
D0 reconstruction

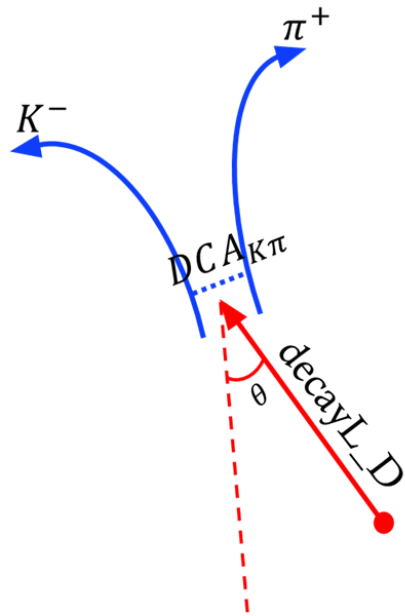
Senjie Zhu

12/13/2022

Setup

- From /beegfs/home/zhaoyx/EIC/pythiadata/3.5_20
- $Q^2 > 2 \text{ GeV}^2, 0.05 < y < 0.8, W^2 > 4 \text{ GeV}^2$
- PID cut

| | $[-3.5, -1)$ | $[-1, 1)$ | $[1, 3.5)$ |
|-----------|--------------|-----------|------------|
| p_{max} | 4 | 6 | 15 |

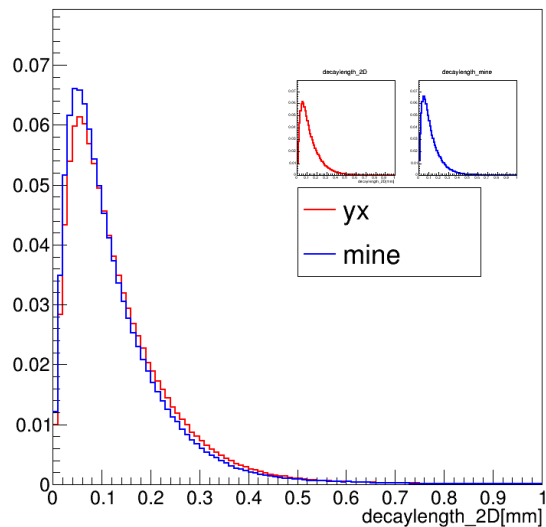


D^0 topological cut

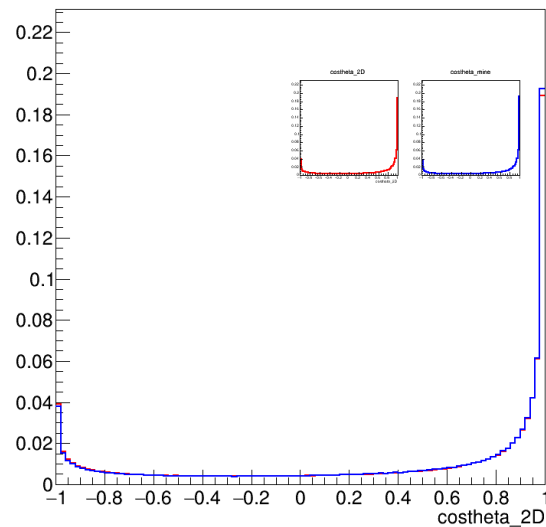
- Dca_K
- Dca_π
- $Dca_{K\pi}$
- $DecayLengthXY_{D^0}$
- $\cos \theta_{XY}$

