

Jaein Hwang (Korea Univ.)

Apr. 17 2025

0) We found shift existed in EMCal innermost center position -> Jingyu has been published the shift calibration

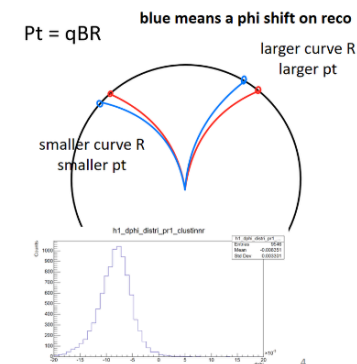
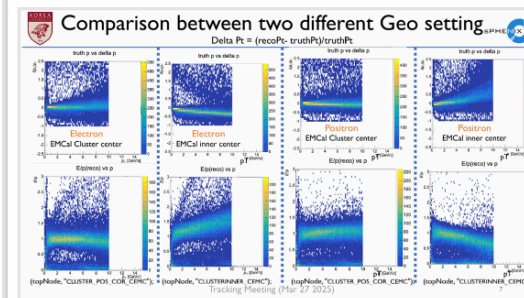
<https://chat.sdcc.bnl.gov/sphenix/pl/d5h8nceypffcxcnxrjnh7y6u1w>



Jingyu Zhang 오후 4:05

Hi, Jaein @Jaein Hwang . In yesterday discussion, I presented the results of cluster reconstruction from the innerface. A shift in the phi angle distribution can be observed, which might help explain part of the content on your slide. Please consider the correction for `cluster_innerface` that I mentioned in my slides.

the shift effect on pt resolution and E/p



3 replies

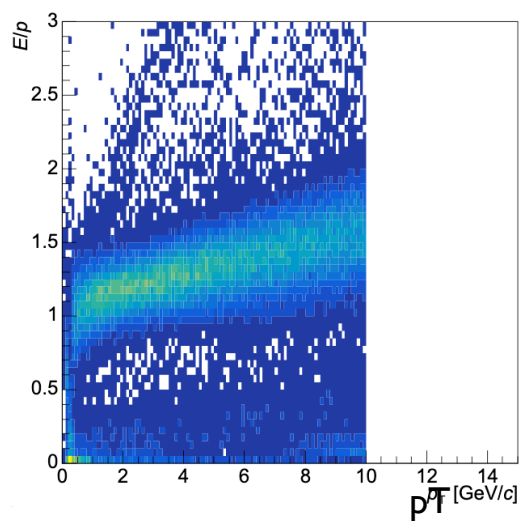
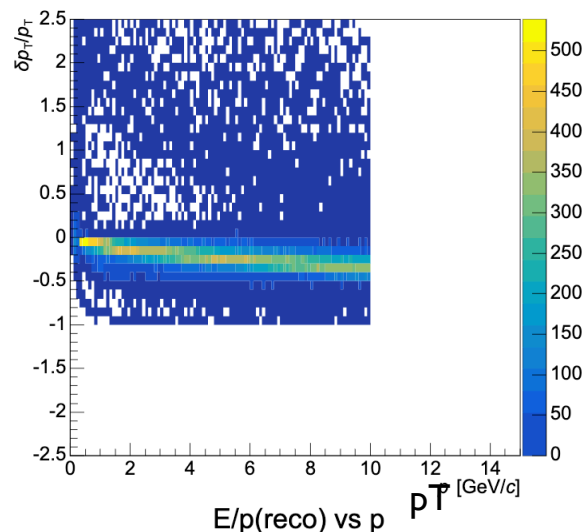
Following

Correction effect on inner center geometry

$$\Delta p_T = (\text{reco}p_T - \text{truth}p_T)$$

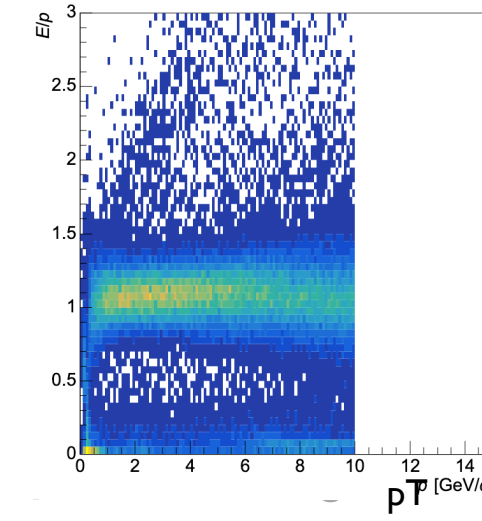
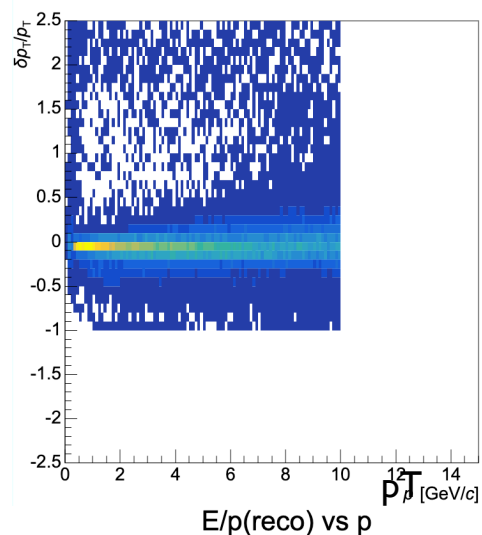
Electron

