

Analysing New Samples

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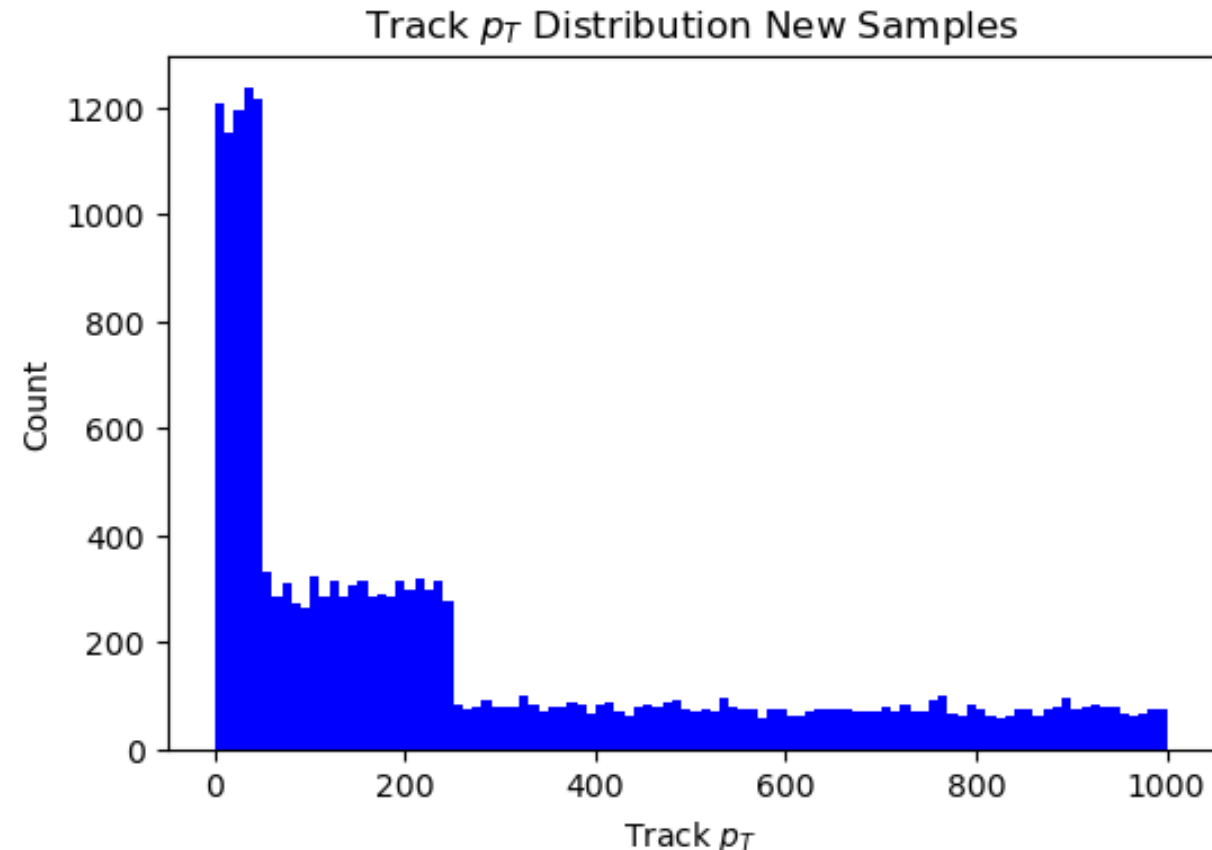


KDP Lab | University of Chicago | Muon Colliders



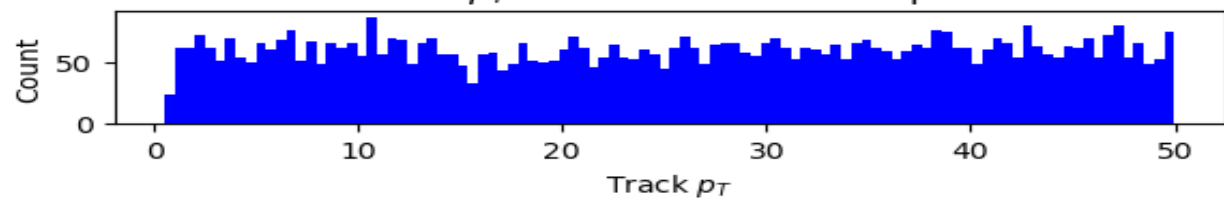
Muon Gun Data Selection

- Data from
`/collab/project/snowmass21/data/muonc/fmeloni/Data`
`MuC_MuColl10_v0A/reco/muonGun_pT_0_50,`
`pt_50_250, and pt_250_1000`
- (note: no BIB)
- I matched the reconstructed Muon tracks to truth Muons using only dR matching with $dR < 0.1$
- No requirement on muon p_T , nhits, etc.

