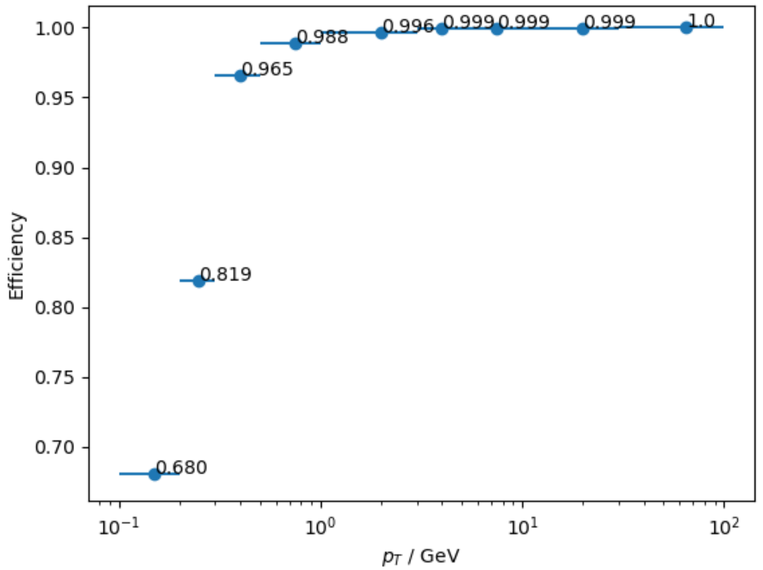
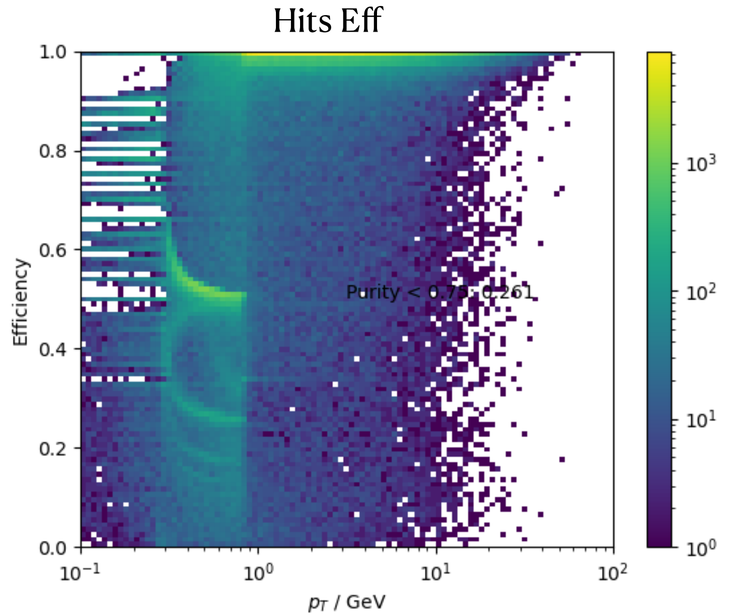
Trk & Vtx

