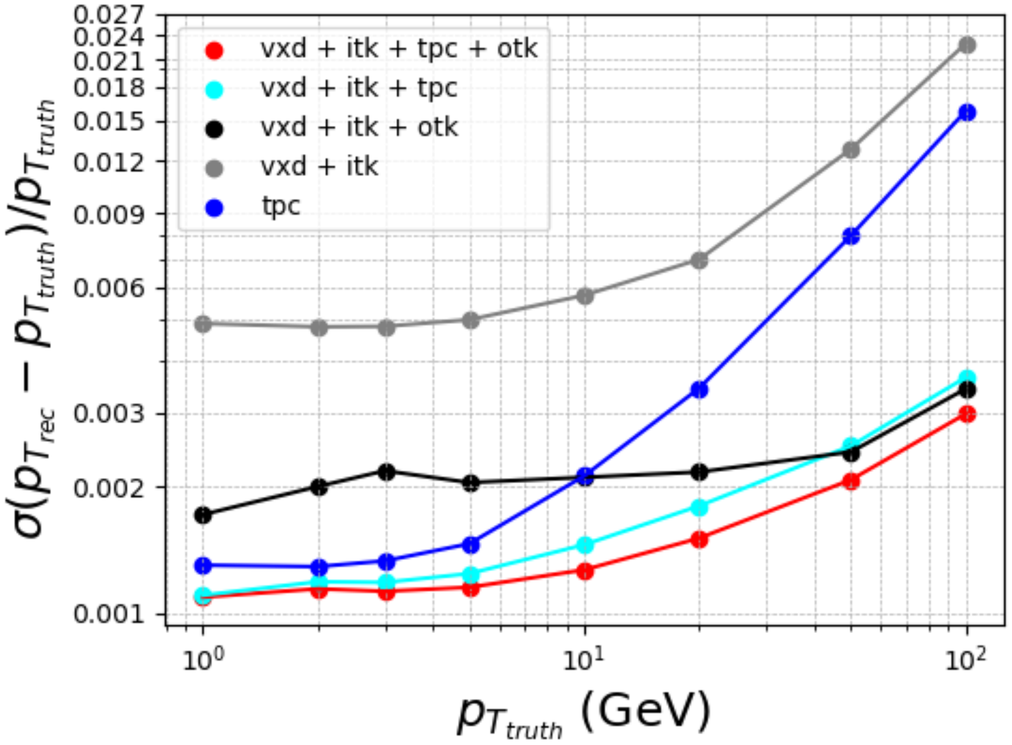
- **Trk, PID & Vtx**
  - 17Mar2025, Chenguang Zhang

