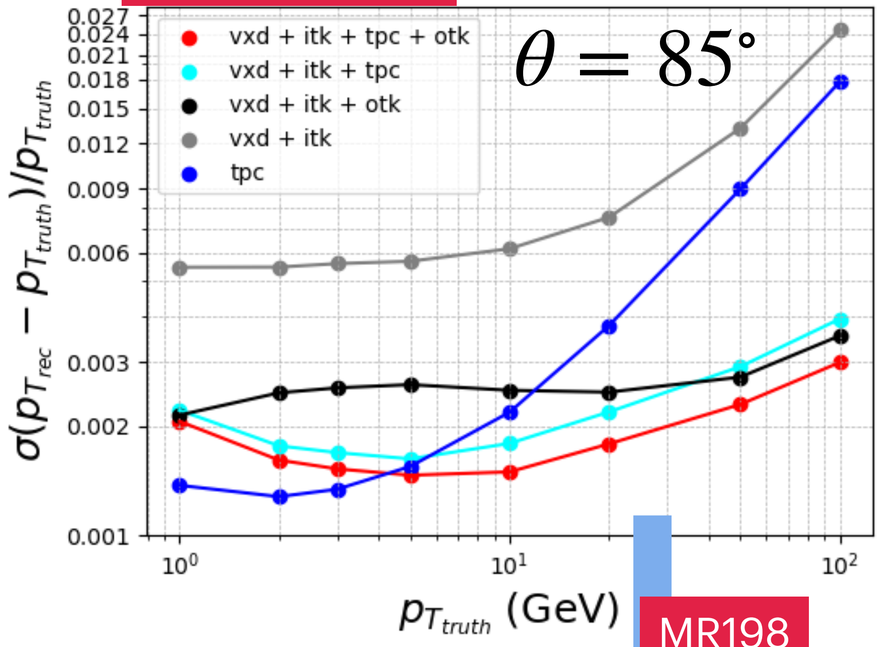
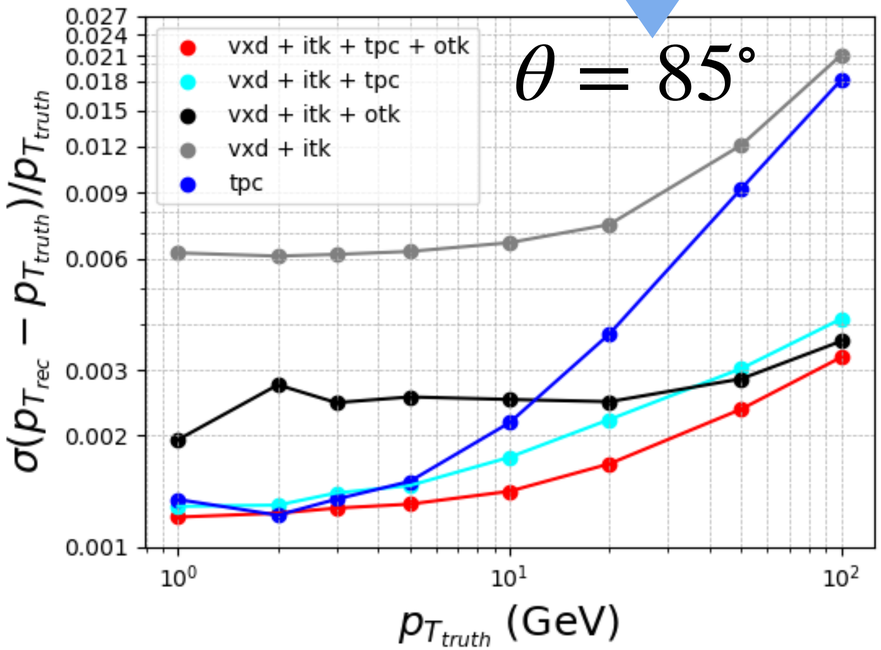
Trk & Vtx

