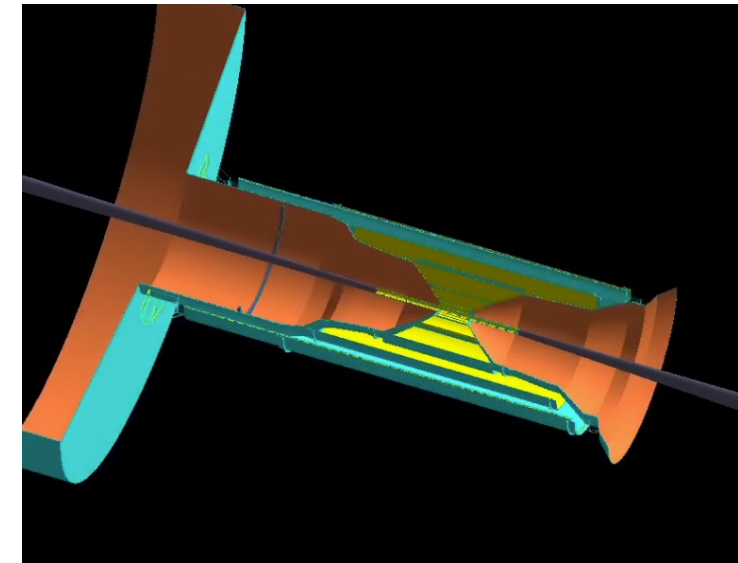
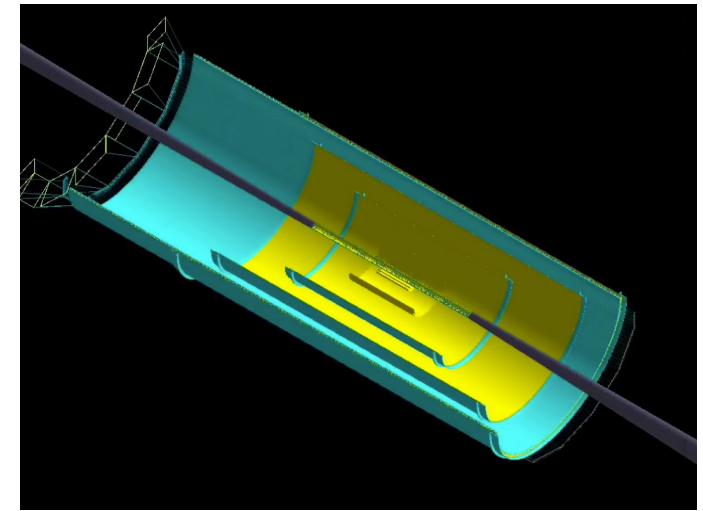
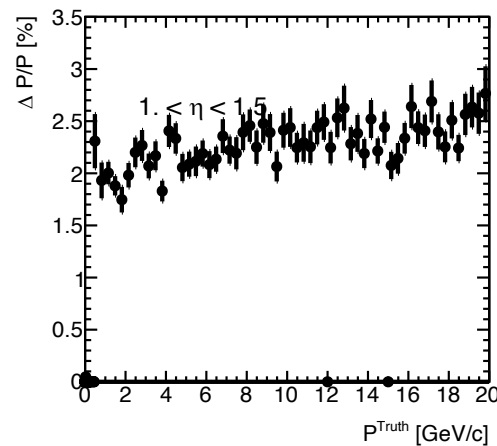
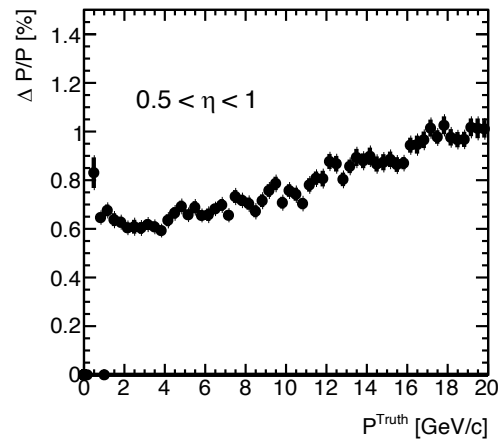