EMCal inner center used
BEFORE correction applied
truth p vs delta p



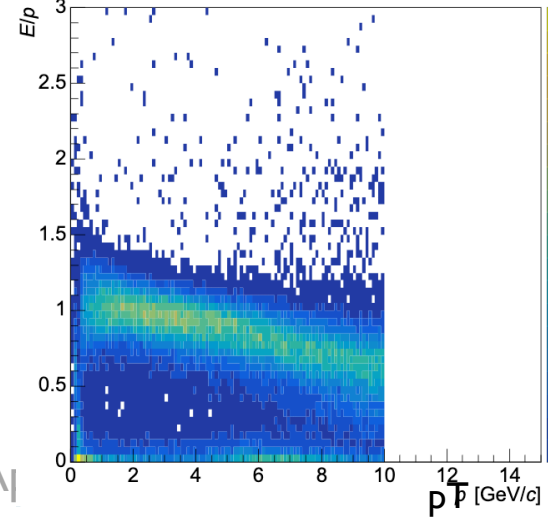
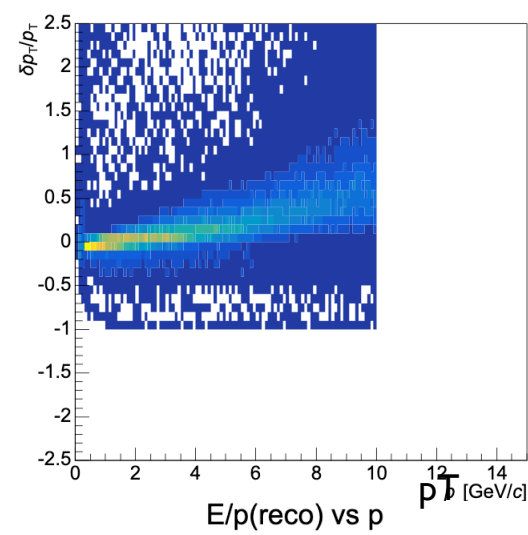
Electron

EMCal inner center used
AFTER correction applied
truth p vs delta p



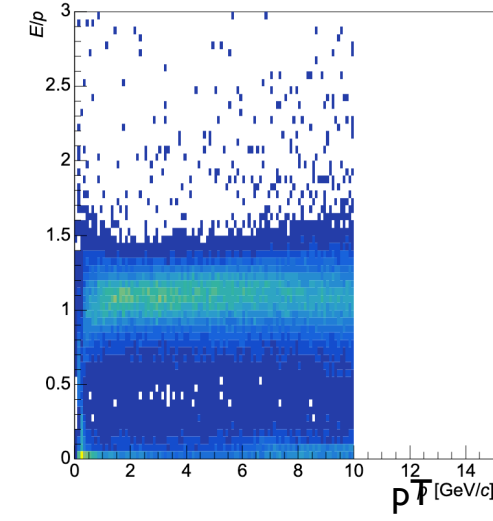
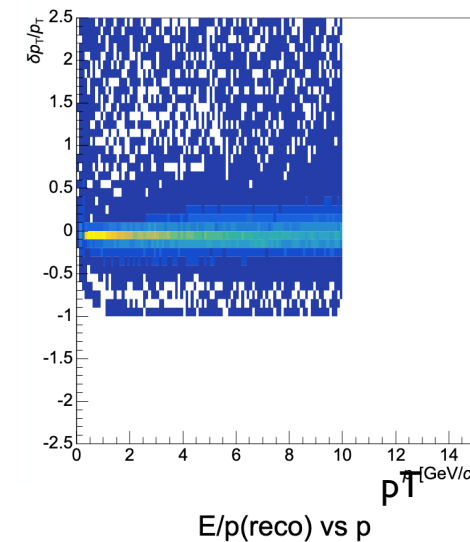
Positron