D^0 Signal Comparison

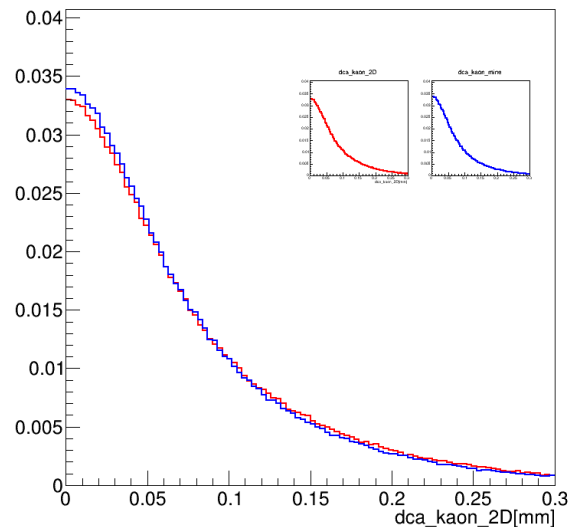
decaylength_2D



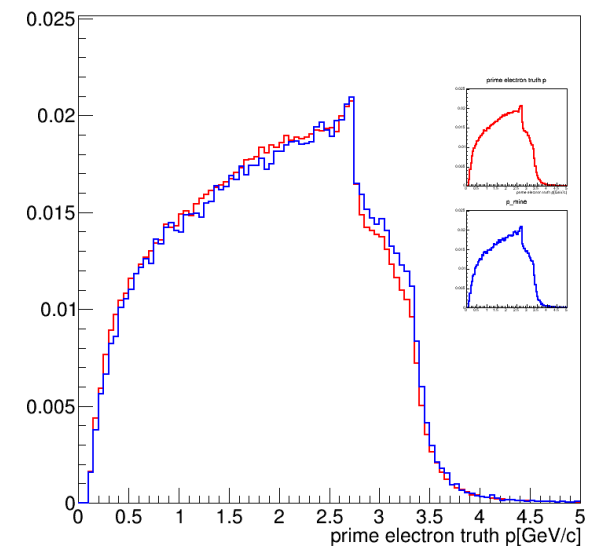
costheta_2D



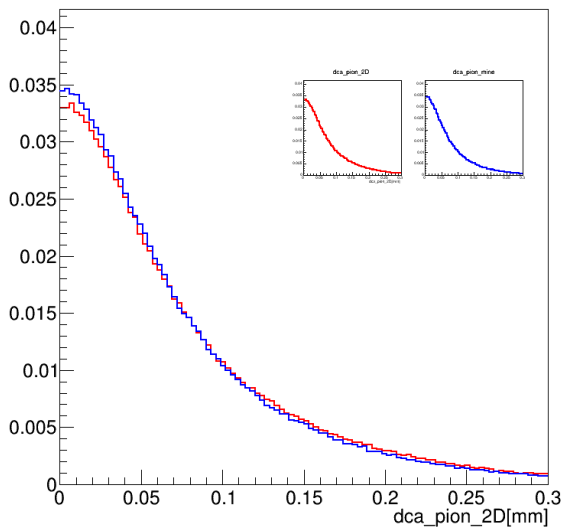
dca_kaon_2D



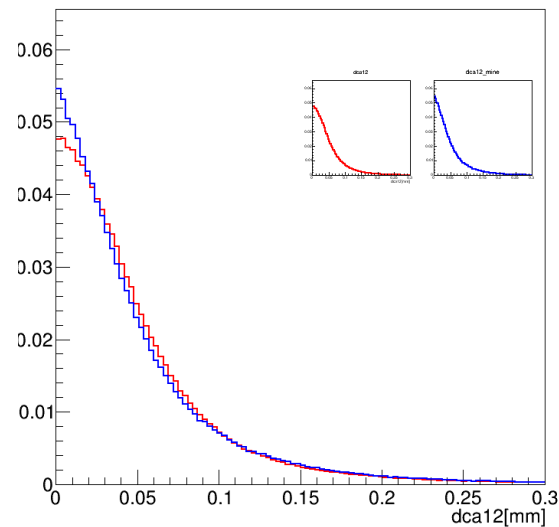
prime electron truth p



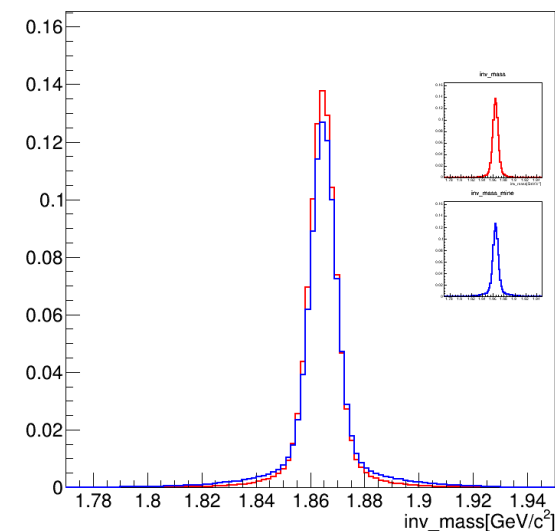
dca_pion_2D