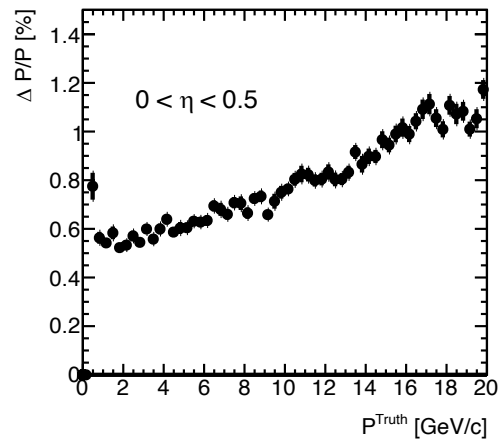
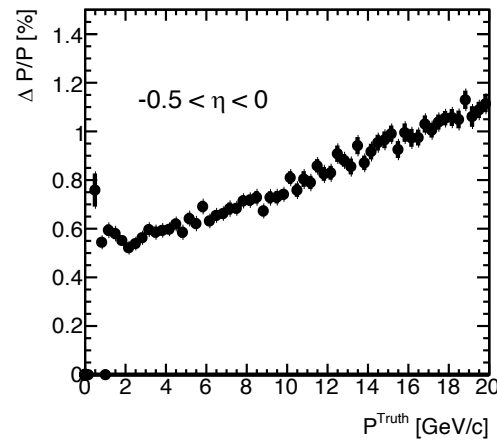
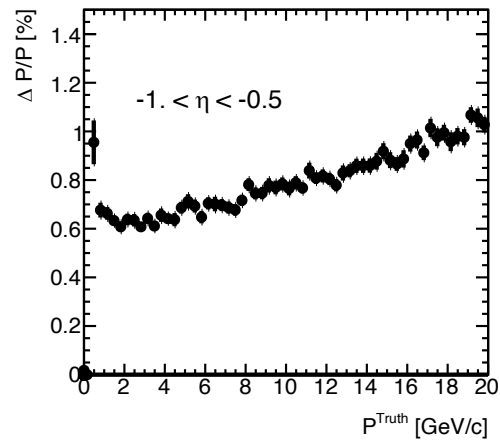
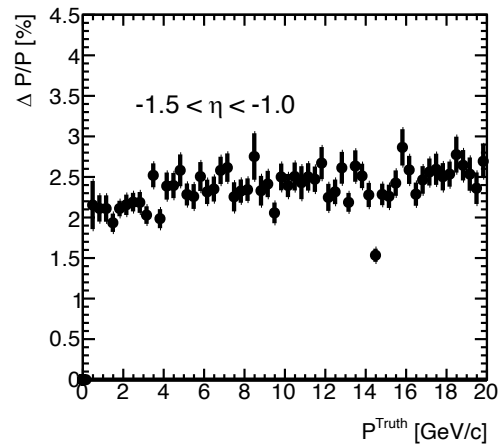


