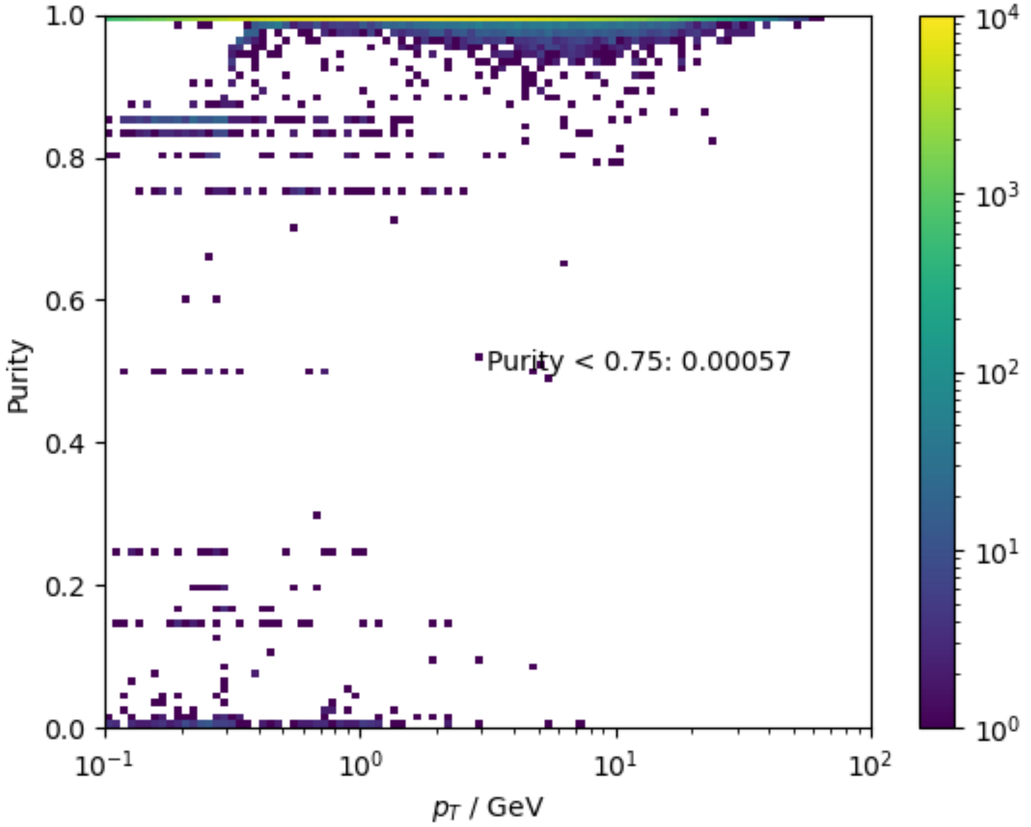
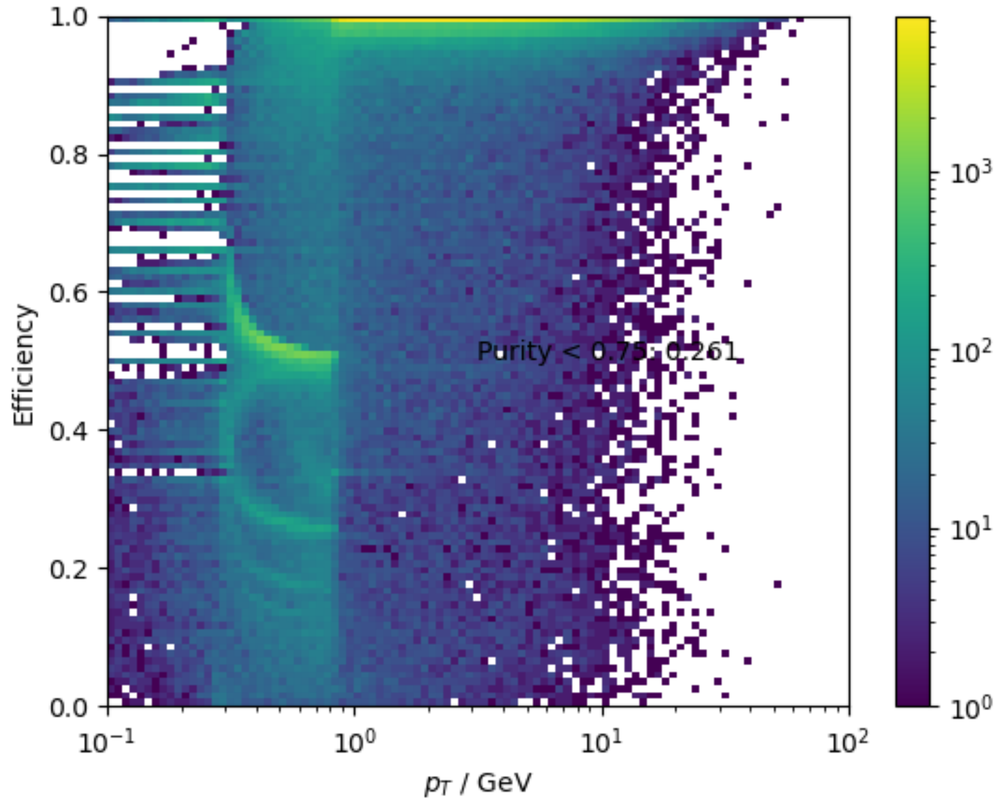
Trk