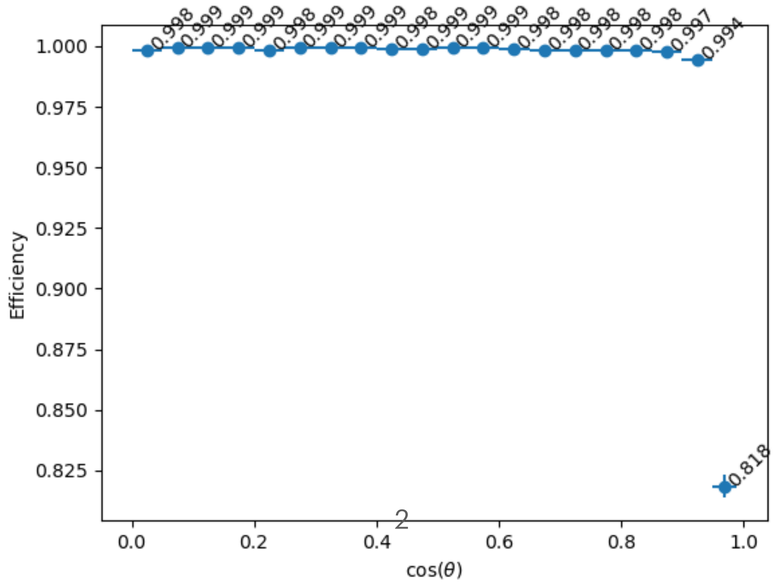
C.Zhang/21Feb2025

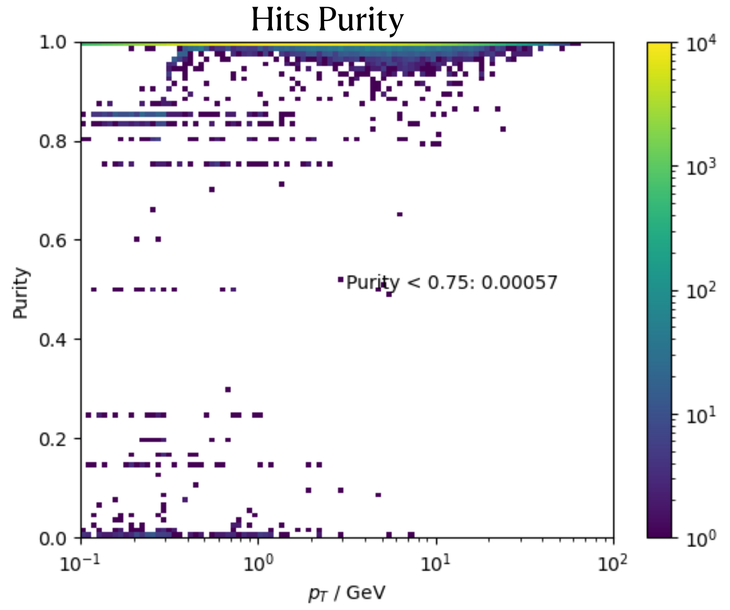
Tracking Efficiency

- SW.12.1.2 with eebb events
  - weight : The number of hits shared between an MC particle and a reconstructed track (one track can share hits with multiple MC particles, with the one sharing the most hits being selected)
  - track hits efficiency: weight/N-MCHits
  - track hits purity: weight/N-TrackHits
  - Track efficiency: Ntrk (purity > .75) / N-MC (charged, stable, costheta < 0.99, pT>100MeV)
  - Error bar defined as Binomial Uncertainty : $\sqrt{\frac{\epsilon(1-\epsilon)}{N}}$





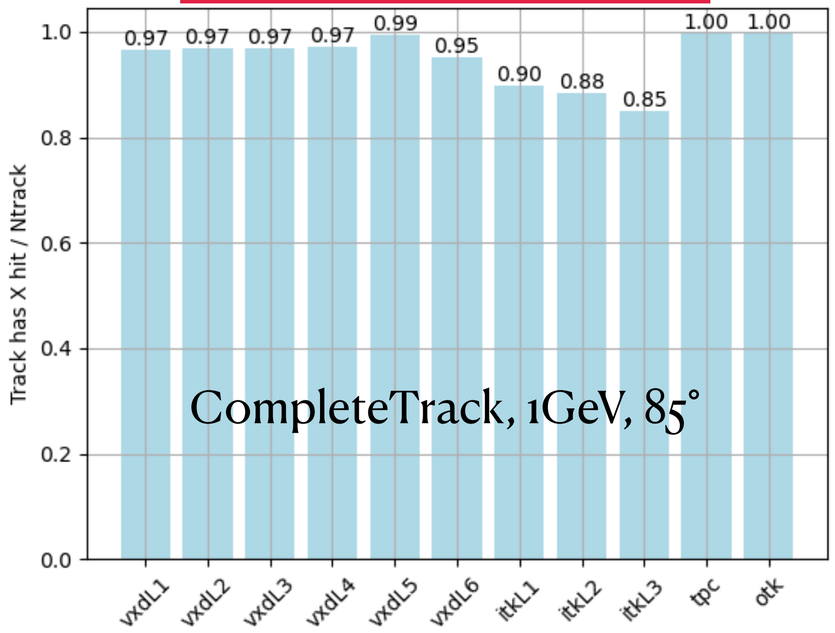


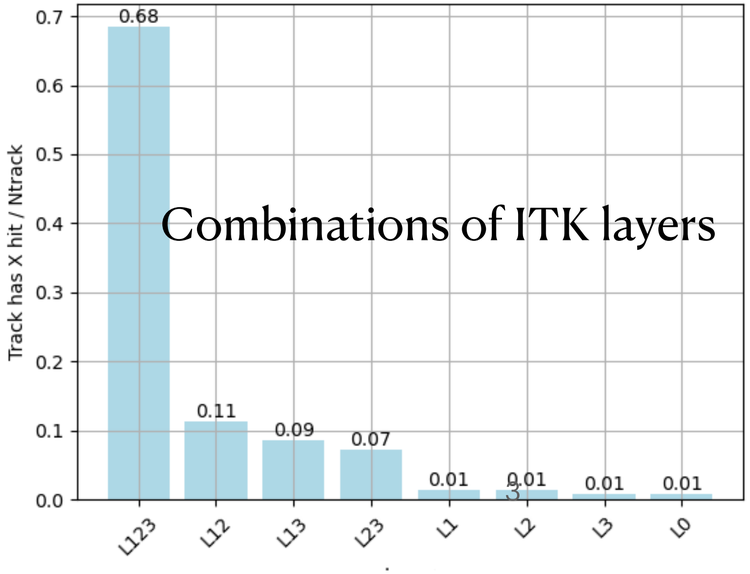


ITK Hit Efficiency with NEW MR198

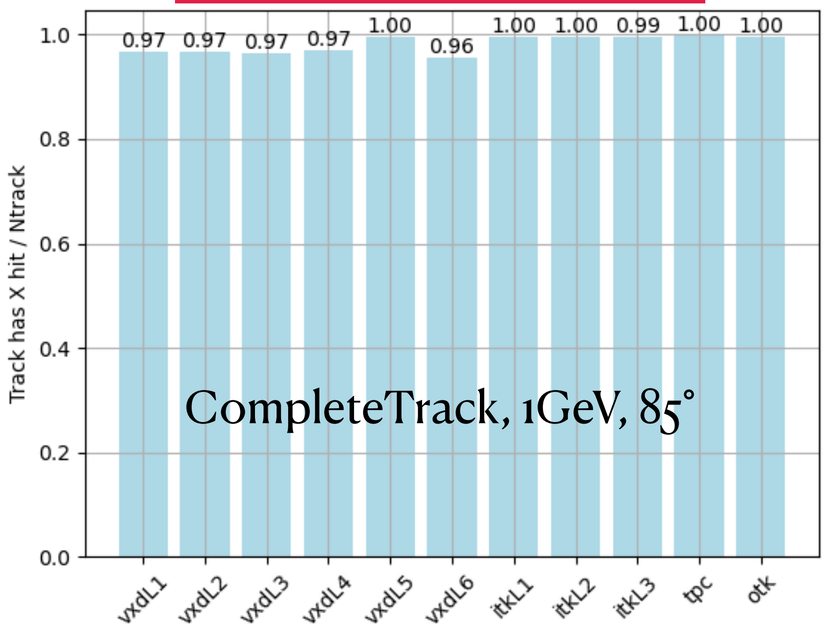
- MR198 was updated last Friday by Chengdong Fu