ECCE end cap and barrel MRPC ToF geometry (Tracking performance with mRPC ToF+ mRwell/GEM)

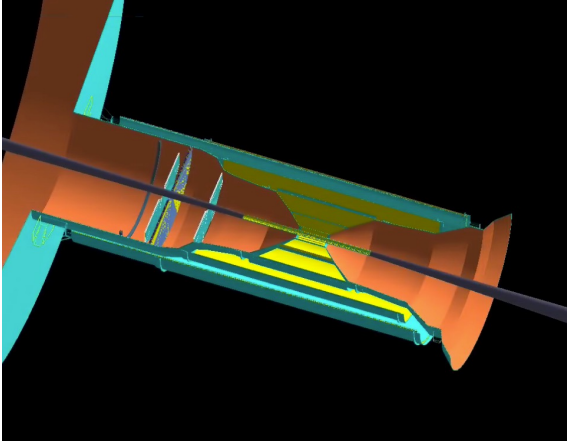
Sourav Tarafdar

Barrel mRPC ToF

- Subsystems in the current configuration :
Si + mRwell (@ R = 44.2, 64, 82 cm) + DIRC + mRPC ToF @ R = 79 cm with tracking services
- Generated particle phase space
5 pions per event with $0.1 < p < 20$ GeV, $|\eta| < 1.5$ and $0-2\pi$ phi
- Length of each layer of mRwell : 140, 250, 300 cm
- Length of barrel mRPC ToF = 400 cm with z offset = -50 cm



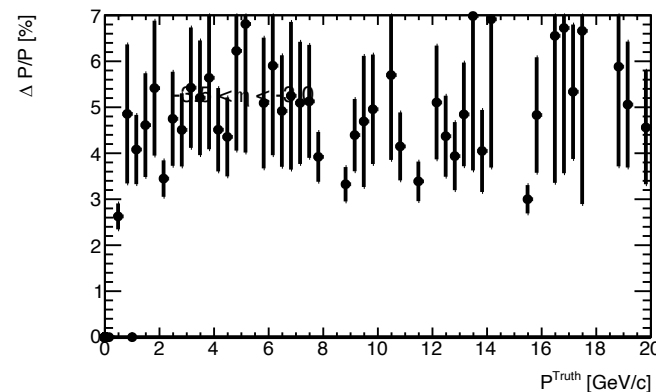
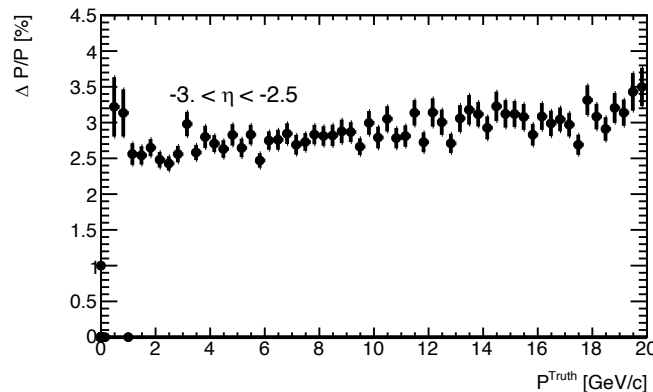
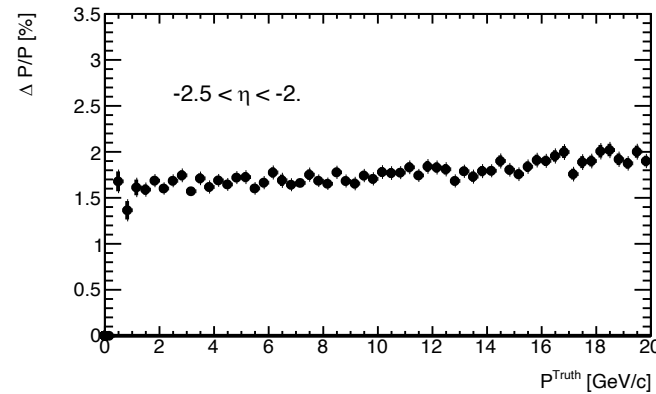
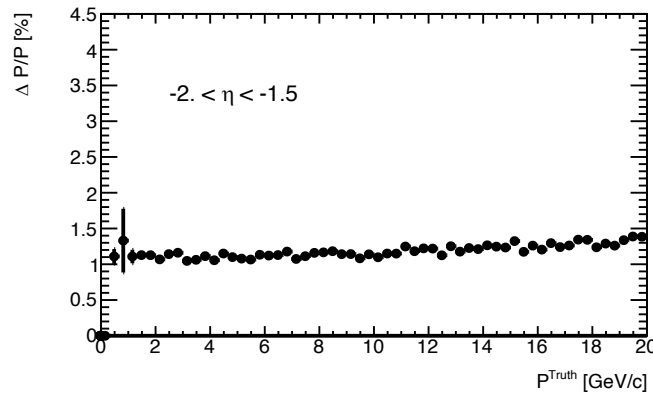
Electron end cap mRPC TOF (single layer thickness with 12 gas gaps ~ 2.716 cm)