C.Zhang/24Jan2025

Trk Hits Efficiency&Purity

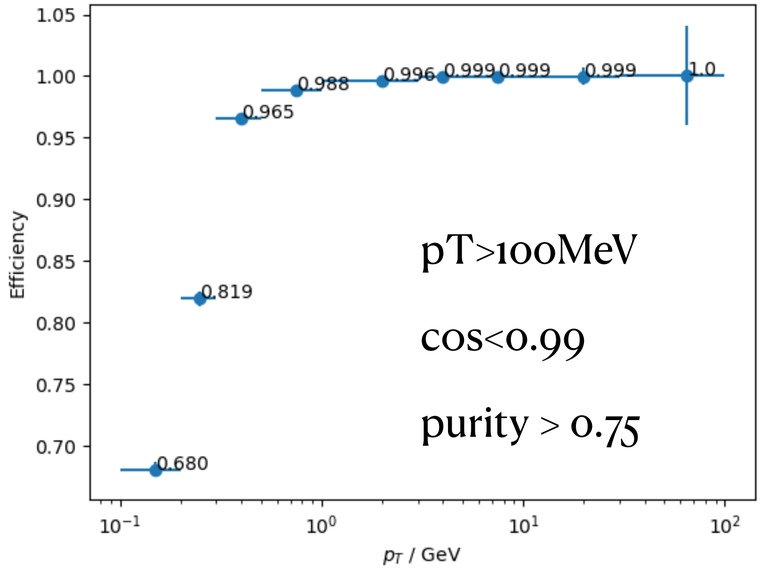
- MCHits: Number of hits matched with a MC particle
- TrkHits: Number of hits associated with a track
- Weight: The same hits in a TrkHits and a MCHits
- Eff = Weight/TrkHits
- Purity = Weight/MCHits