C.Zhang/07Jan2025

SW 25.1.2



MR198

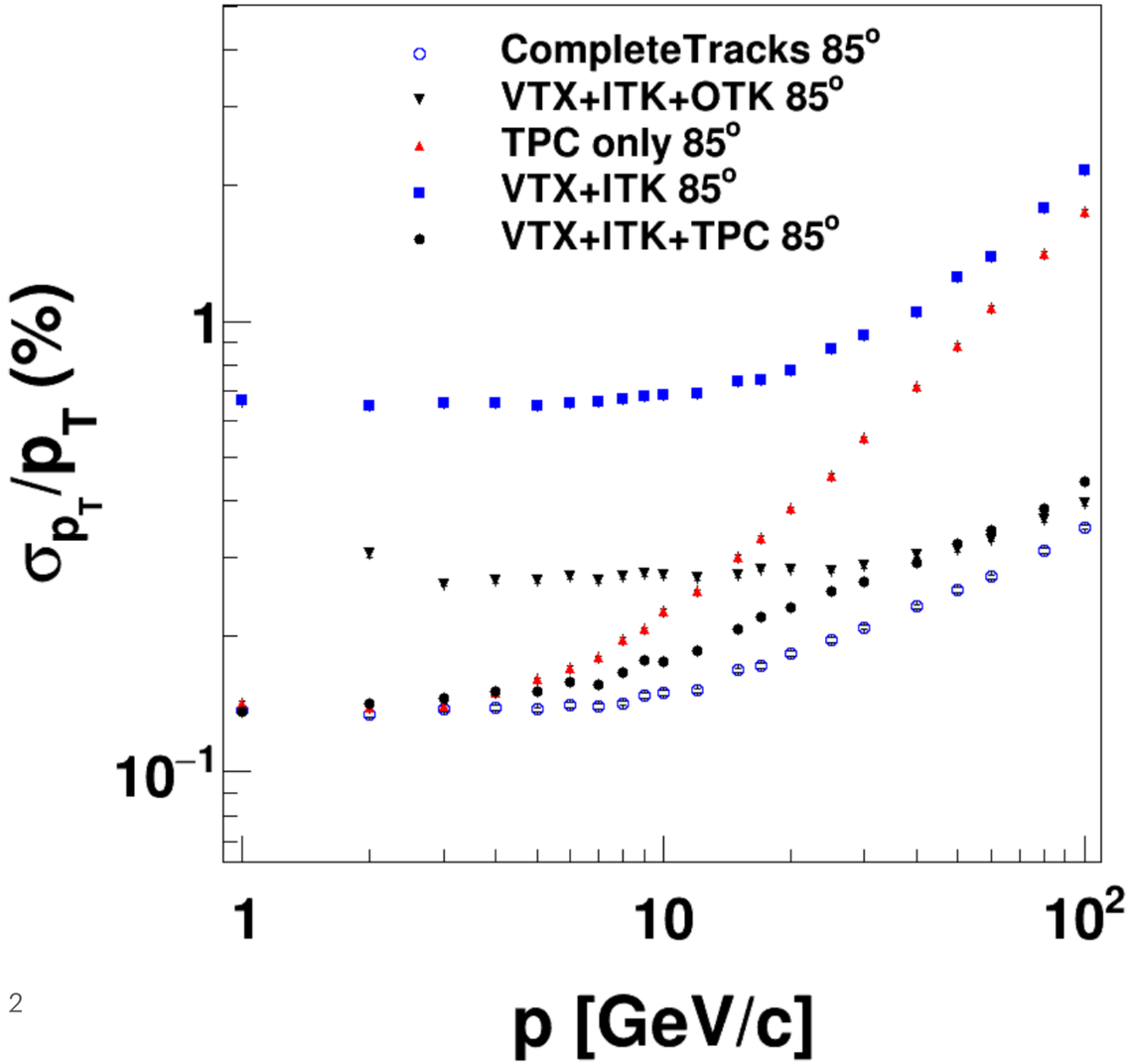


Tracking: fix resolution at low pt

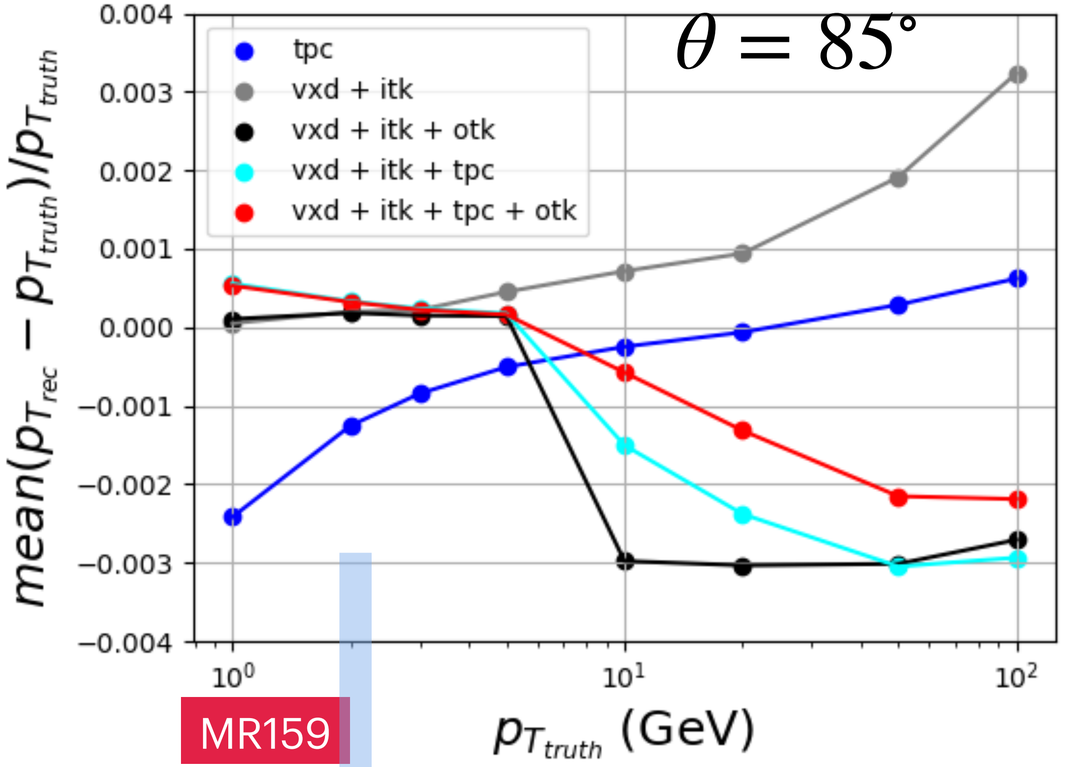
Open **FU Chengdong** requested to merge `fucd/CEPCSW:tracking` into `master` 1 week ago

Overview 0 | Commits 4 | Pipelines 1 | Changes 26