EMCal inner center used
BEFORE correction applied
truth p vs delta p



Positron

EMCal inner center used
AFTER correction applied
truth p vs delta p

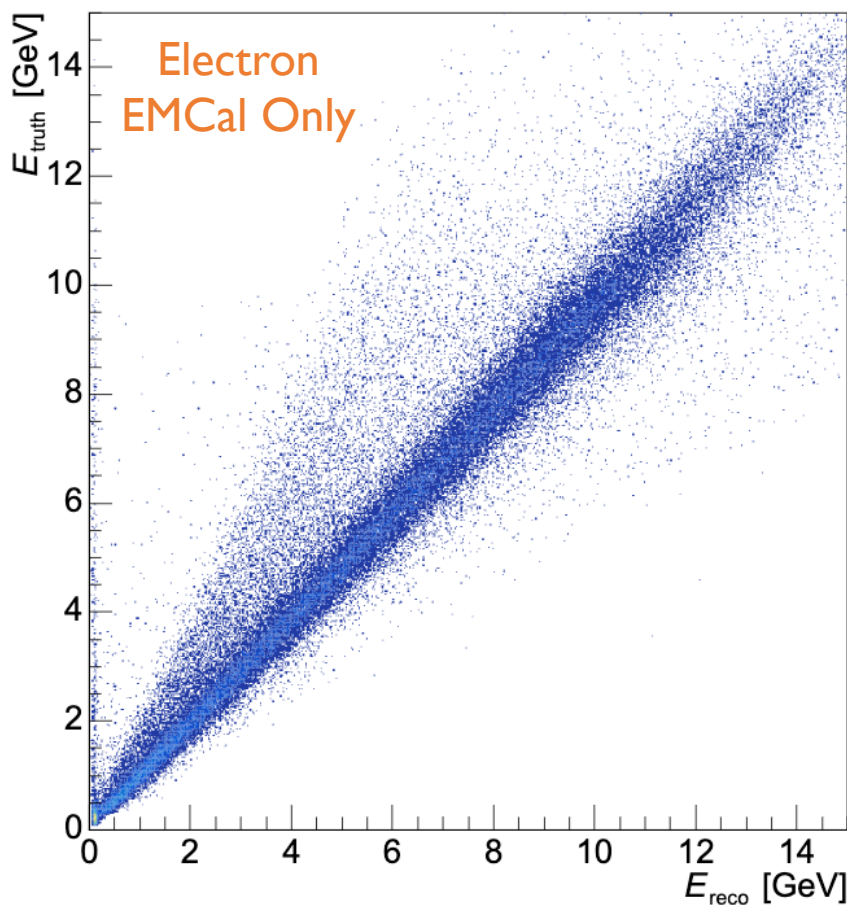


- Check the p_T resolution with current EMCal Position with MVTX+INTT
- Trying to use EMCal energy to improve performance -> co-work with Jingyu ongoing
- Study with official Silicon Seed + EMCal
- Any suggestion on further study on charged hadron is welcome (Trying with Topo HCal (oHCal + iHCal) ?)