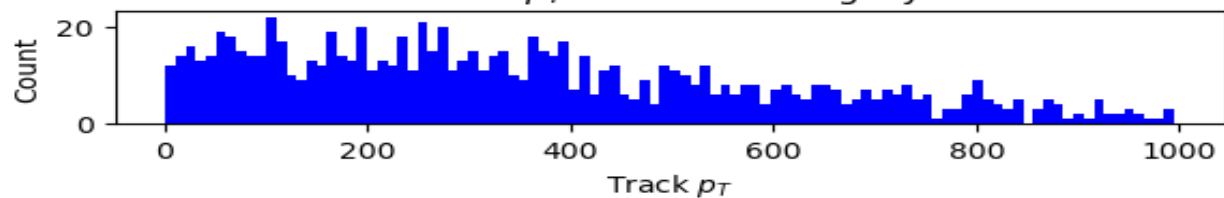


Distribution Comparison

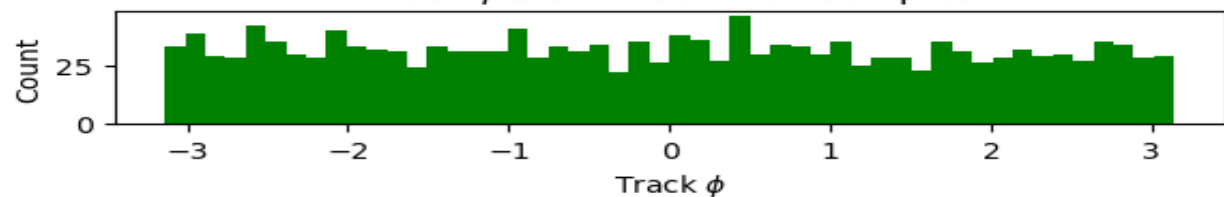
Track p_T Distribution New Samples



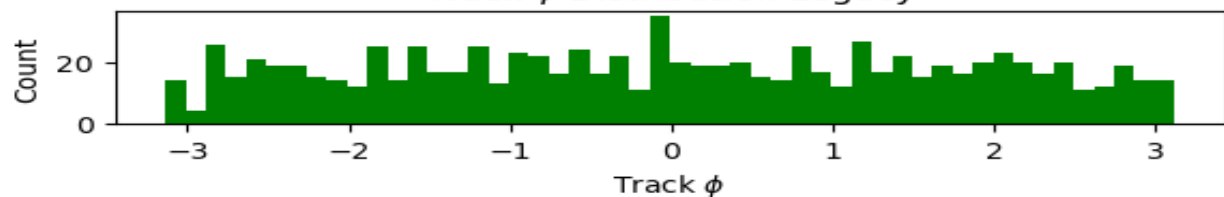
Track p_T Distribution Legacy