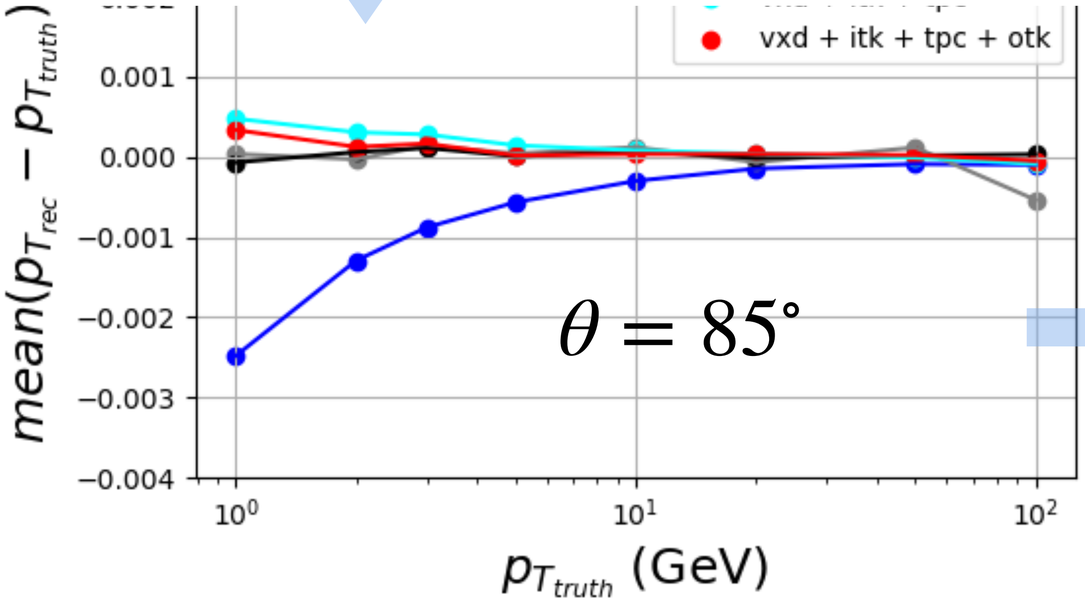
- import a ITKBarrel geometry with uniform material layout
  - to fix resolution at low pt
- update MarlinTrkUtil, these can fix OTKBarrel hit loss for Kaon at ~6GeV@theta=45 degree
  - change hit order while filtering
  - change TrackState at calorimeter