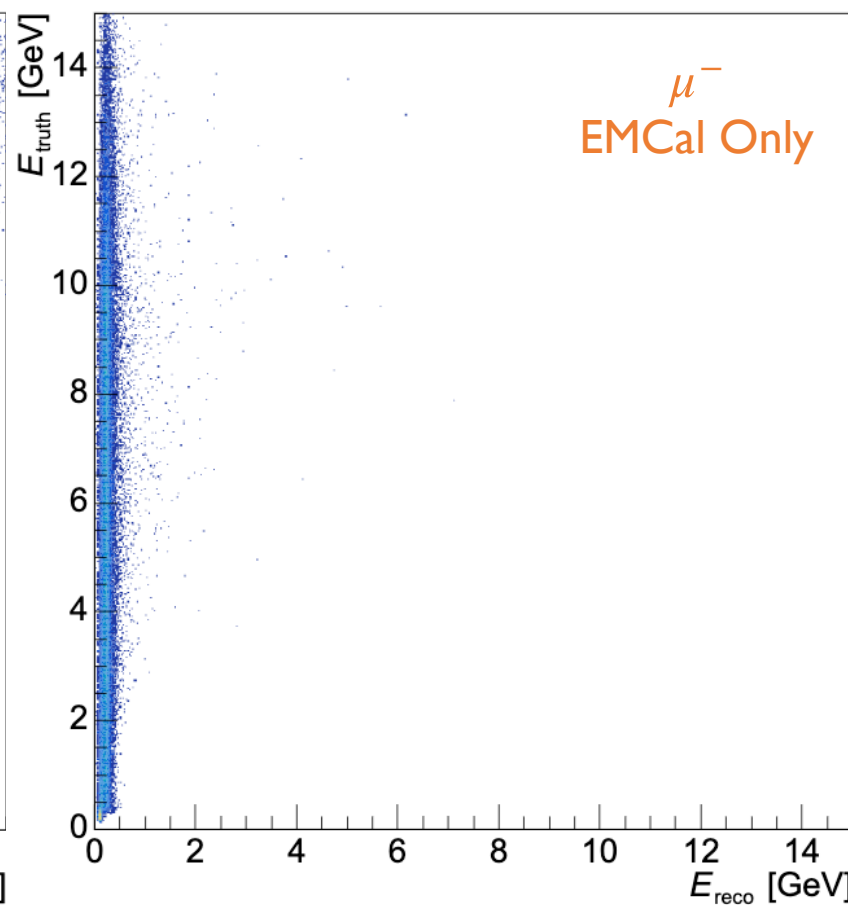
- BACKUP

Clear MIP-like peak visible on pi- case

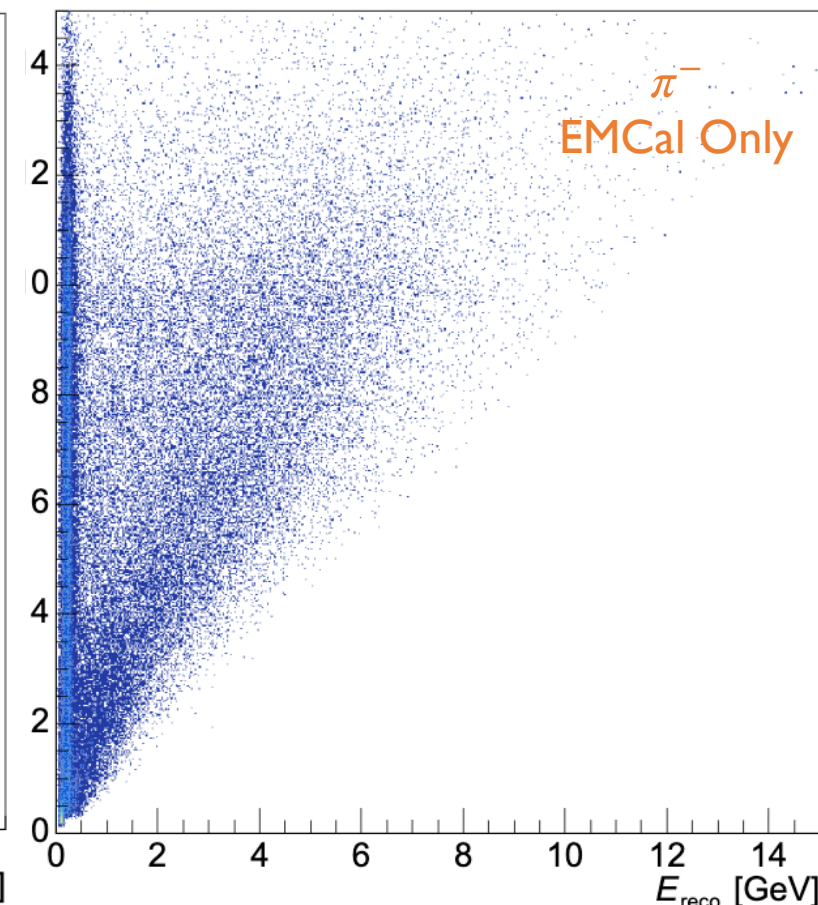
Reco Eemc vs Truth E



Reco Eemc vs Truth E