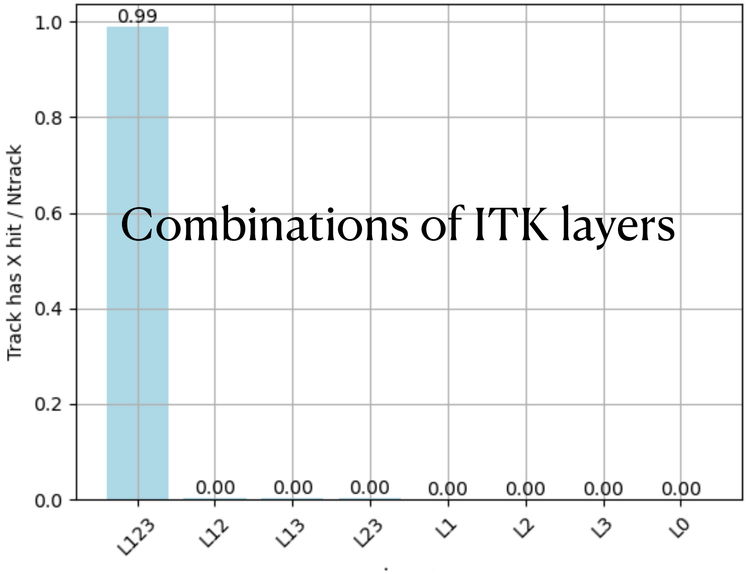
SW 25.1.2 + MR198(Jan26)





SW 25.1.2 + MR198(Feb21)

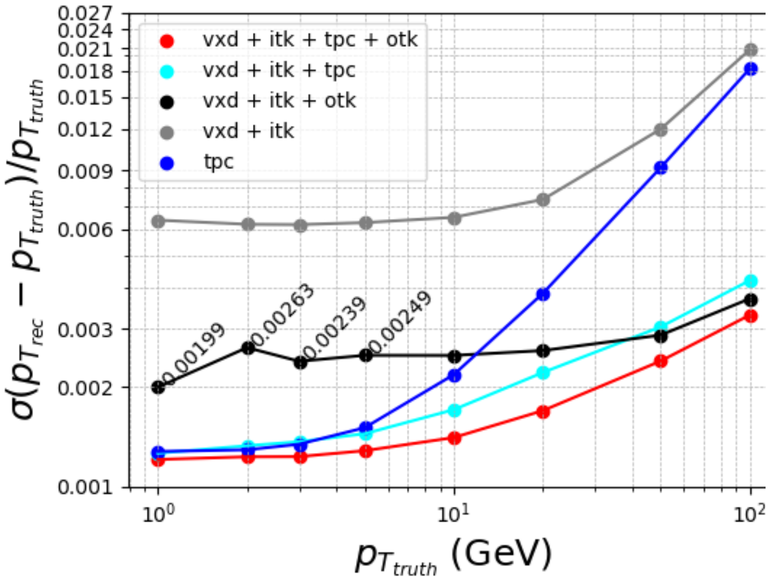




Tracking Resolution with New MR198

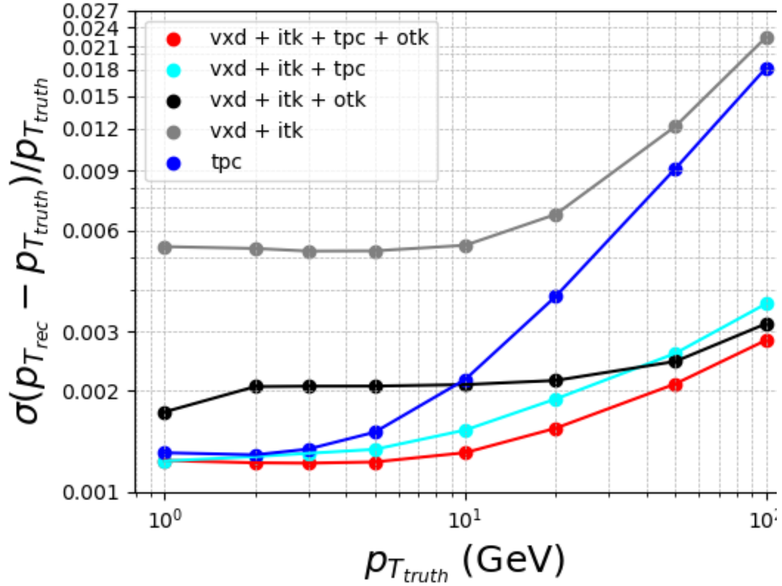
SW 25.1.2 + MR198(Jan26)

Gaussian fit 2 sigma sub-range

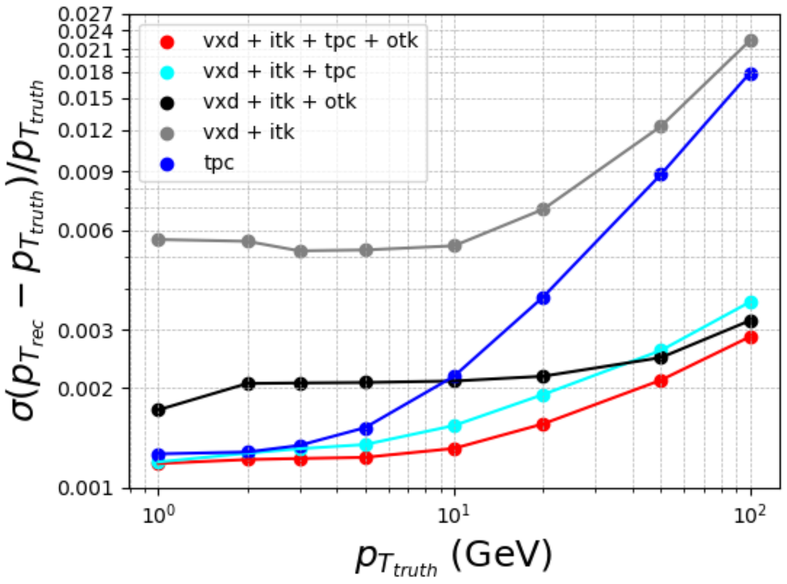


SW 25.1.2 + MR198(Feb21)