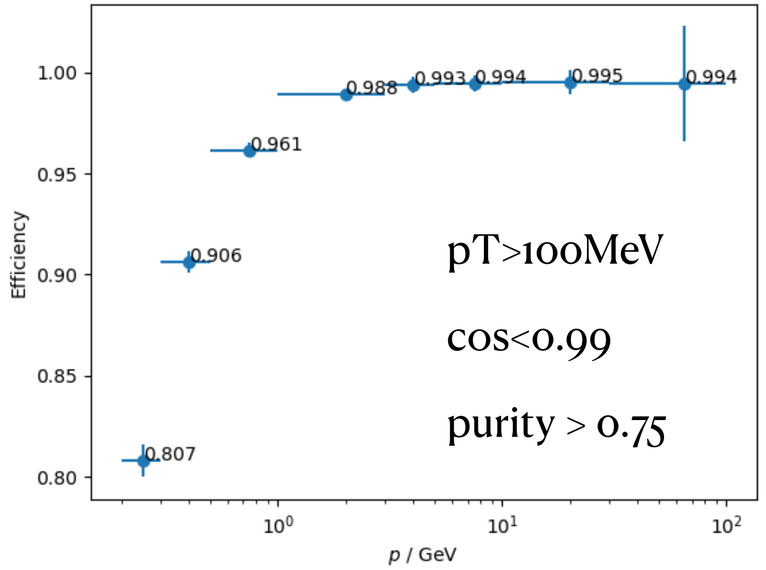


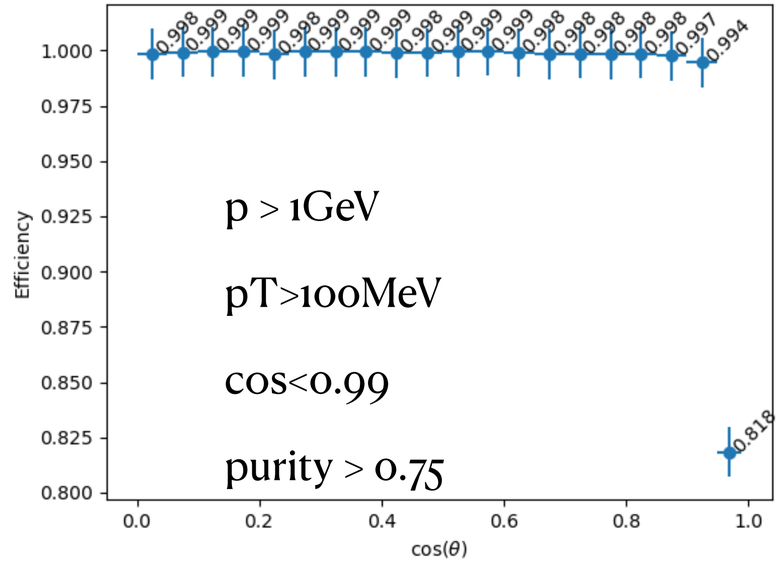


Trk Efficiency with Purity Cut

Trk efficiency with E240_nnHbb events
Purity cut applied, No visible impact on track efficiency