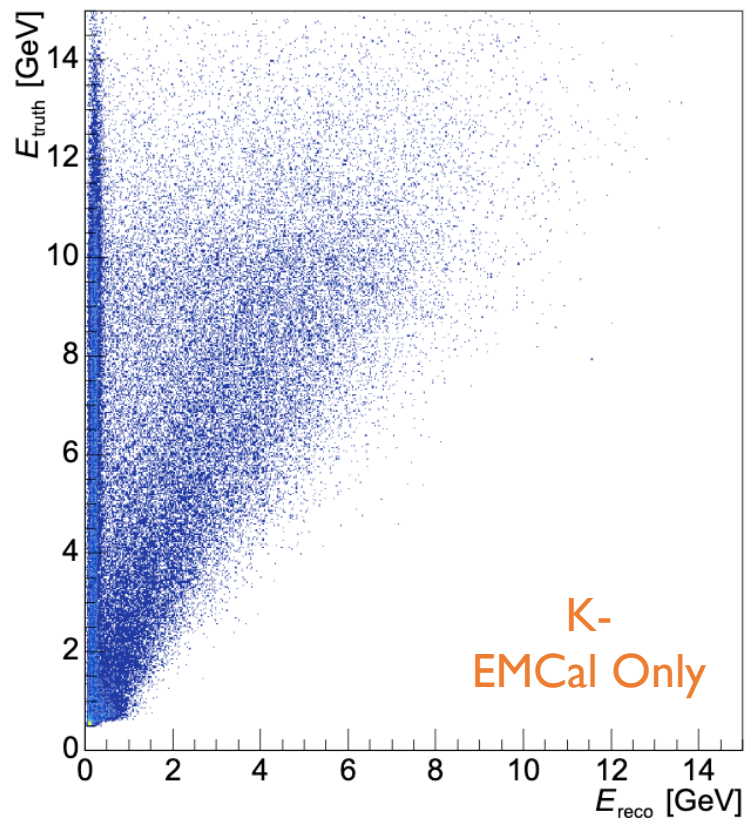


Reco Eemc vs Truth E

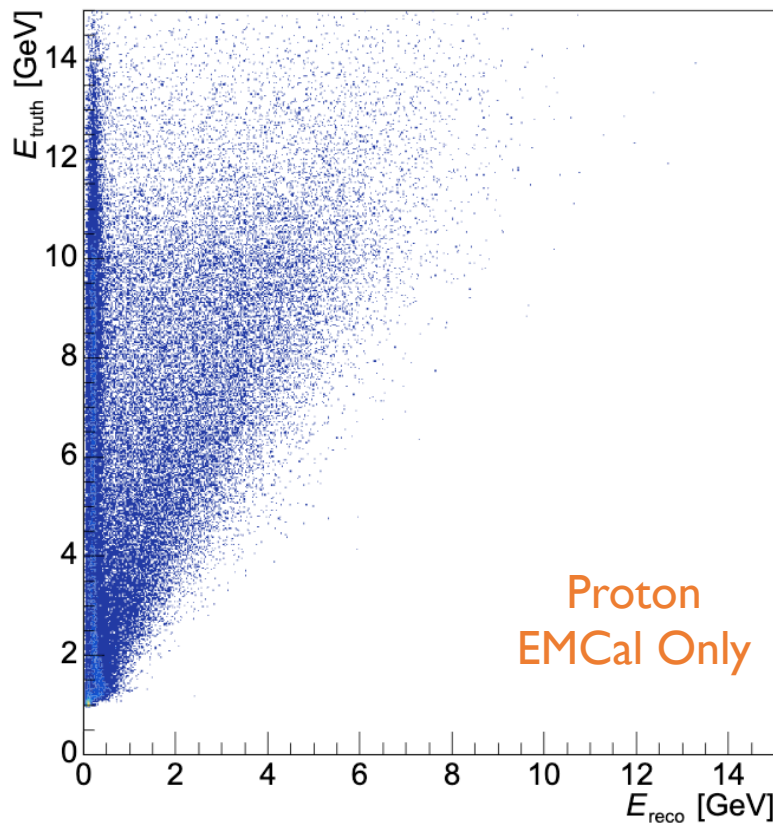


MIP curve also clearly visible on other hadrons