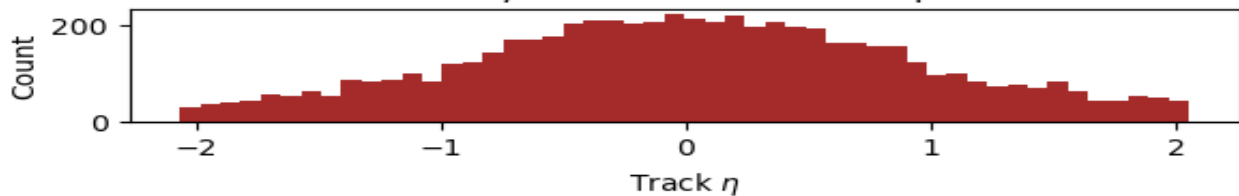
Track ϕ Distribution New Samples



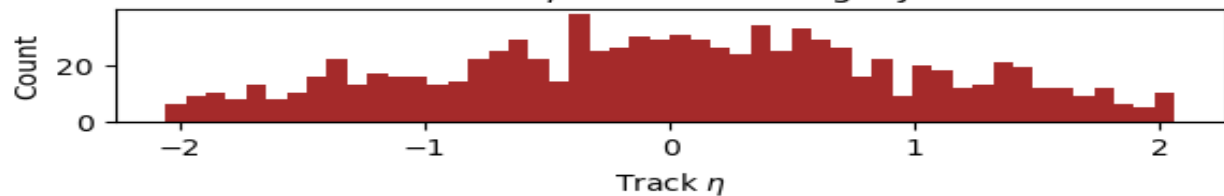
Track ϕ Distribution Legacy



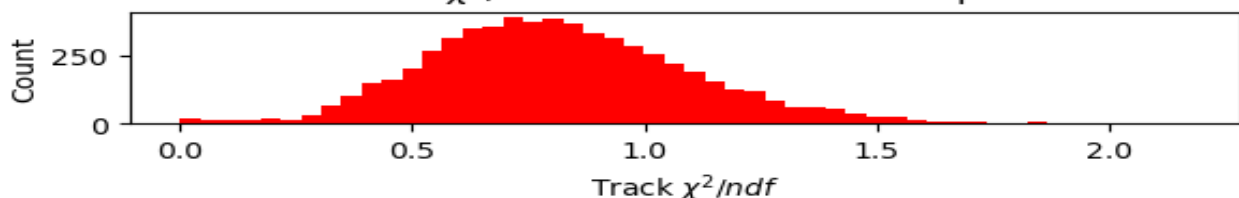
Track η Distribution New Samples