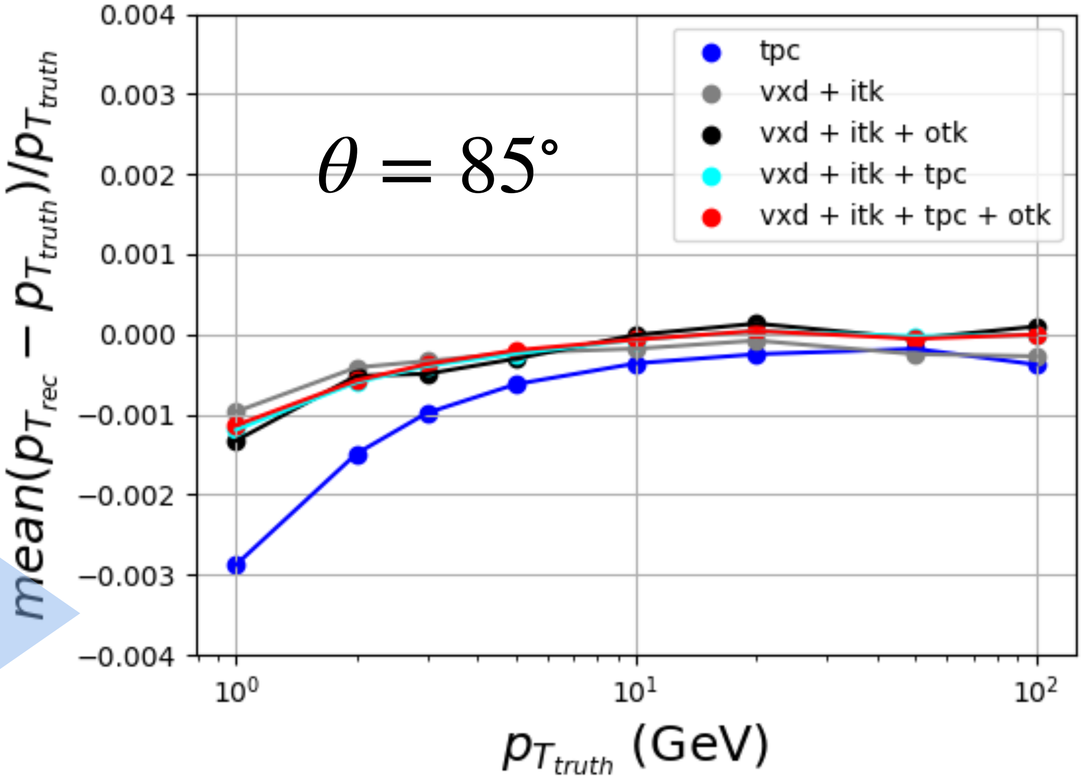
Trk (low pT scale)