Gaussian fit 2 sigma sub-range



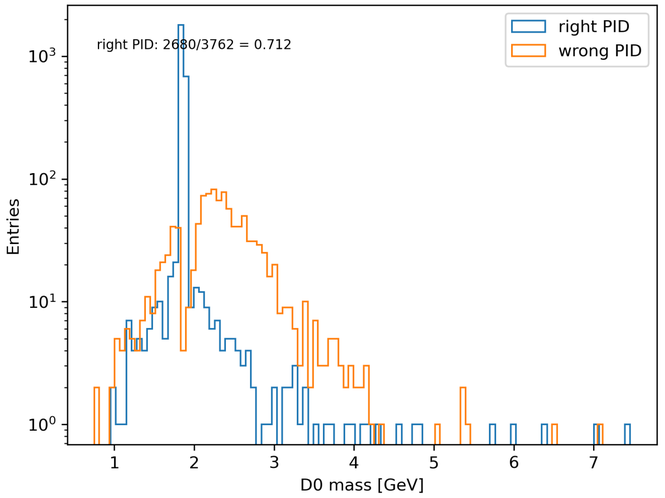
DSCB; Fullrange

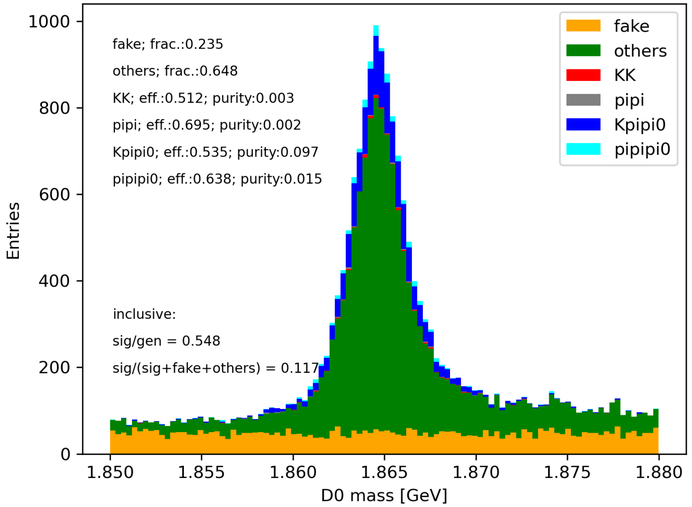


D_0 reconstruction

- $D_0 \to \pi\pi\pi^0$

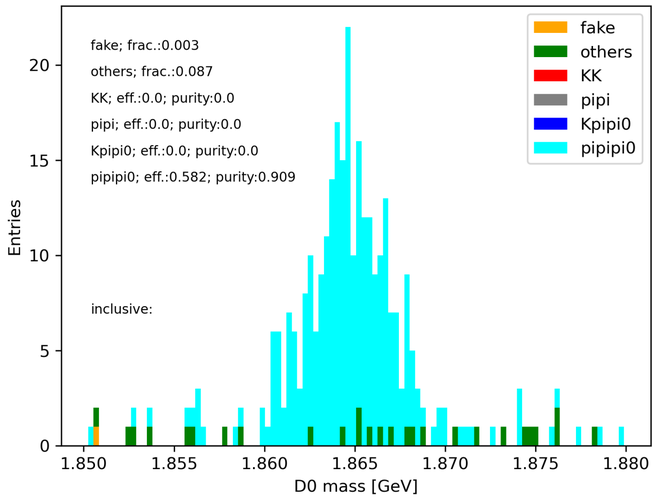
	Global efficiency	Purity	
Events with two tracks reconstructed	94 %		
Vertex reconstructed	87 %		7% tracks used by prim vtx
mass window	64 %	1.5%	1.85-1.88GeV
charged pair	64 %	1.8%	
kinematic	63 %	1.8%	p1+p2 \dot vtx > 0
chi2	58 %	2 %	chi2(n=1)<4
pi0	58 %	12 %	truth
PID	58 %	91 %	TPC+TOF





Particle	Removed ratio (%) ——	ITKTOF
K^-	27.4	27.2
π^+	13.1	13.0
π^0		18.0
K^-, π^+, π^0	48.1	48.3