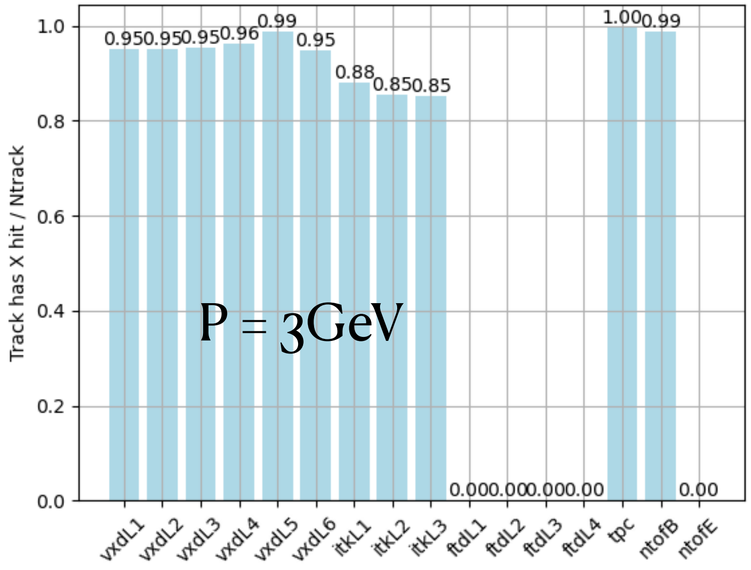


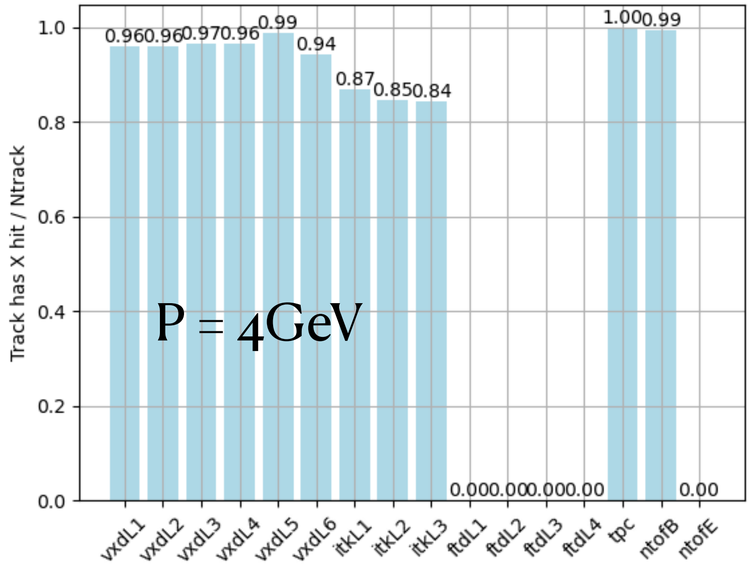


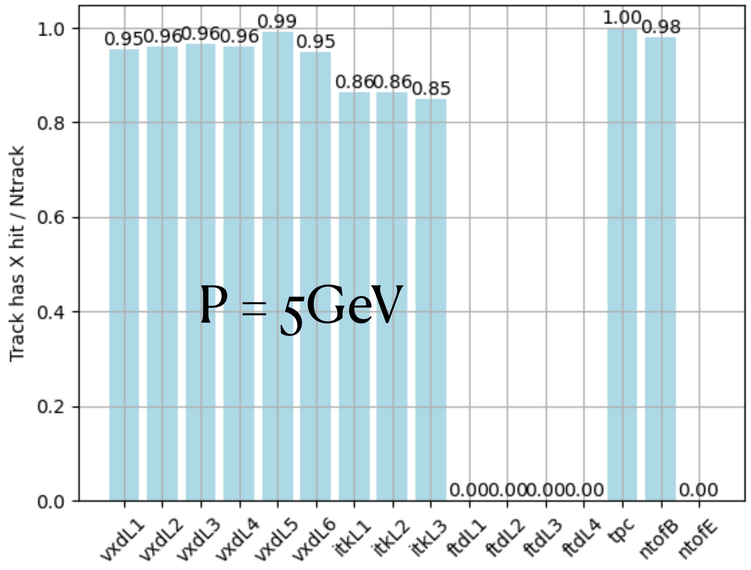


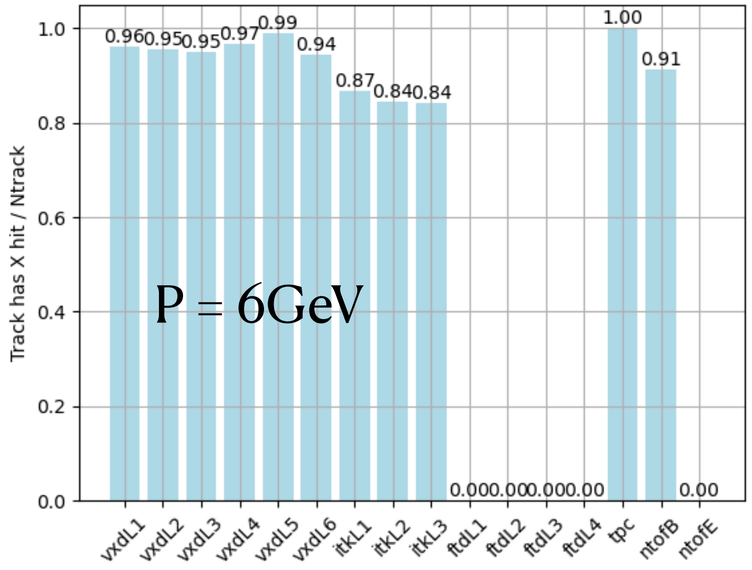
Trk Hit Efficiency

- Single charged kaon @ $\theta = 45^{\circ}$