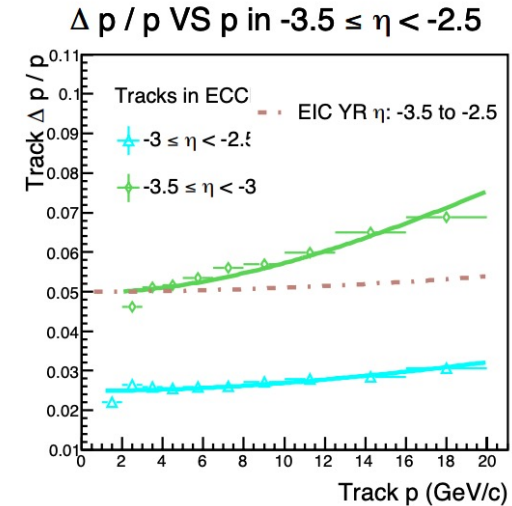
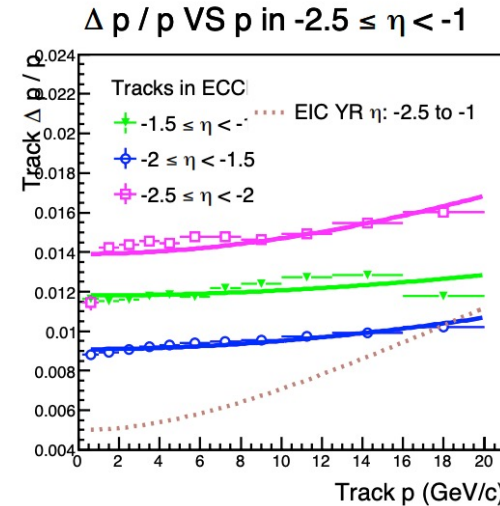
Electron end cap detector locations:

- 1st GEM @ $z = -120$ cm
- mRICH @ $z = -125$ cm
- mRPC ToF @ $z = -162.3$ cm , $R = (6.5 - 68$ cm)
- 2nd GEM @ $z = -173.0$ cm
- Generated particle phase space

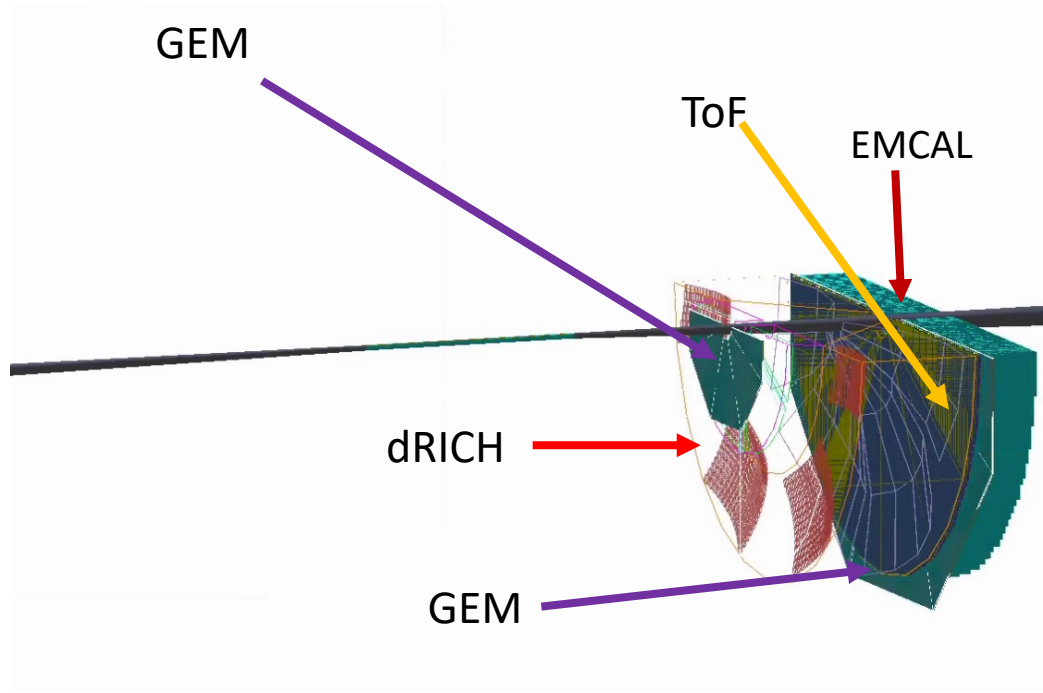
1 pion/event with $0.1 < p < 20$ GeV , $-3.5 < \eta < -1.5$ and $0-2\pi$ phi