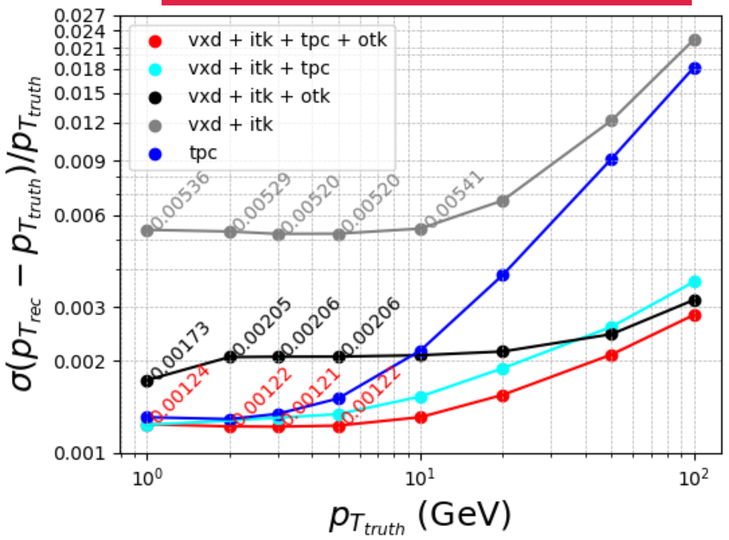
表: 各粒子的 PID（或重建）效率对样本的影响



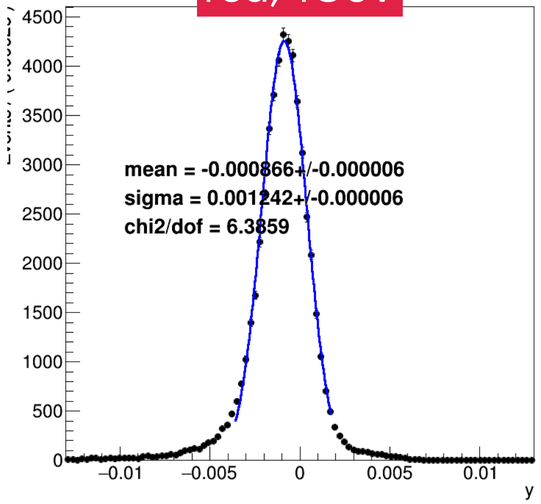
- back up

Tracking Resolution with New MR198

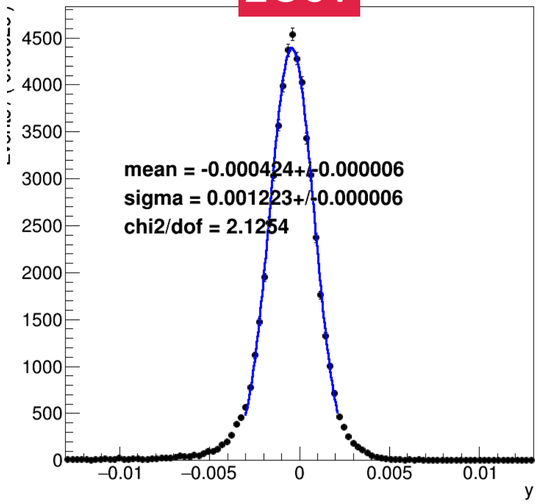
Gaussian; Subrange



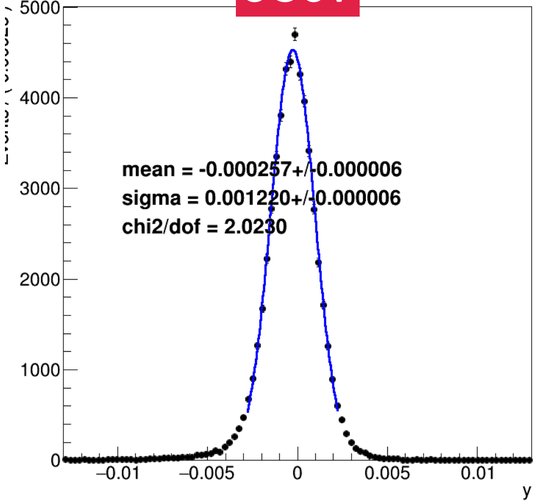
red; 1GeV



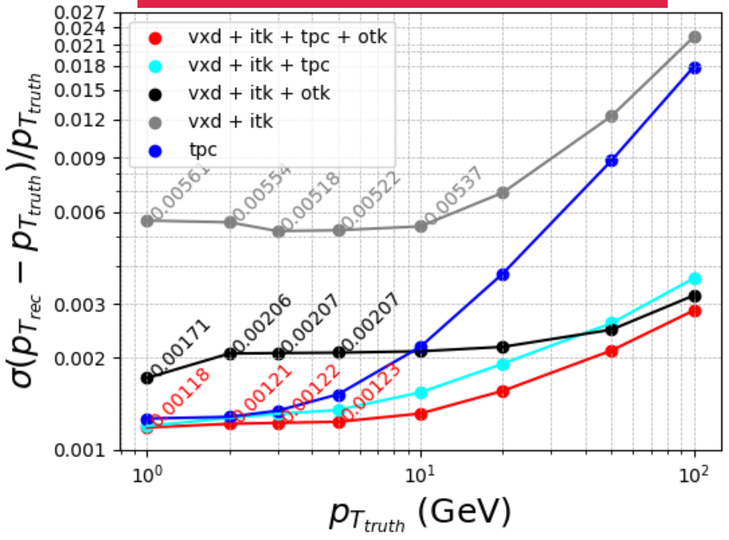
A R 2GeV "y"



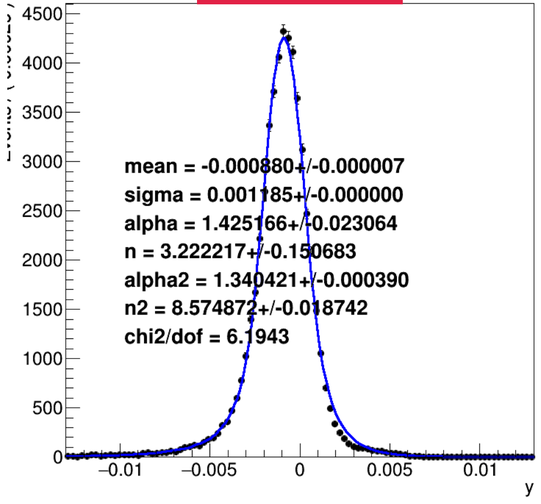
A R 3GeV "y"