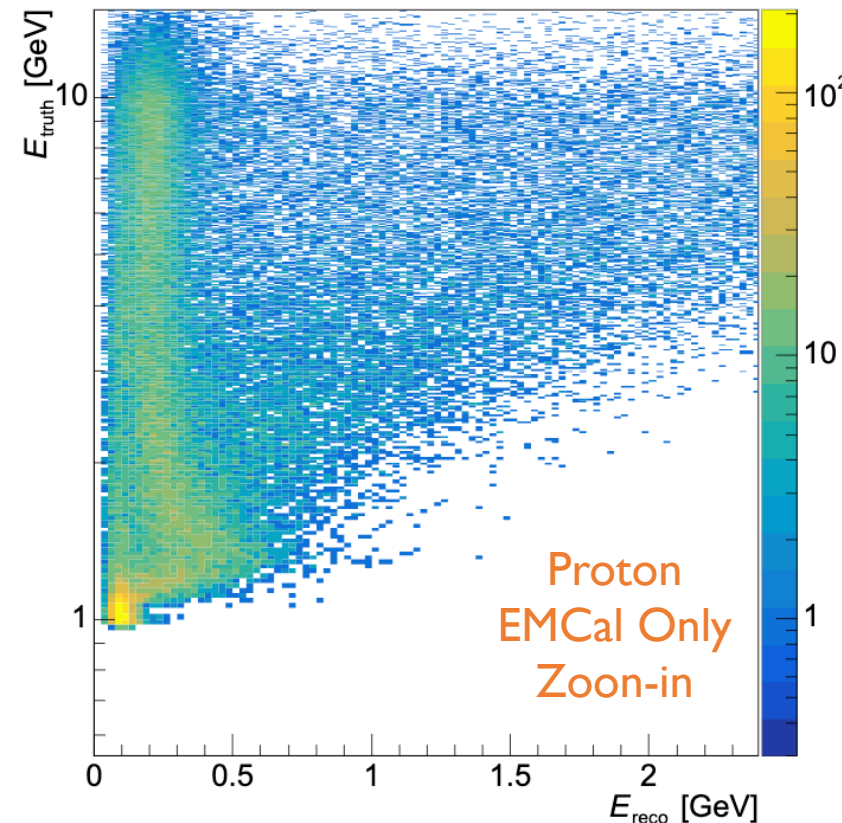
Reco Eemc vs Truth E



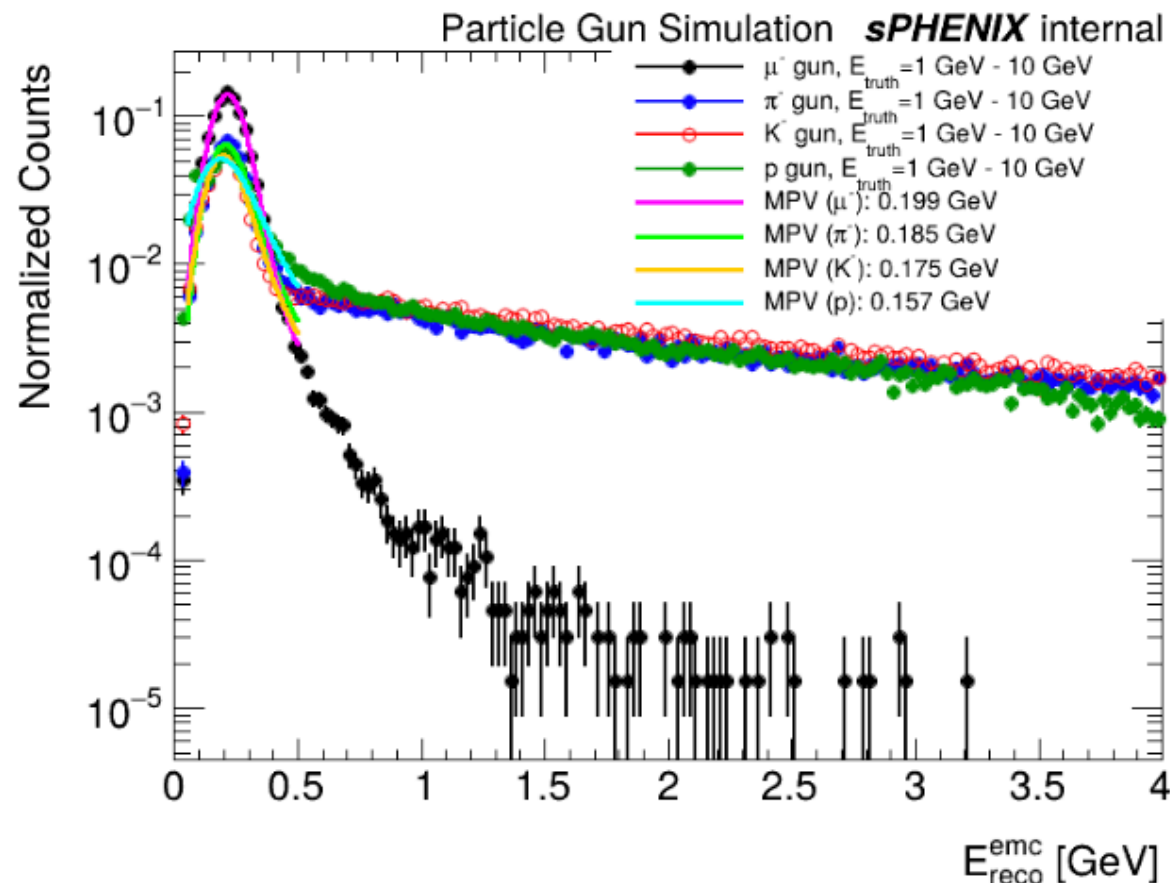
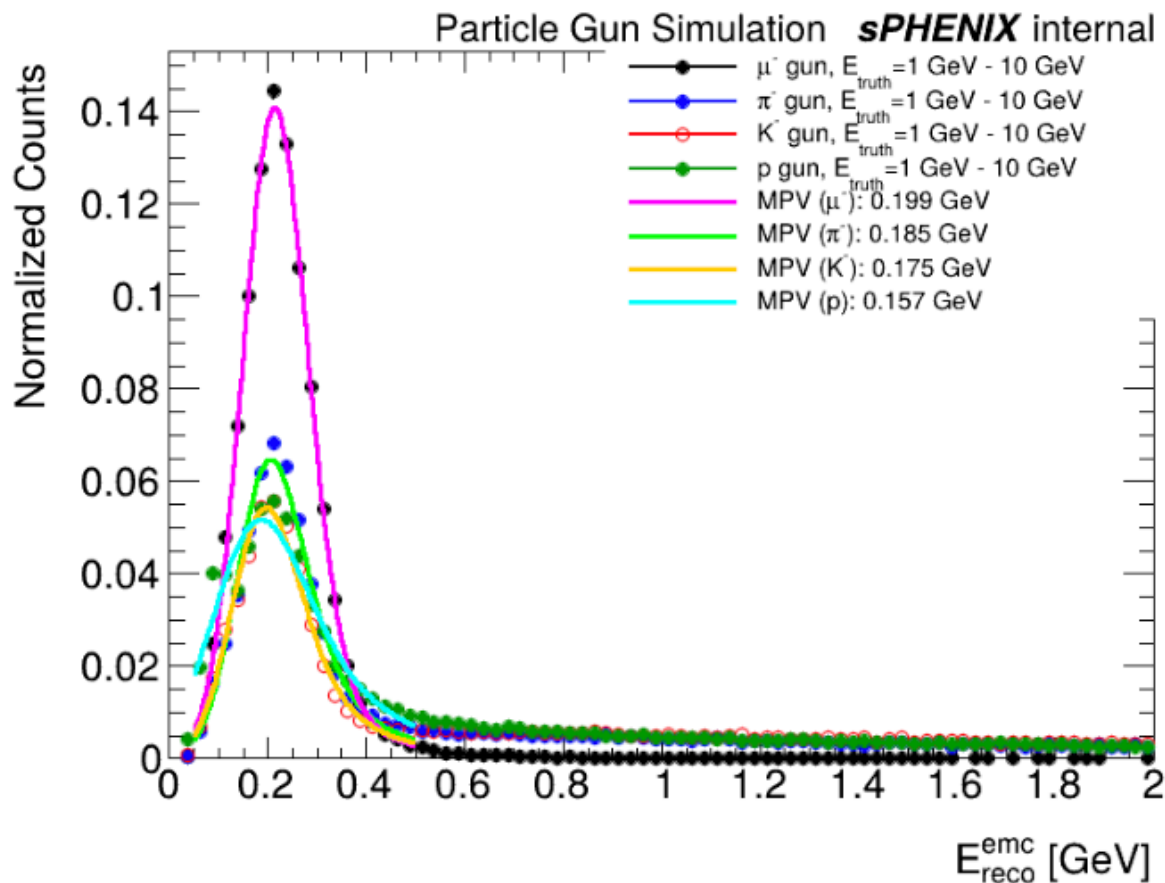
Reco Eemc vs Truth E