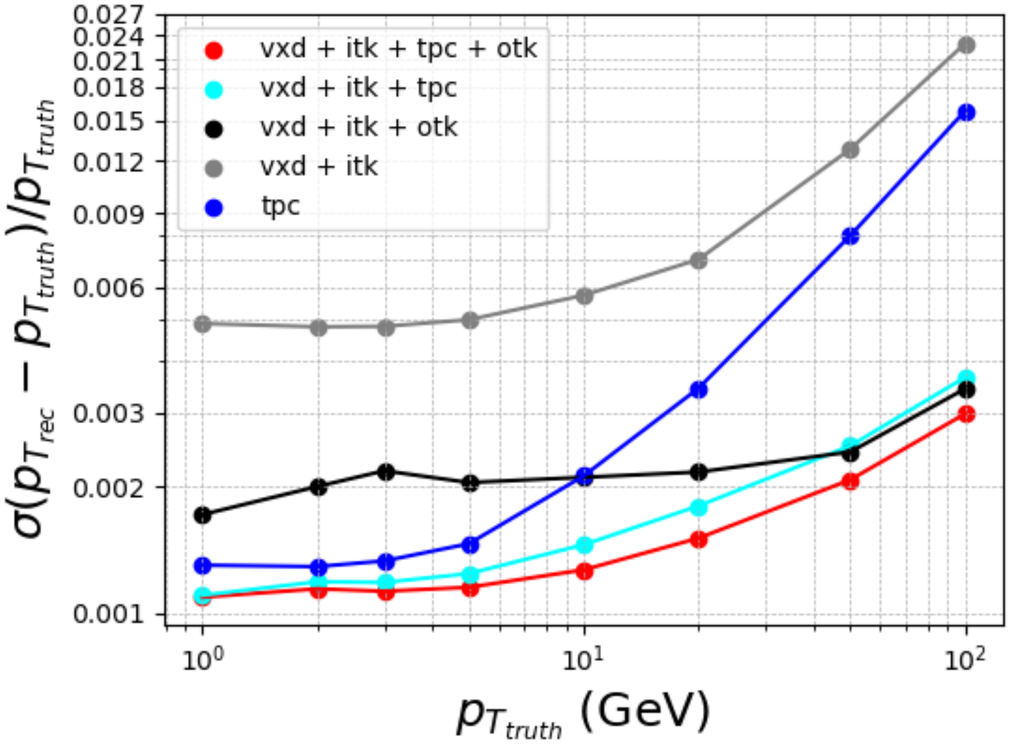
tdr 25.3.4

Tracking Resolution @ $\theta = 85°$

Gaussian, sub-range



DSCB, full-range



Some fits need to be optimised, NO BIG ISSUES observed

PID

- Geliang is working on a general PID package including all available PID services

- I am working on track propagation through CALO accounting material effects using ACTS, (in progress...)

Vertexing for flavour benchmark

- Jinfei is working on π^0 reconstruction
  - New release of 25.3.6 has photon PID developed by Fangyi

Preliminary results

➢ I calculated the cutflow and purities after different selection criteria, then compared them with previous results.

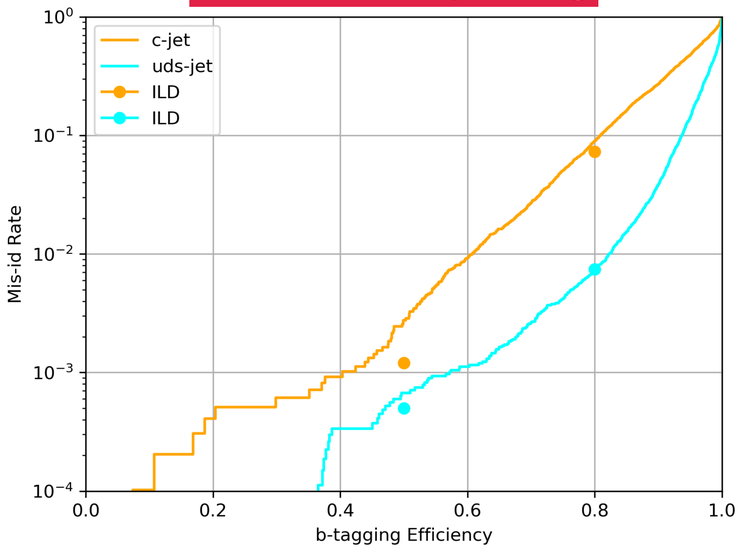
- Mine is red, and previous results are blue.
- The difference is from the cuts are different.

Cuts	Efficiency [%]		Purity [%]	
2 tracks reconstructed	94	94	-	-
Vertex reconstructed	87	87	-	-
$1.85 < M_D < 1.88$ GeV	64	64	1.5	1.6
charged pair	64	64	1.8	1.8
Kinematic > 0	63	63	1.8	1.8
Chi2 < 4	58	58	2	2.1
Only 1 π^0	58	58	12	12
PID	58.2	58.4	91	91

BDT jet-tagging

- Jet clustering performed after vertex reconstruction
  - Some tracks connected to the same vertex are assigned to different jets
  - Without vertex splitting, all vertices and corresponding splitting fraction as BDT inputs
  - With vertex splitting, after jet-clustering, split those vertices accordingly, splitting fraction = 1 always

with vertex splitting



without