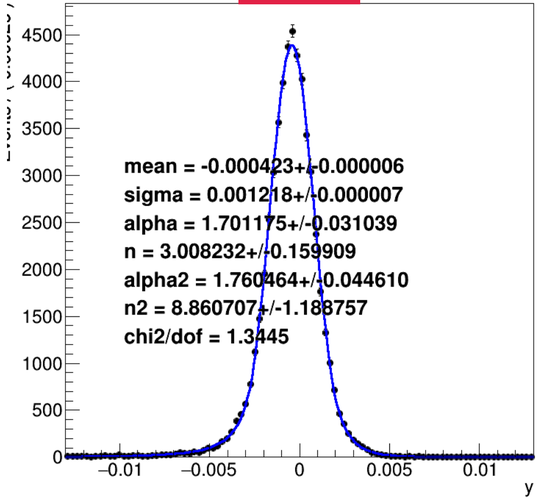
DSCB; Fullrange



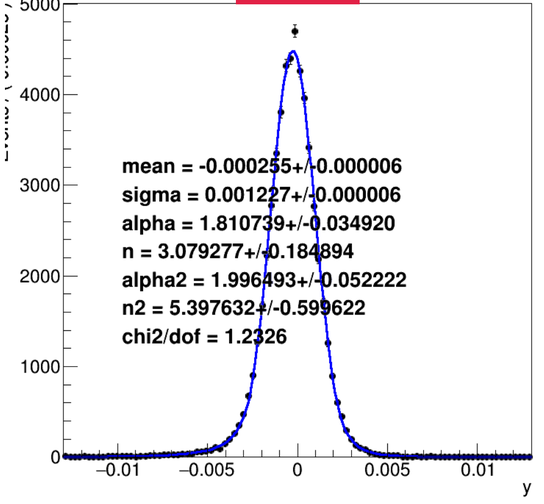
red; 1GeV



A R 2GeV "y"

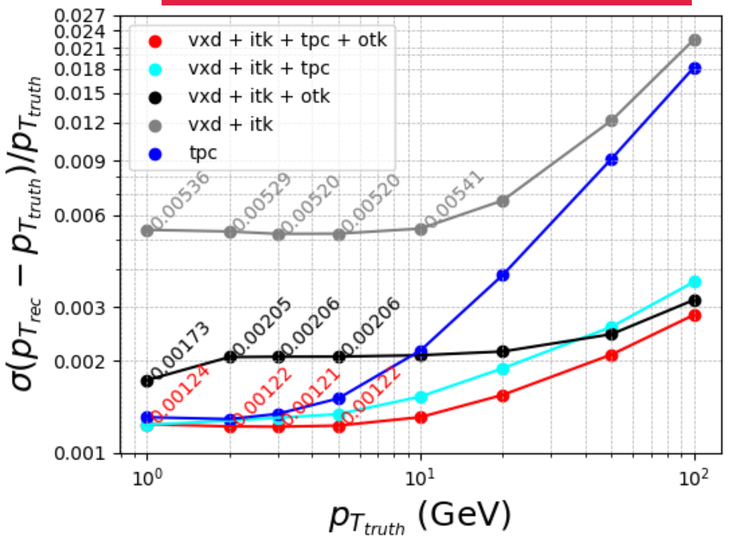


A R 3GeV "y"