dca12

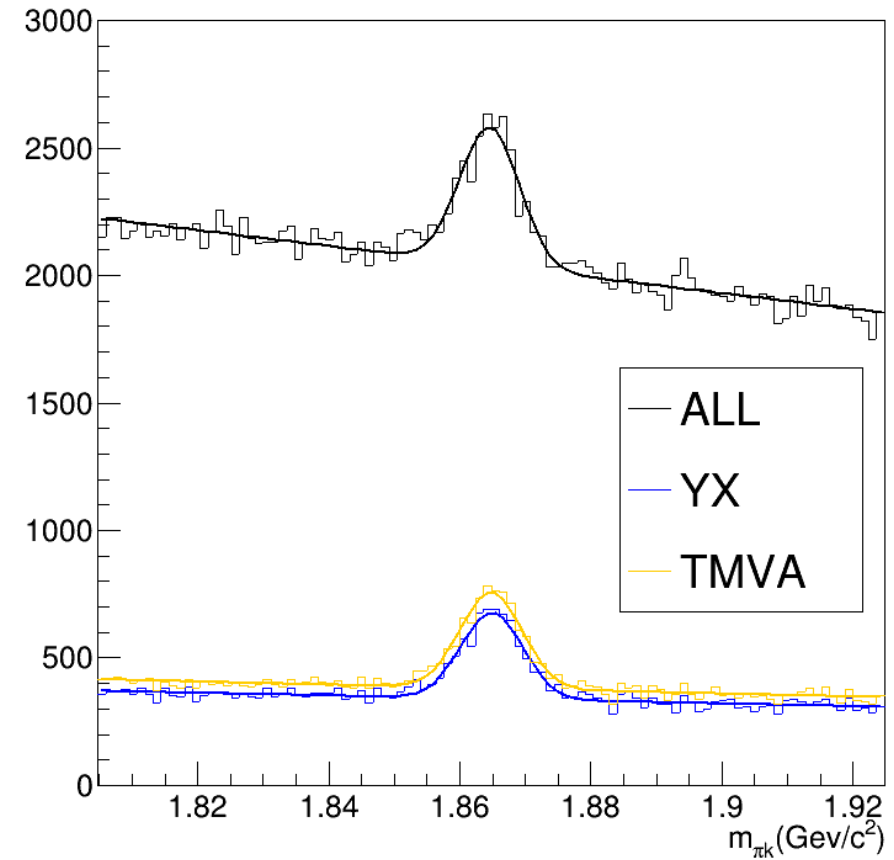
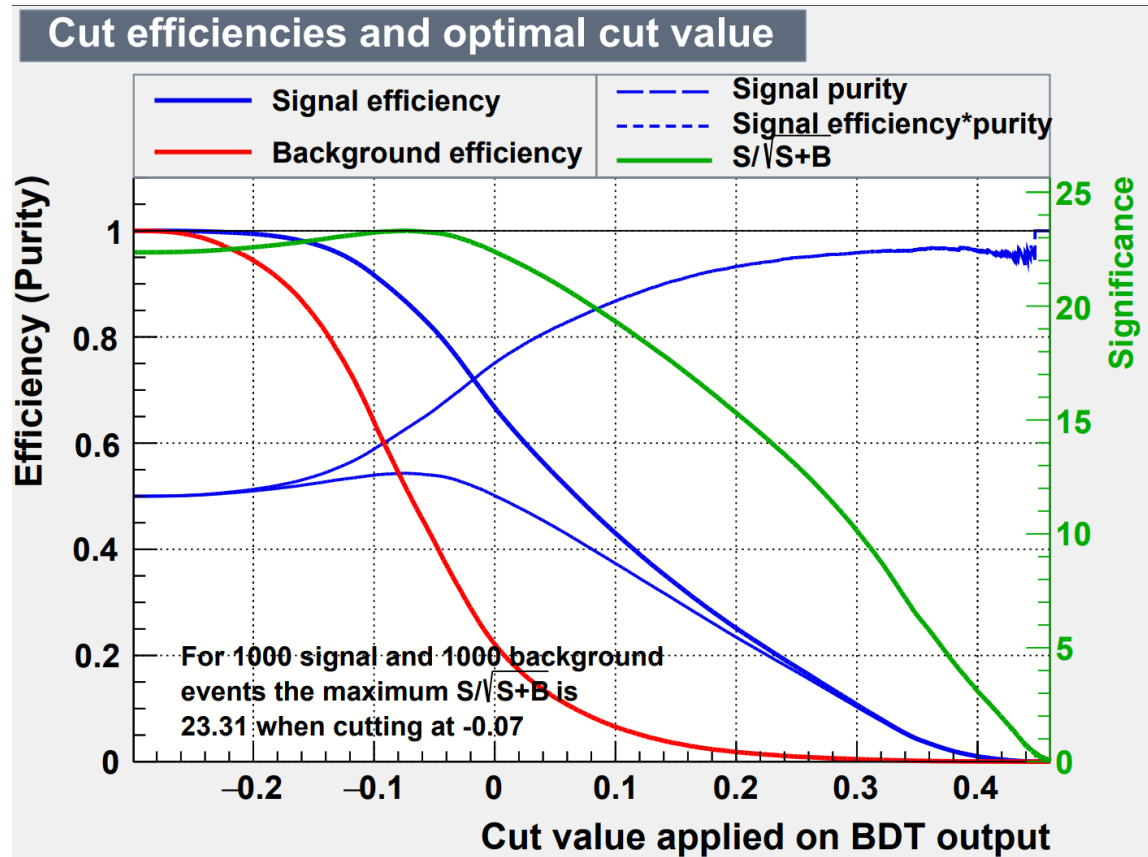


inv_mass



- All histograms are normalized.
- Agree generally with Yuxiang's
- Slightly difference (from prime electron truth p) may be caused by different mc samples.

Reconstruction Result



- Trained with single track 3D DCAs