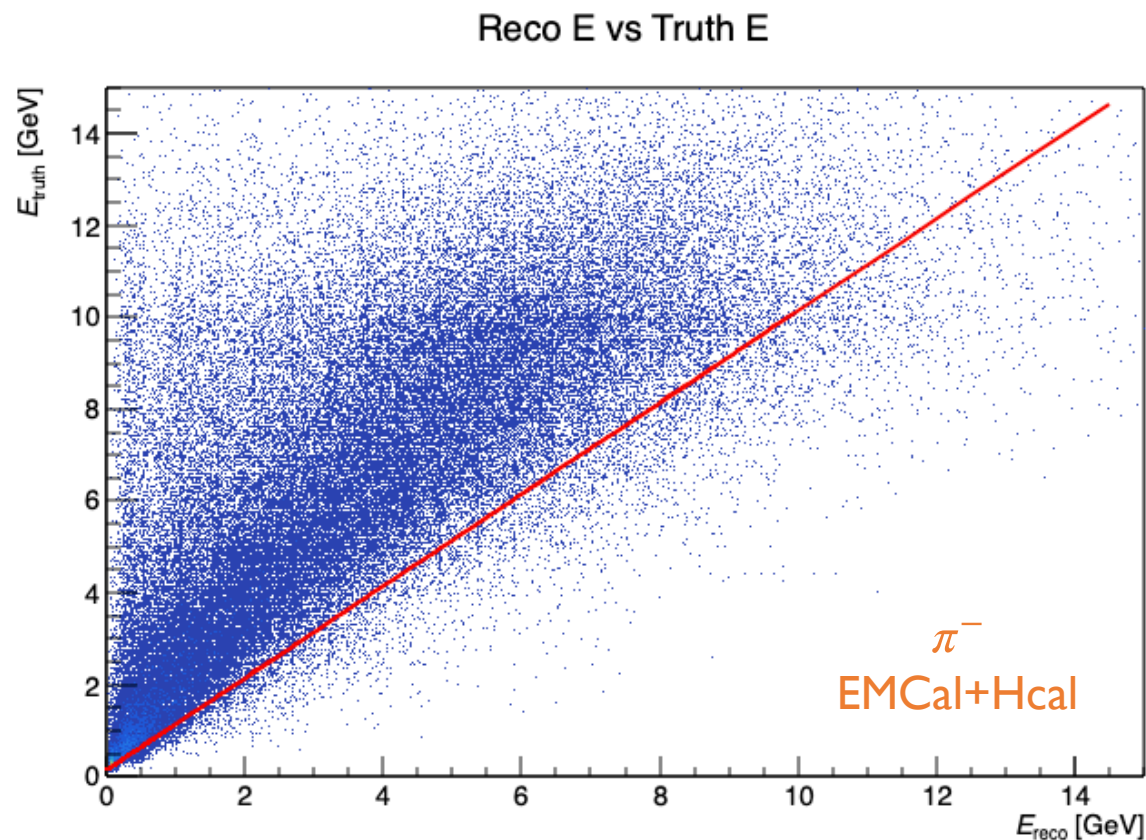
Reco Eemc vs Truth E



MIP curve also clearly visible on other hadrons $\sim 0.15\text{GeV} - 0.2\text{GeV}$