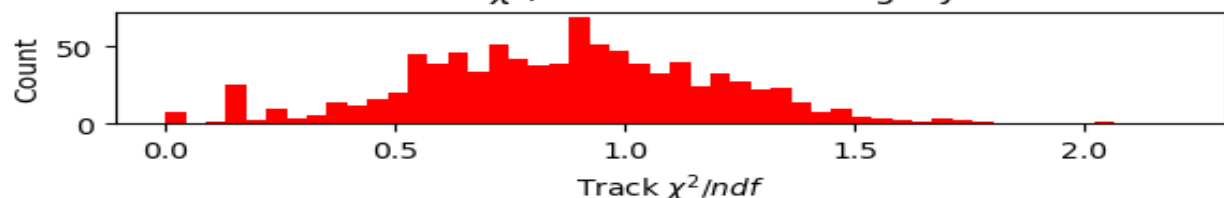
Track η Distribution Legacy



Track χ^2/ndf Distribution New Samples



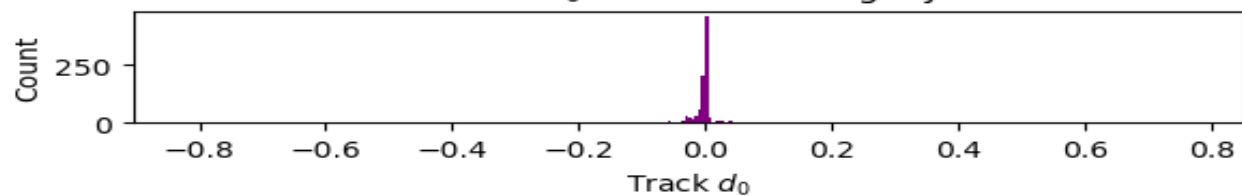
Track χ^2/ndf Distribution Legacy



Track d_0 Distribution New Samples