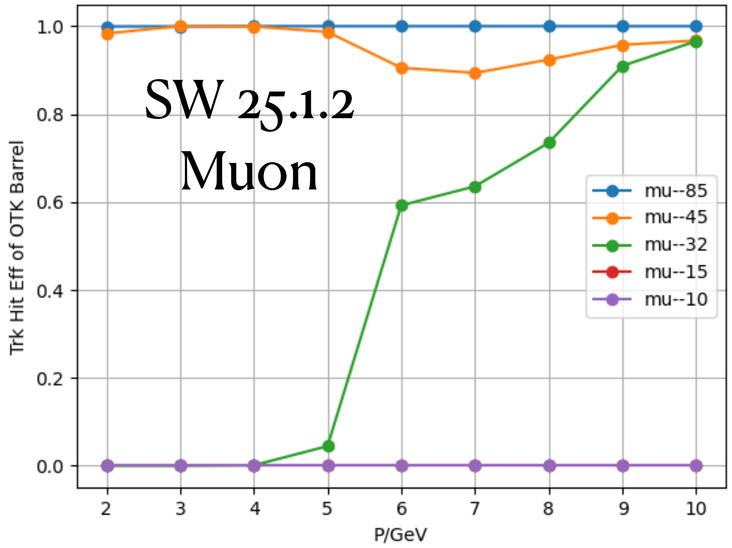
MR159

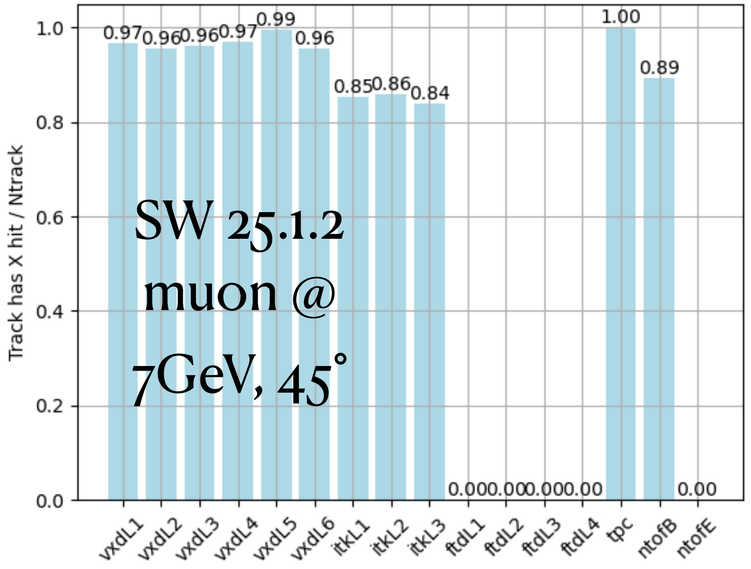


MR198

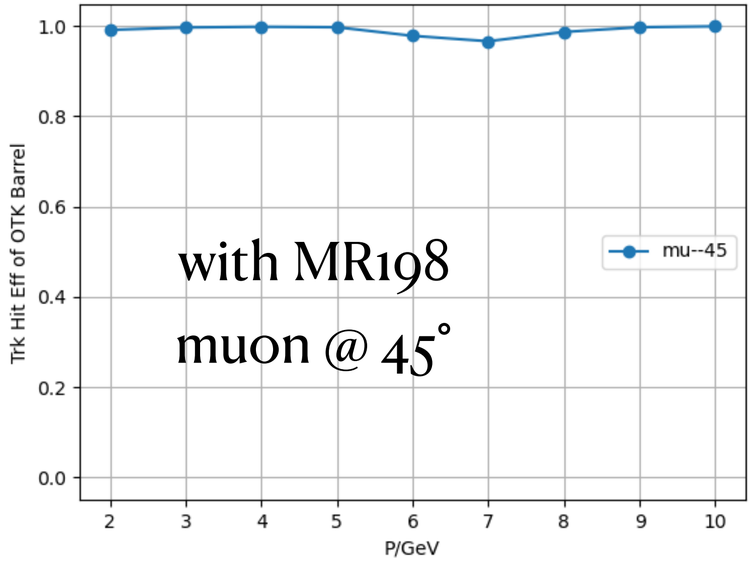


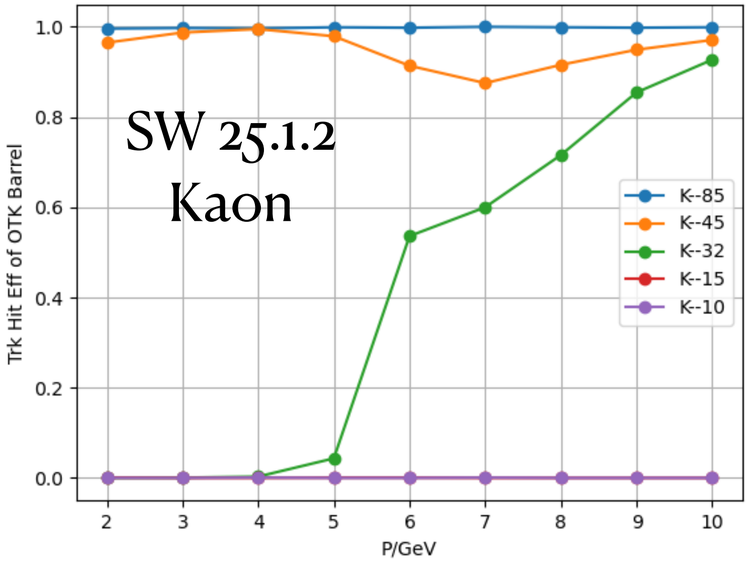
Trk (OTK hit eff.)