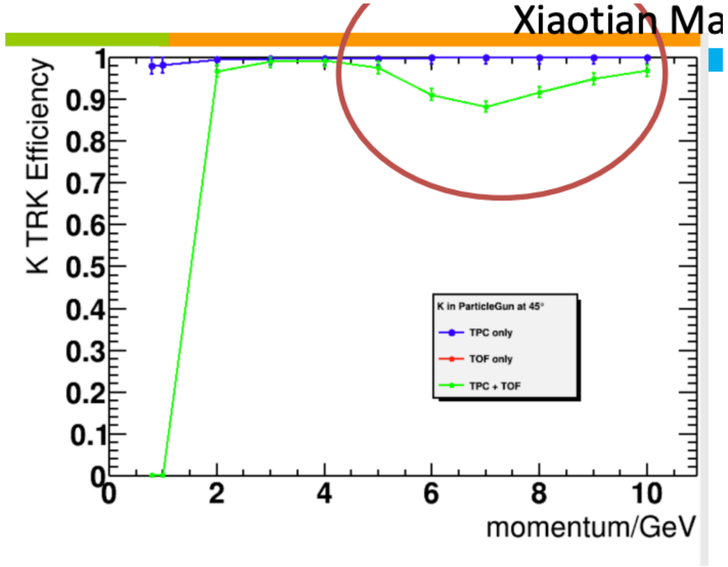




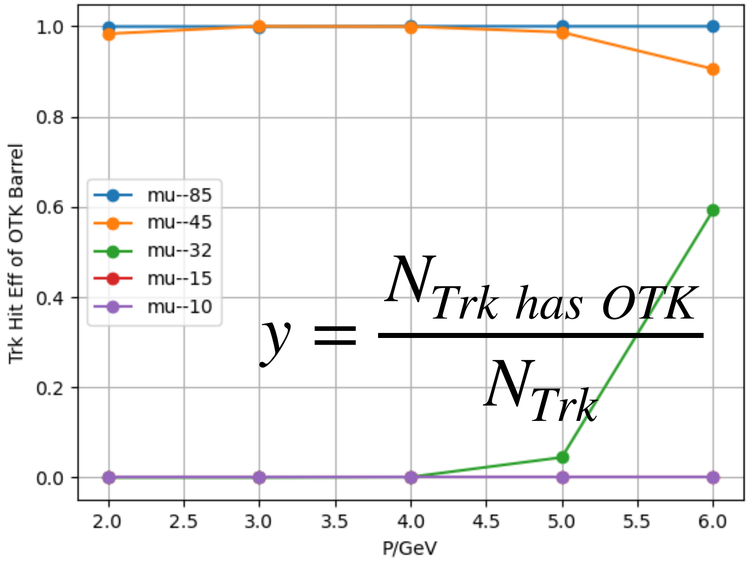


Trk Hit Efficiency of OTK

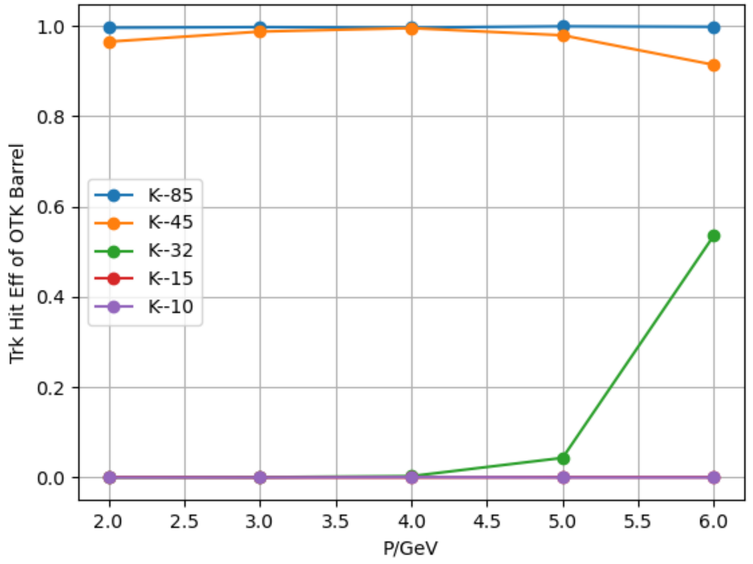
- Motivated by the TOF PID studies conducted by X.Ma