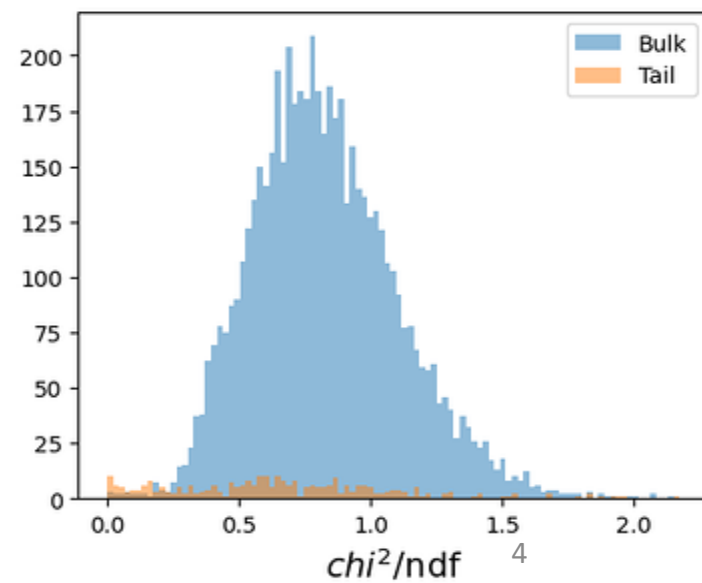
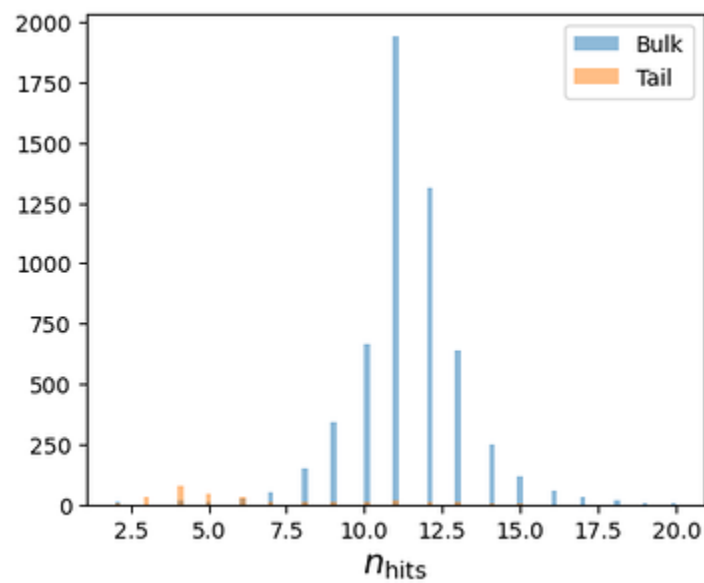
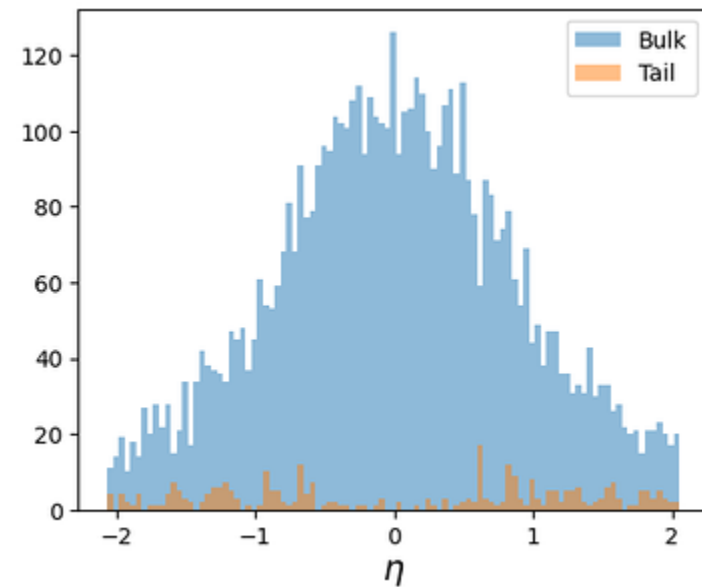
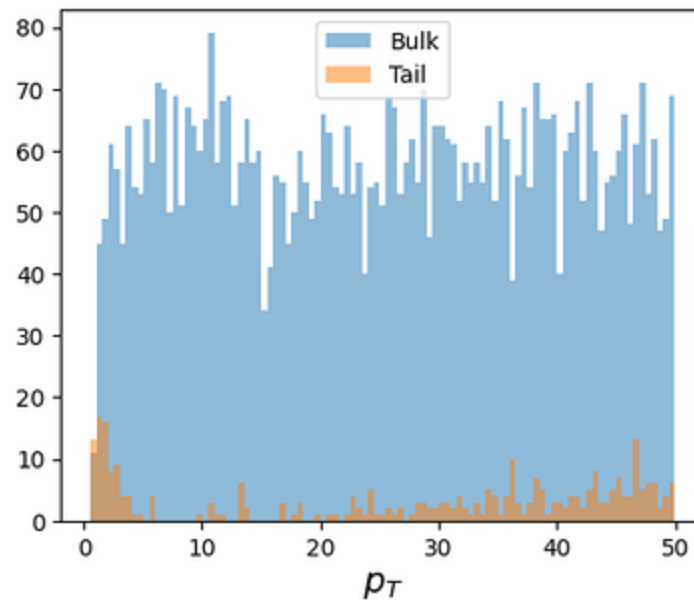
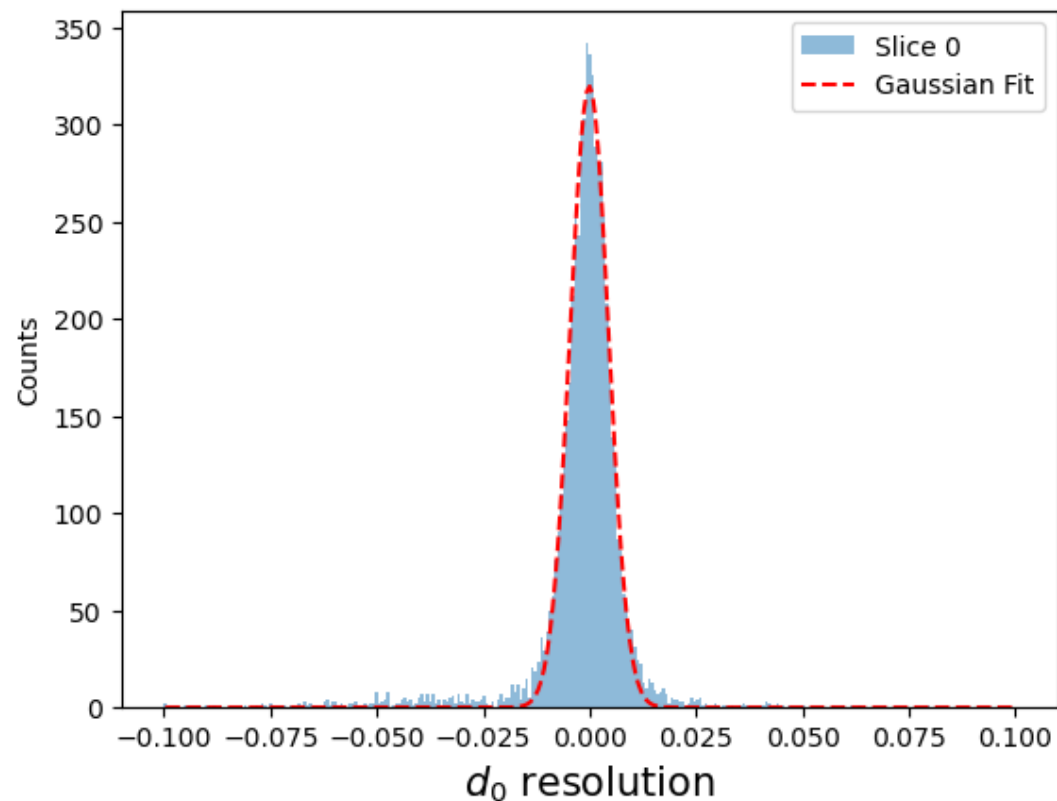