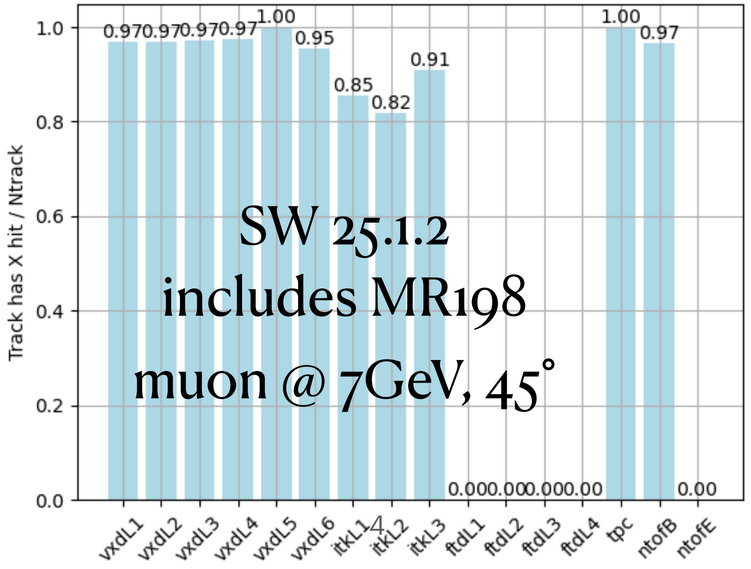




- $\text{Hit Eff}=\dfrac{N_{trk}\ \text{has X hit}}{N_{trk}}$

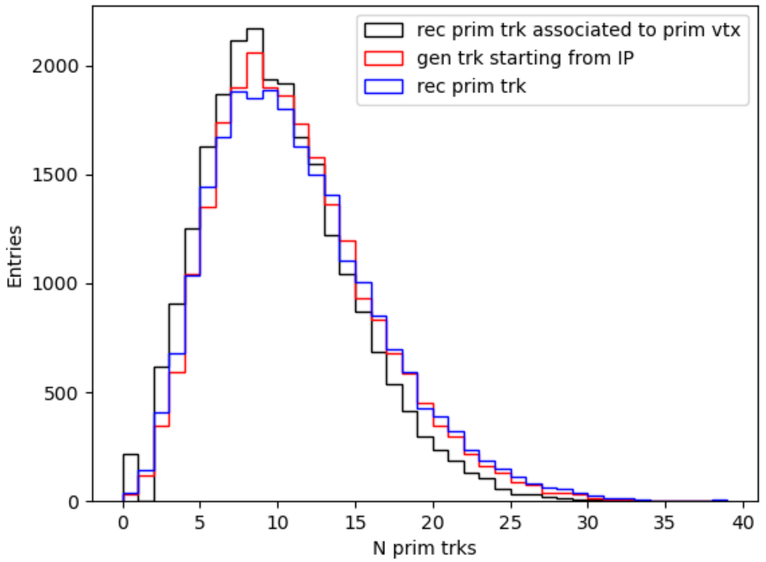






SW 25.1.2

Primary vertex (E91_eebb events)