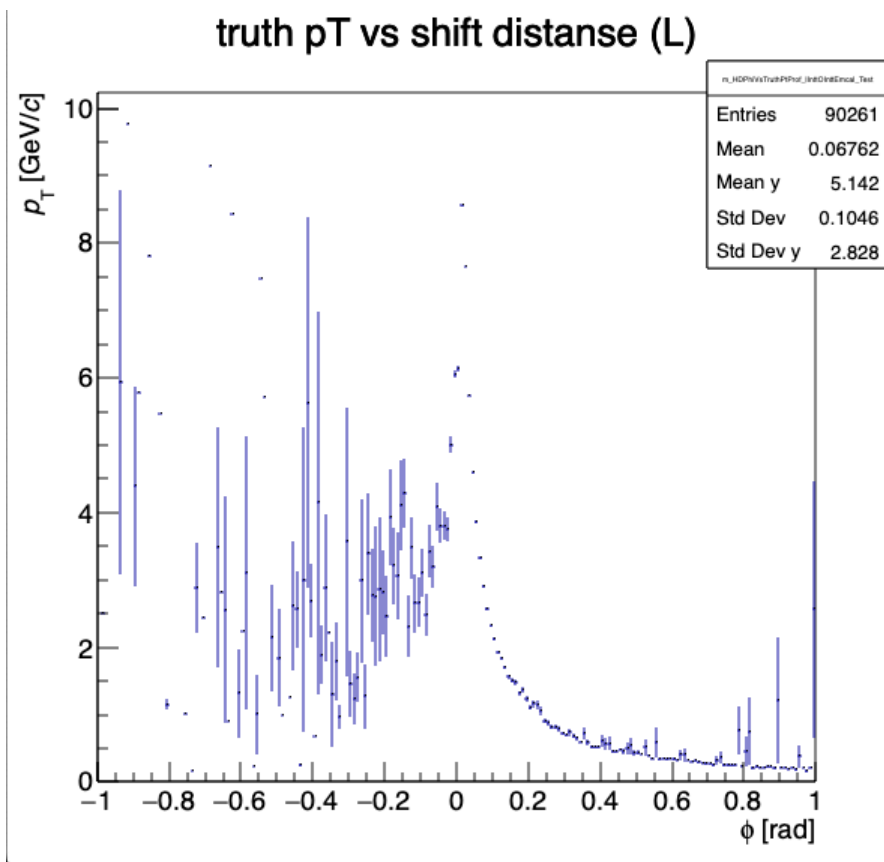
EMcal + iHCal + oHCal Deposit energy



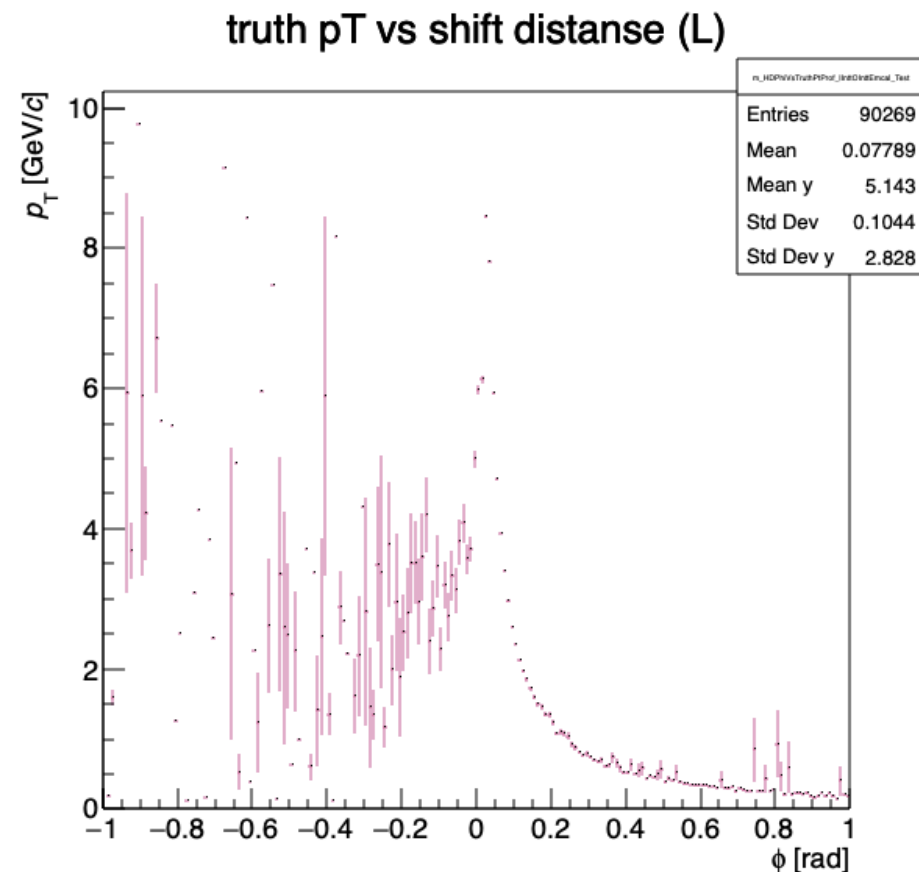
MIP-like peak disappearing once HCal added / But not closed to Etruth

Truth pT vs delta phi

Double_t dPhiOInttEmcal = phiOInttEmcal - phiIInttOIntt;



(topNode, "CLUSTER_POS_COR_CEMC");



(topNode, "CLUSTERINNER_CEMC");

Will try to reconstruct pT from fitfunction $[0] + [1]/x + [2]/x^2 + [3]/x^3 \dots$

Tracking Meeting (Apr 17 2025)