Track d_0 Distribution Legacy



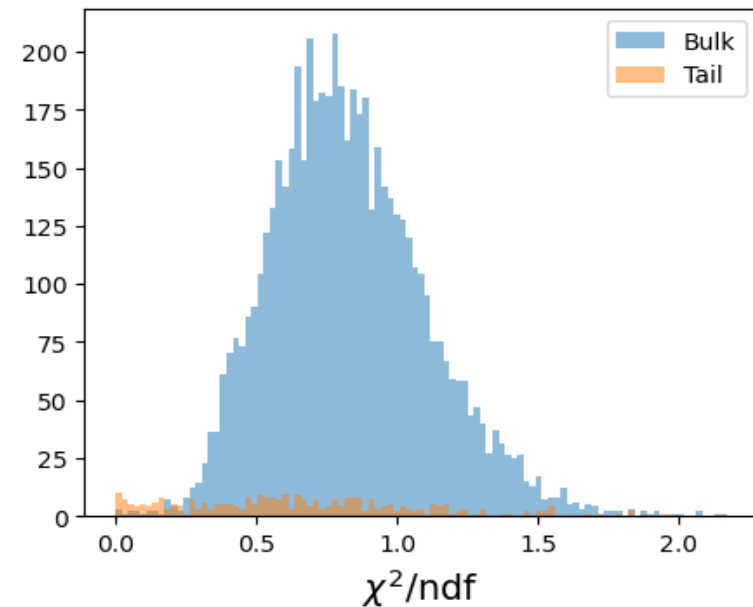
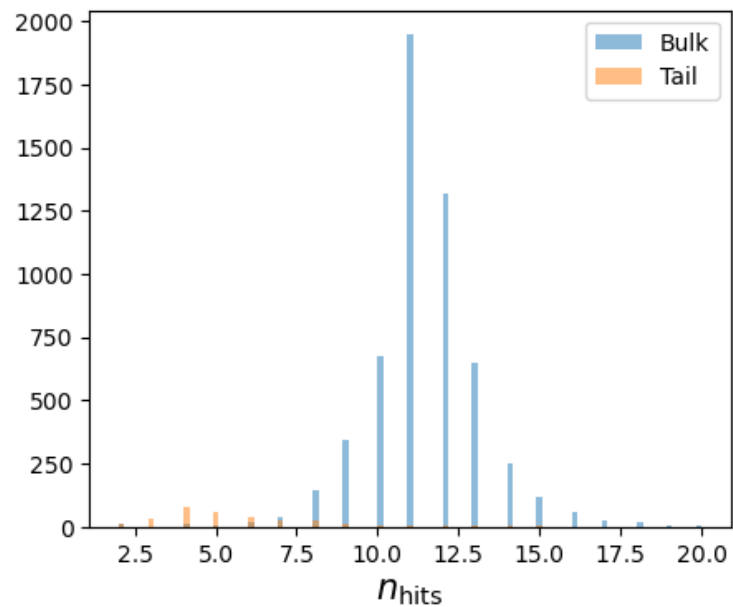
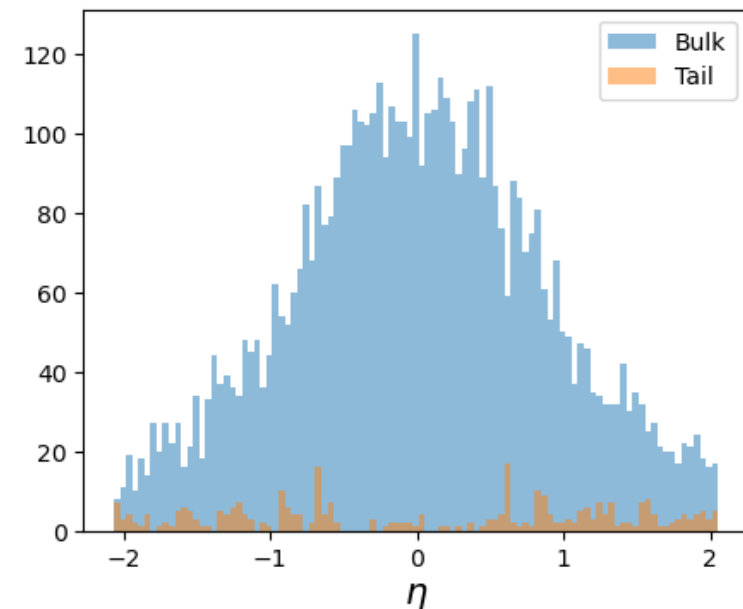