- PV
  - eff.: **99.3%**

$$\frac{\textit{Number of events with N prim trk} > 1 \ \& \ \textit{PV reco'ed}}{\textit{Number of events with N prim trk} > 1}$$

  - fake: **0.5%**

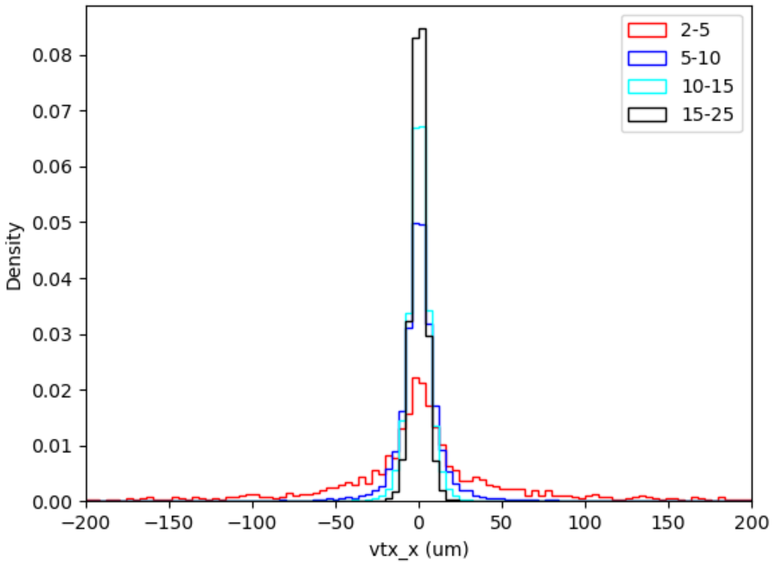
$$\frac{\textit{Number of events with N prim trk} < 2 \ \& \ \textit{PV reco'ed}}{\textit{PV reco'ed}}$$