2nd simulation campaign tracking evaluation
(uses LGAD ToF) by Xuan Li



Hadron end cap mRPC TOF

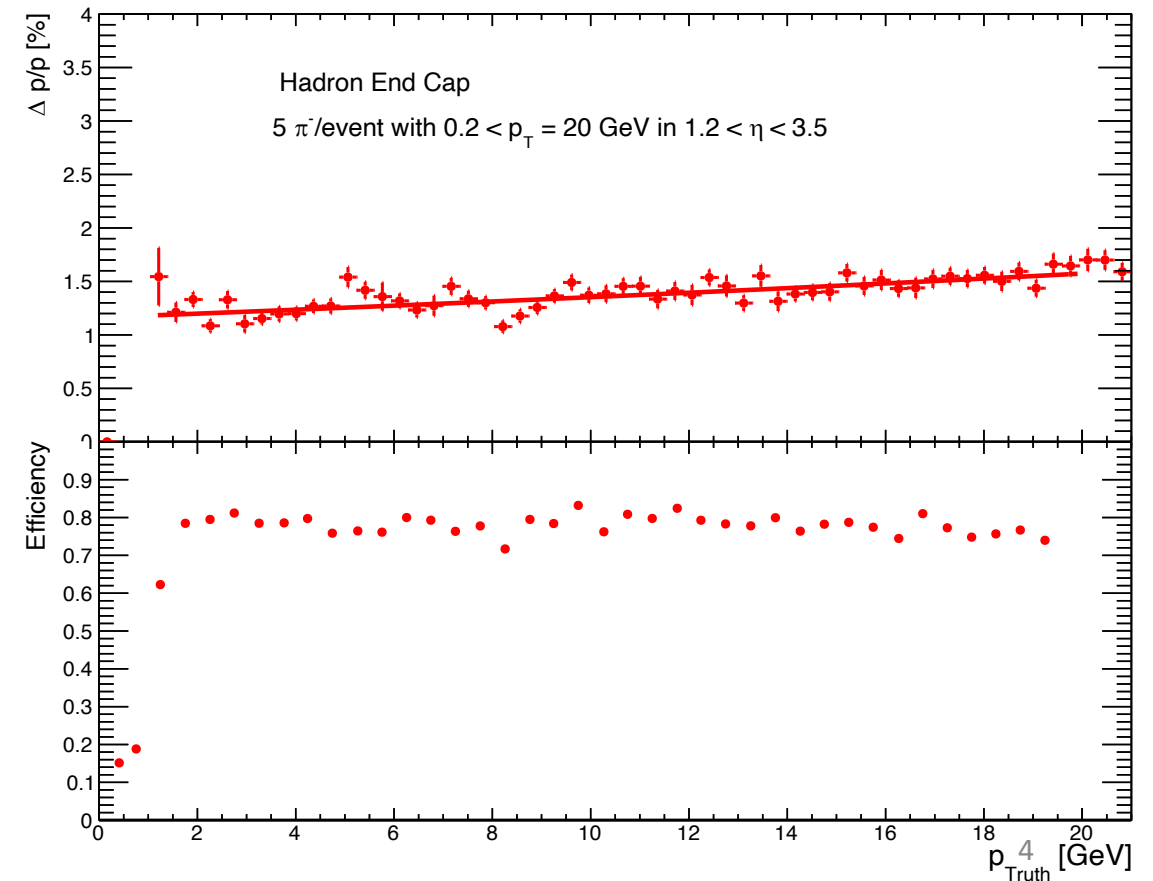


Hadron end cap detector locations without tracking services:

- 1st GEM @ $z = 175$ cm
- dRICH @ $z = 185$ cm with length = 100 cm
- mRPC ToF @ $z = 287.0$ cm , $R = (13.0 - 180)$ cm
- 2nd GEM @ $z = 292.0$ cm
- EMCAL @ $z = 305.0$ cm

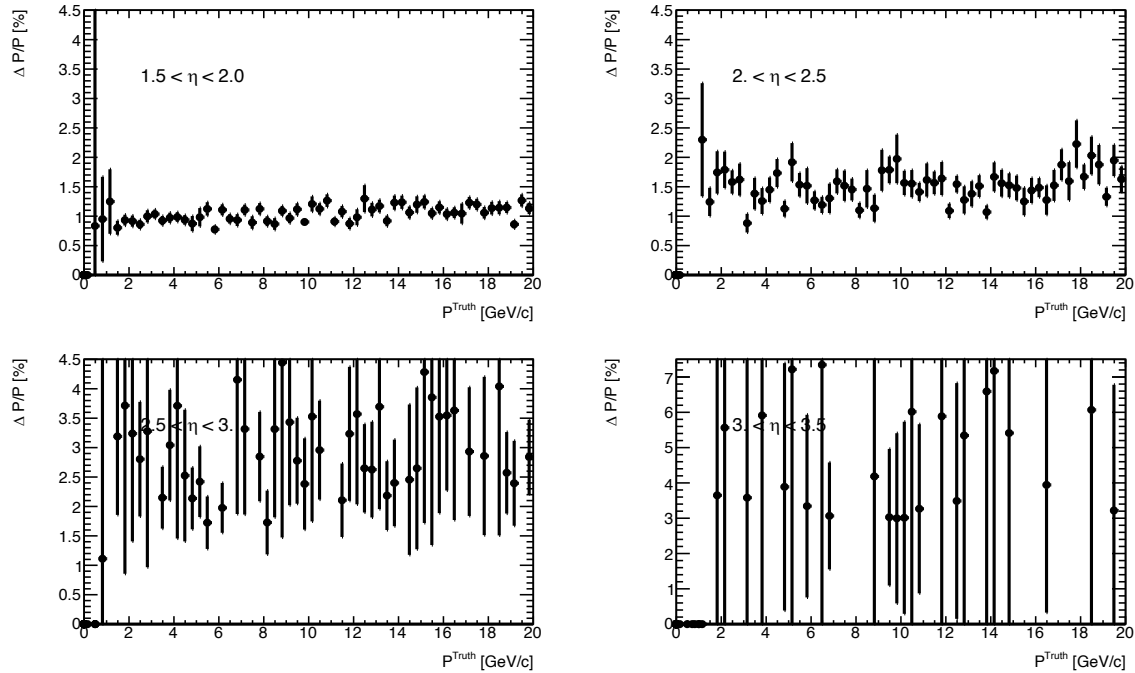
Tracking performance study in Hadron End cap

- 5 pions per event with $0.2 < p_T < 20$ GeV in $1.2 < \eta < 3.5$ and $2 \cdot \pi$ in ϕ (eta coverage according to the last GEM eta coverage)
- Subsystems used according to the figure on left in addition to magnet and Si disks at hadron end cap



Comparison between current result and from 2nd simulation campaign

Tracking performance study in Hadron End cap



Very low statistics in different eta bins.

Will make pull request for end cap mRPC ToF.

2nd simulation campaign tracking evaluation (uses LGAD ToF) by Xuan Li