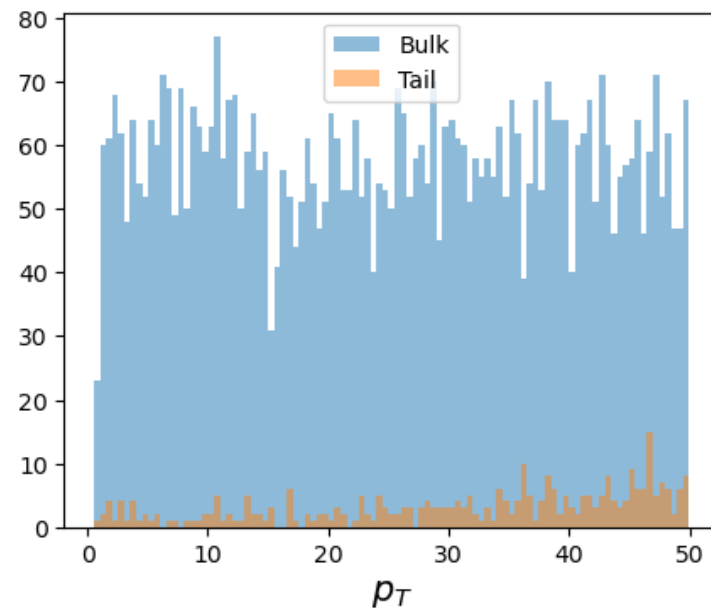
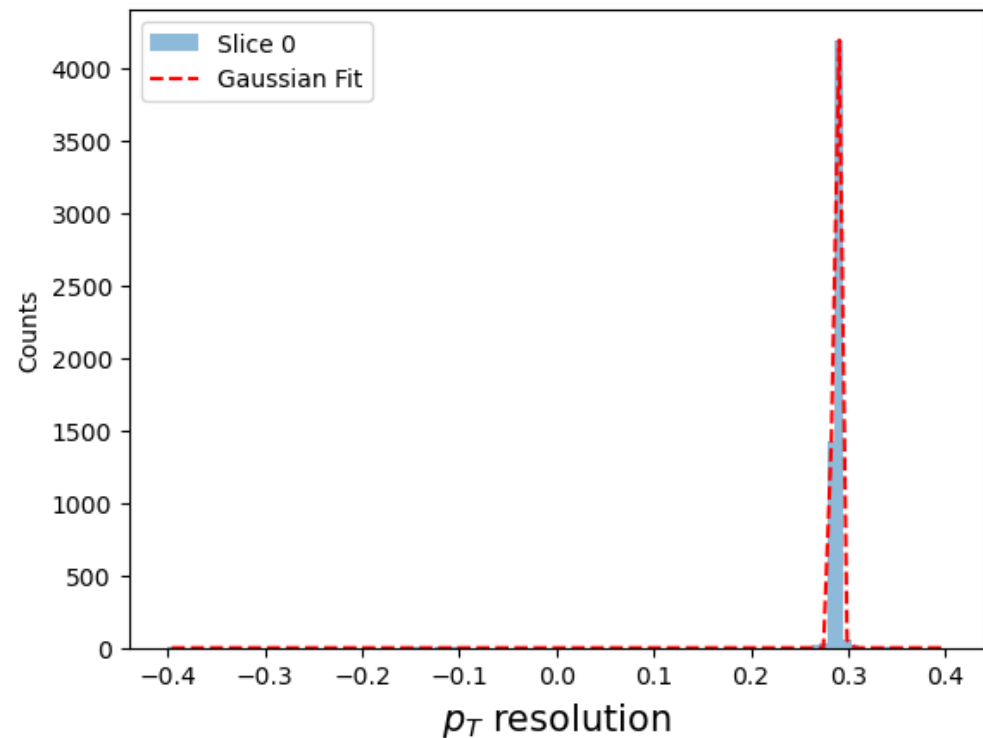
d0 Bulk vs Tails using 5σ cutoff (pt: 0-50)