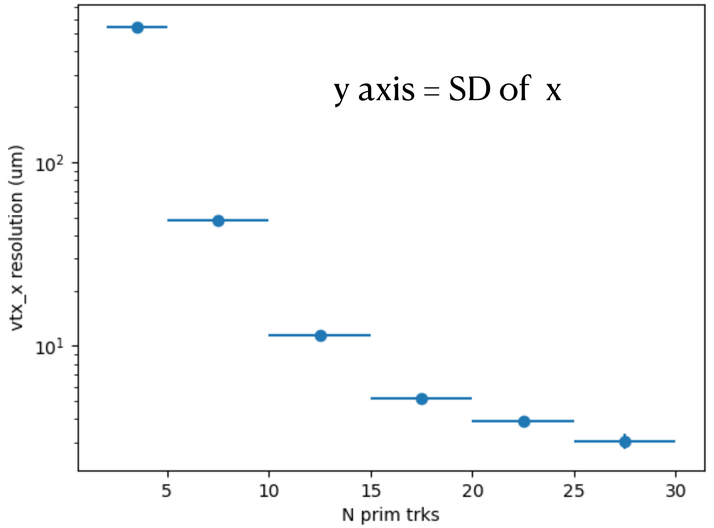
- Trk association
  - eff.: **81%**

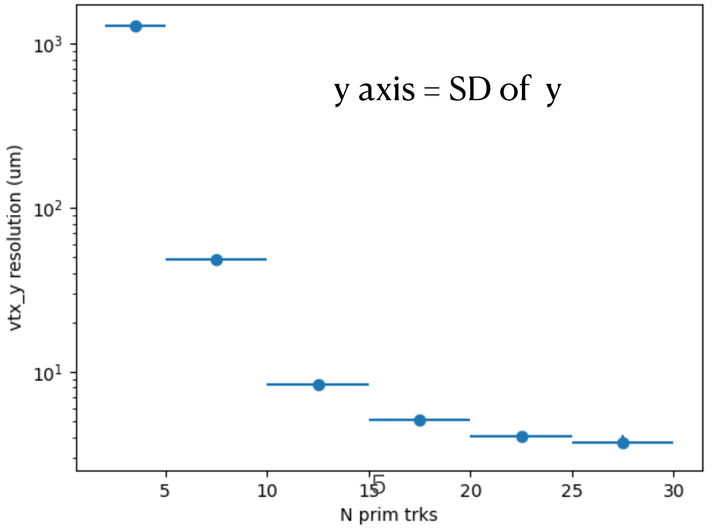
$$\frac{\textit{Number of prim trk associated to prim vtx}}{\textit{Number of prim trk}}$$

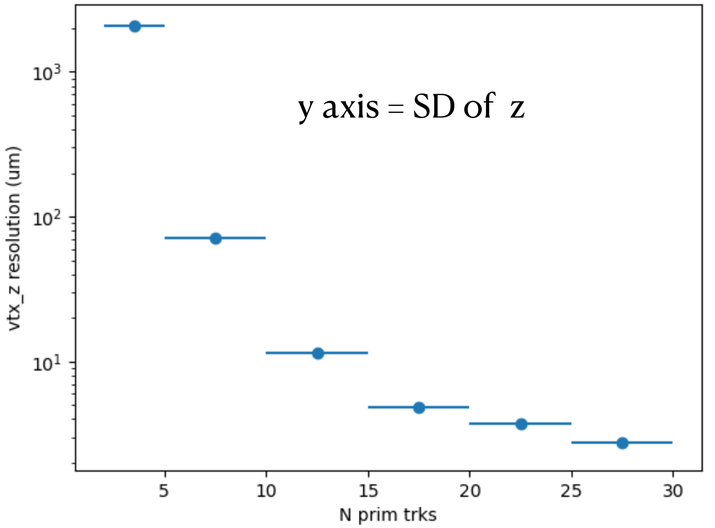
  - purity:**90%**

$$\frac{\textit{Number of prim trk associated to prim vtx}}{\textit{Number of trk associated to prim vtx}}$$





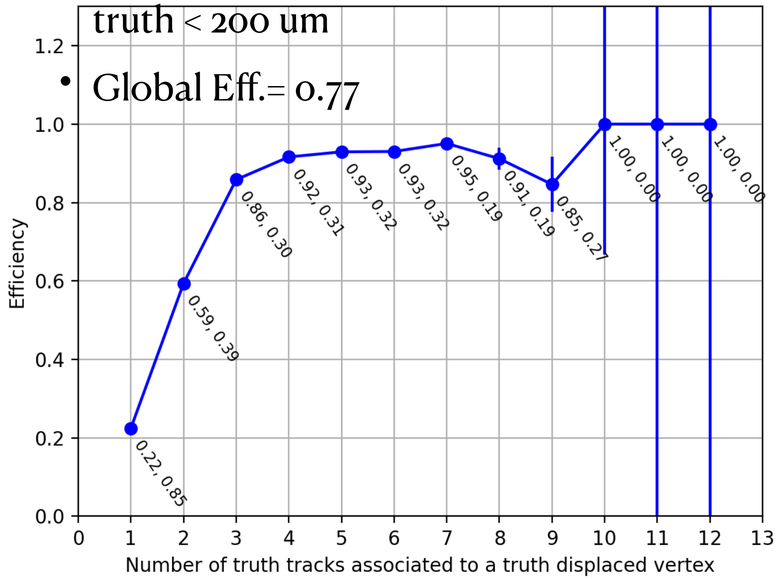




SW 24.12.0

Secondary vertex (E91_eebb events)

- 2D distance between rec and truth < 200 um
- Global Eff.= 0.77



- Global Eff.= 0.77

Secondary vertex