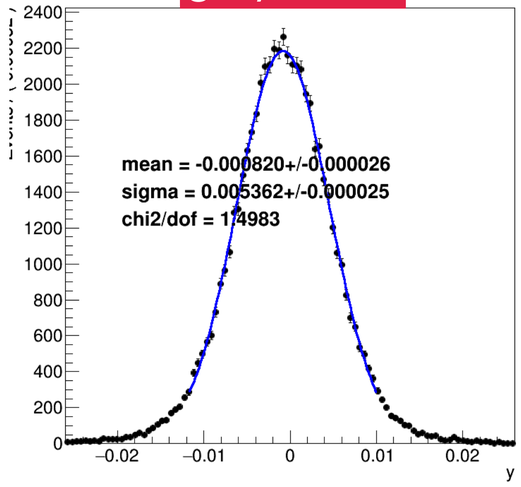


Tracking Resolution with New MR198

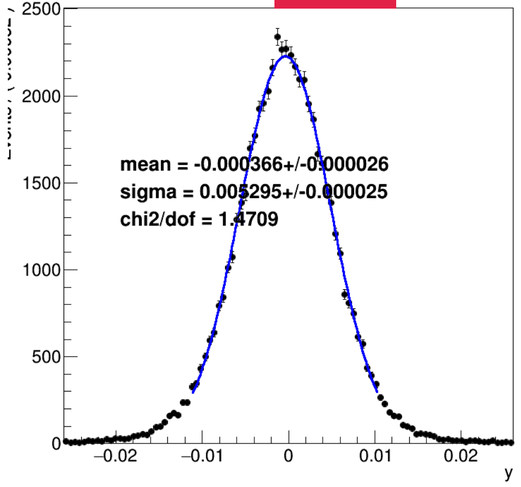
Gaussian; Subrange



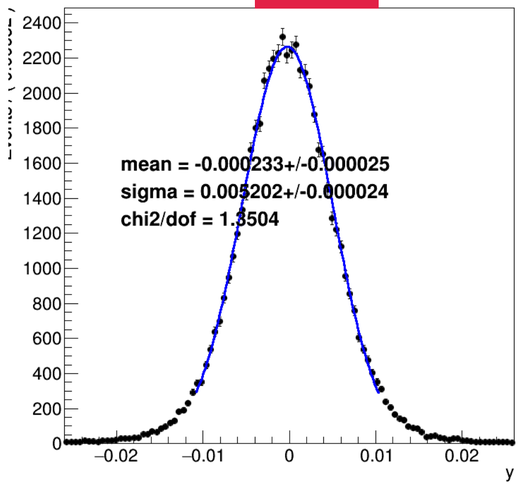
gray; 1GeV



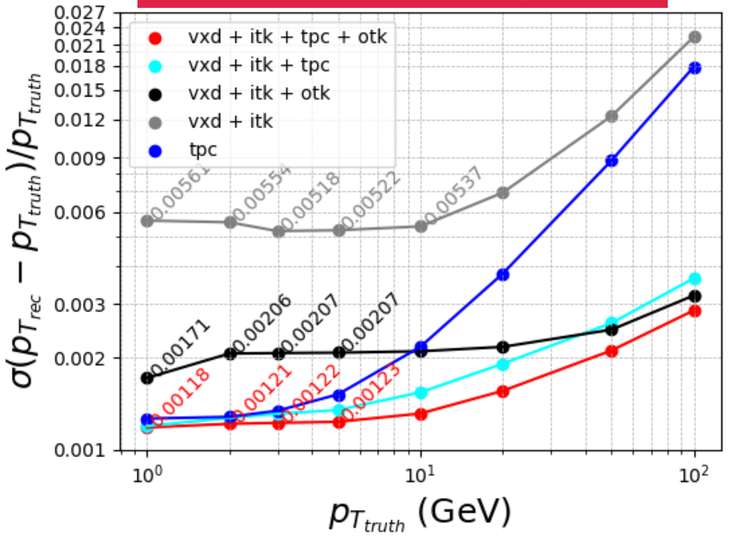
A Roof 2GeV



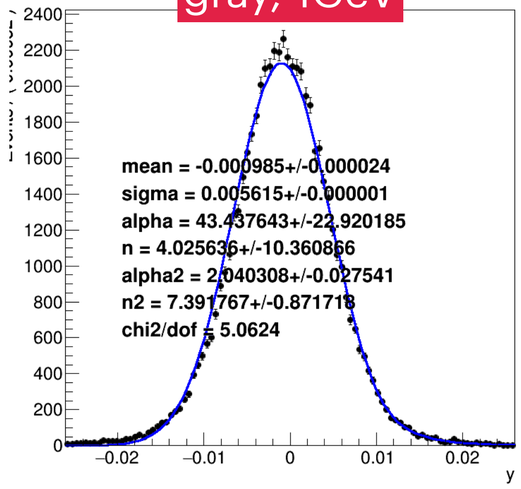
A Ro 3GeV



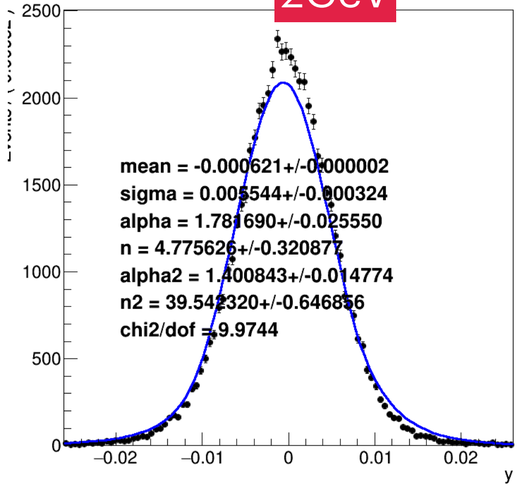
DSCB; Fullrange