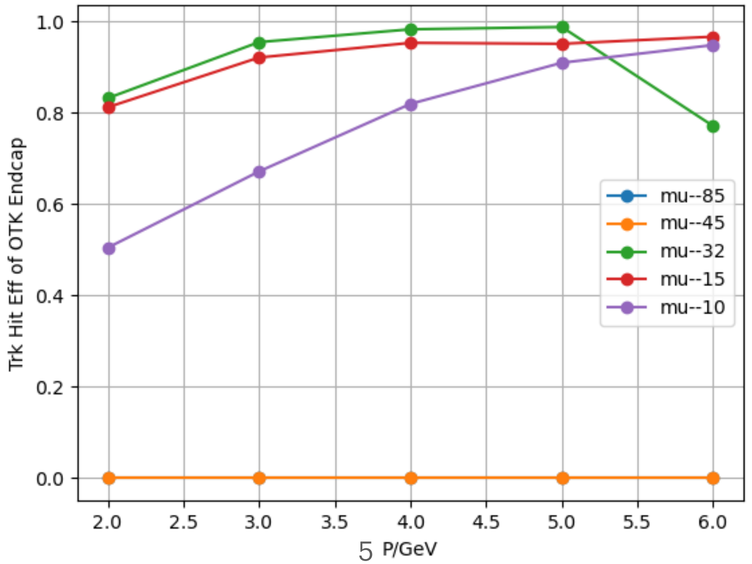


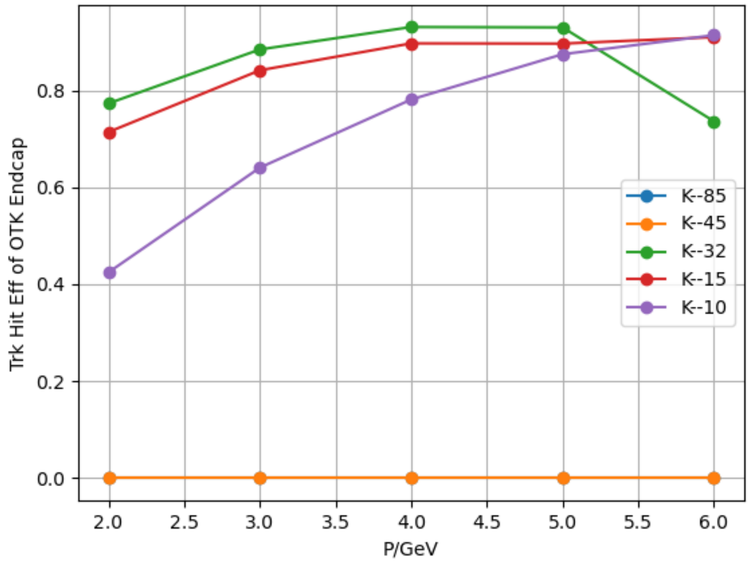
- Todo, adjust chi2, distance parameters used in tracking and repeat these plot



$$y = \frac{N_{Trk\ has\ OTK}}{N_{Trk}}$$







Separation power

1. $$\mathrm{Sp.} = \frac{|O_A - O_B|}{\frac{\sigma_{O_A} + \sigma_{O_B}}{2}},$$ IDEA, ALICE
2. $$\mathrm{Sp.} = \frac{|O_A - O_B|}{\sqrt{\frac{\sigma_{O_A}^2 + \sigma_{O_B}^2}{2}}},$$ ILD
3. $$\mathrm{Sp.} = \frac{|O_A - O_B|}{\sqrt{\sigma_{O_A}^2 + \sigma_{O_B}^2}},$$ CEPC