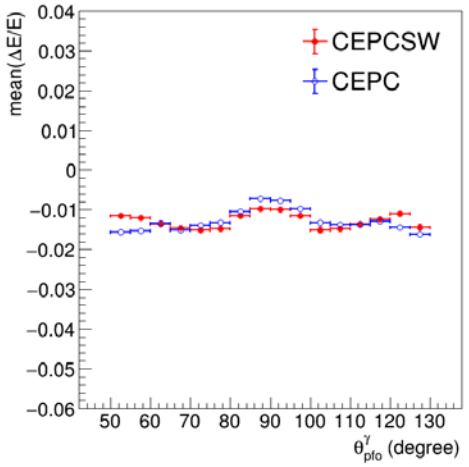


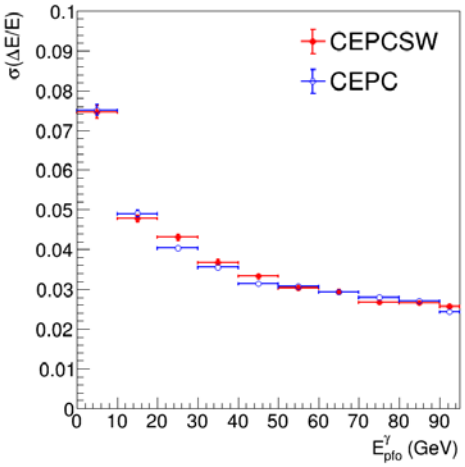


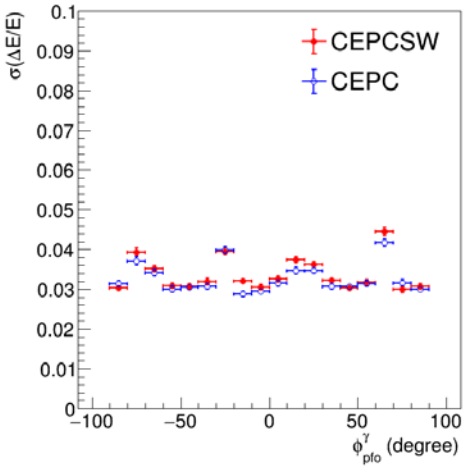
physics performance check (rec E) (Barrel)

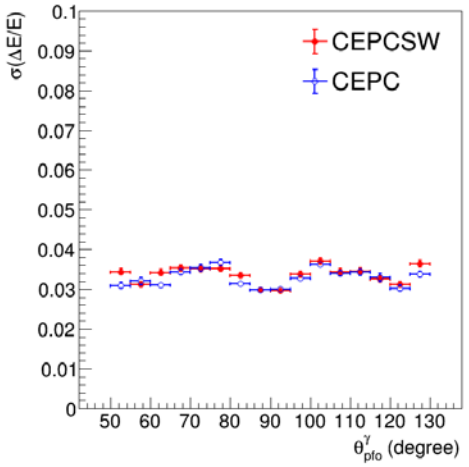




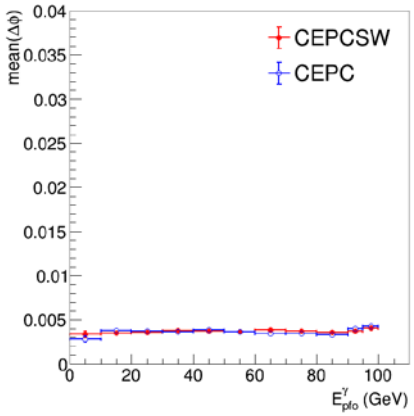


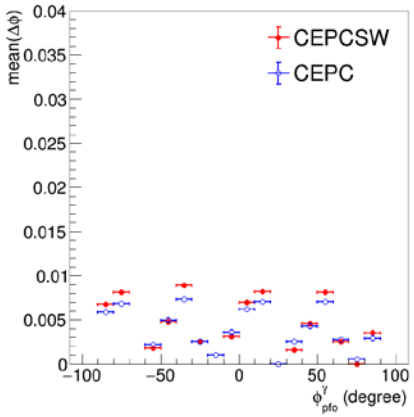


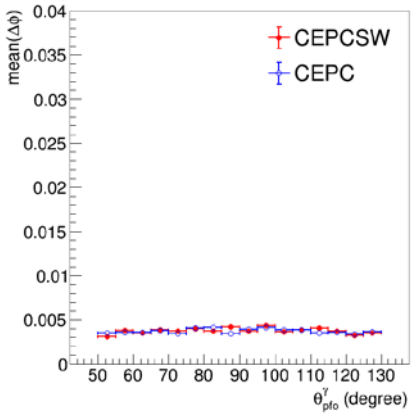


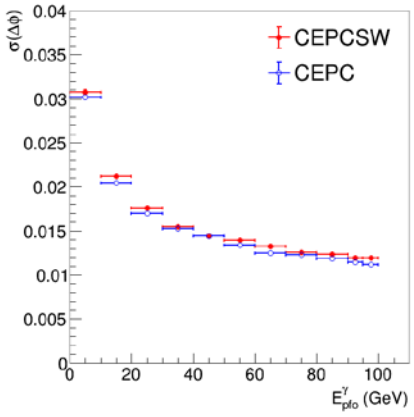


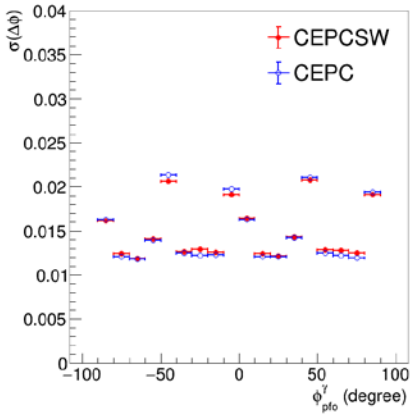
physics performance check (rec ϕ) (Barrel)

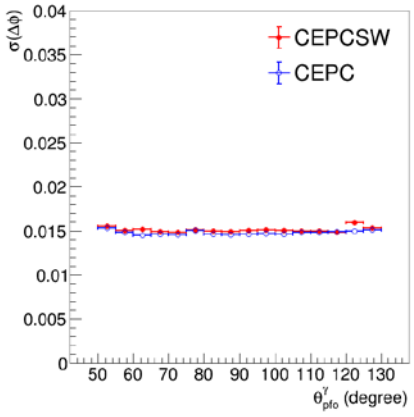












physics performance check (rec θ) (Barrel)