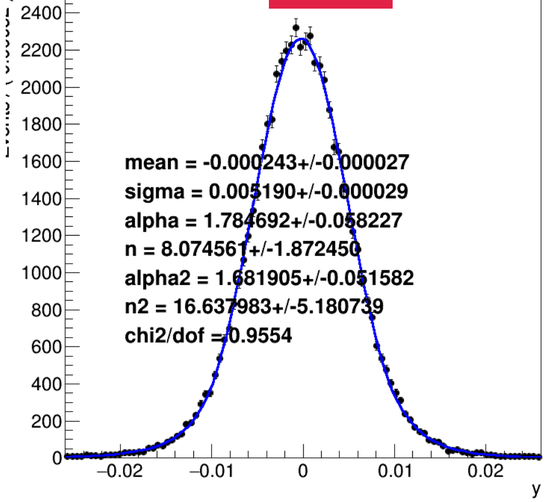
gray; 1GeV



A Roof 2GeV

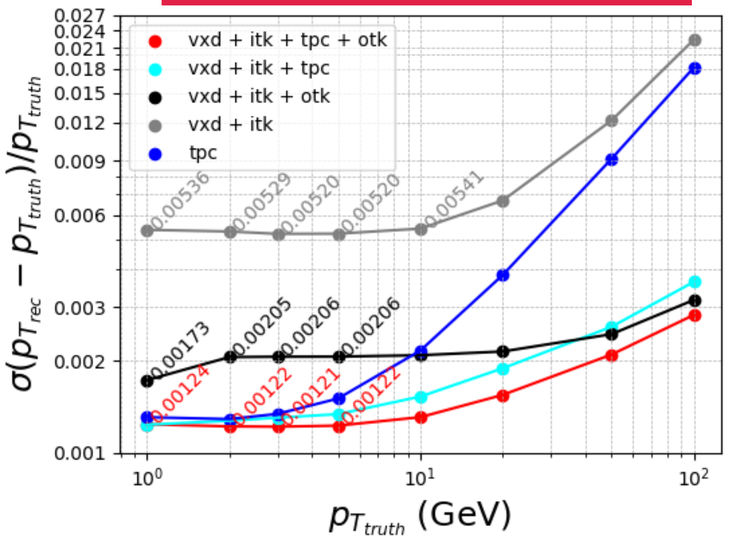


A Ro 3GeV

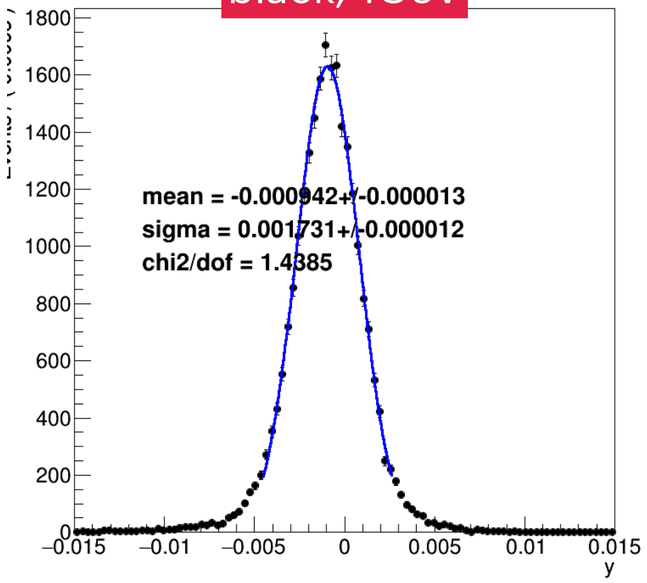


Tracking Resolution with New MR198

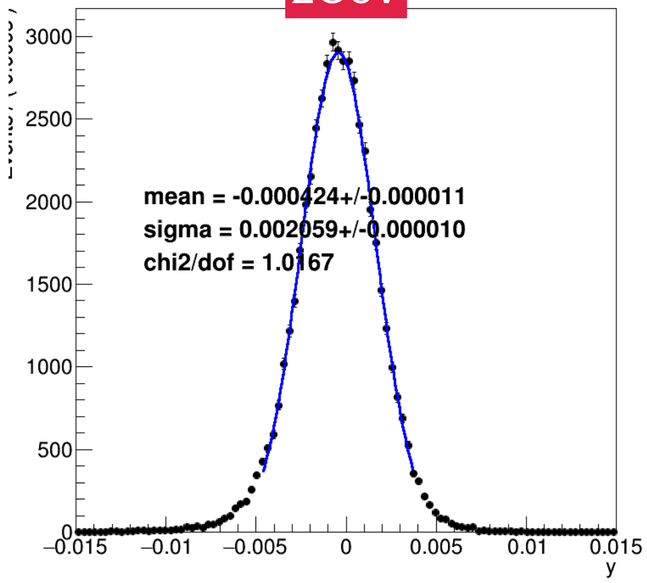
Gaussian; Subrange



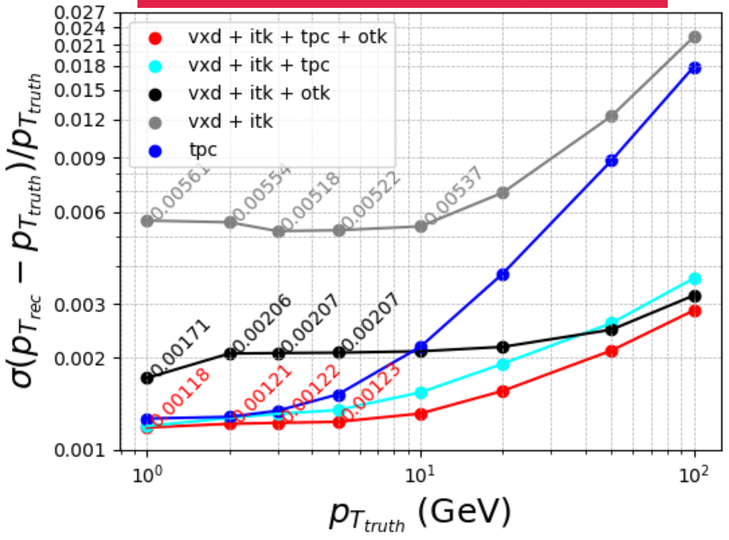
black; 1GeV



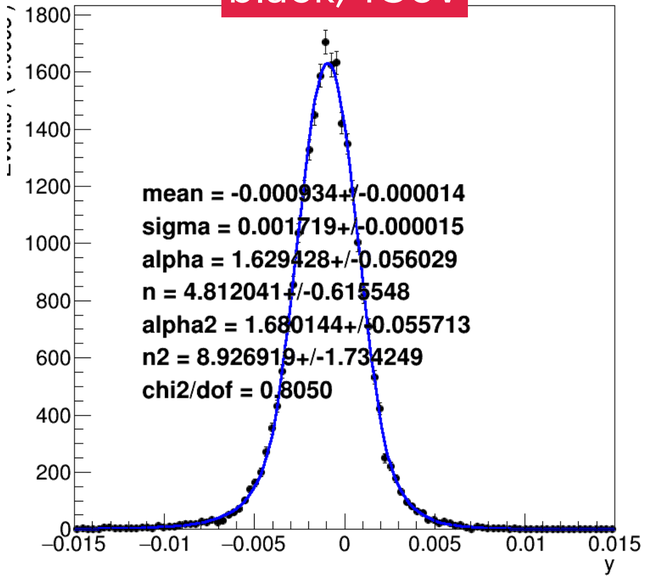
2GeV



DSCB; Fullrange



black; 1GeV



2GeV