- Mean from Fit: $-7.573352379753462\text{e-}05$
- Sigma from Fit: 0.004501198659859312



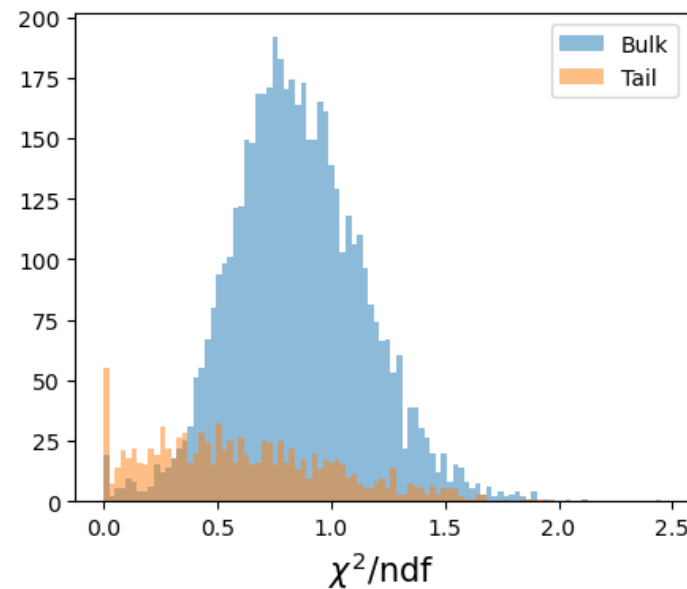
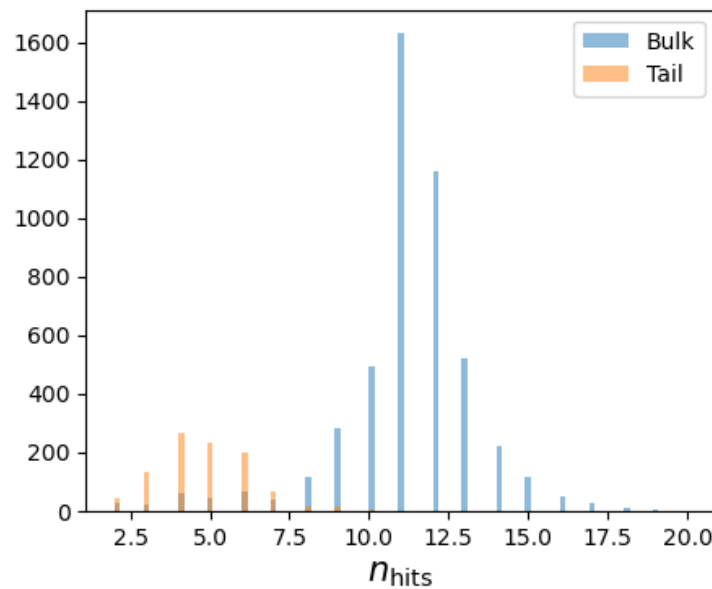
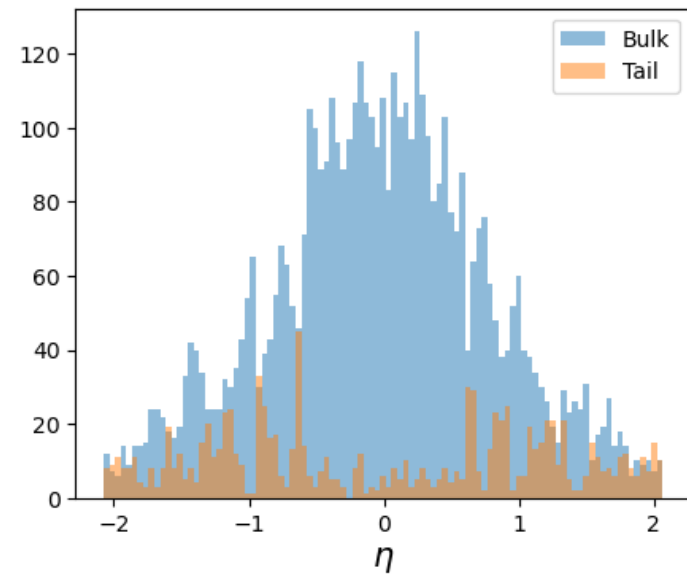
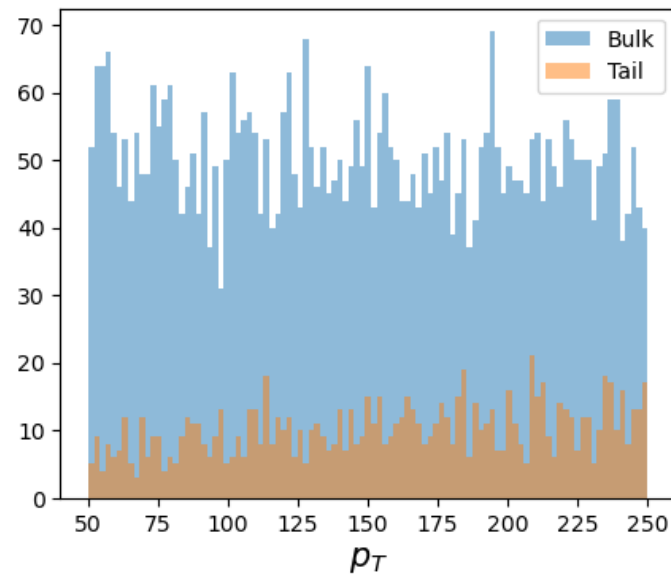
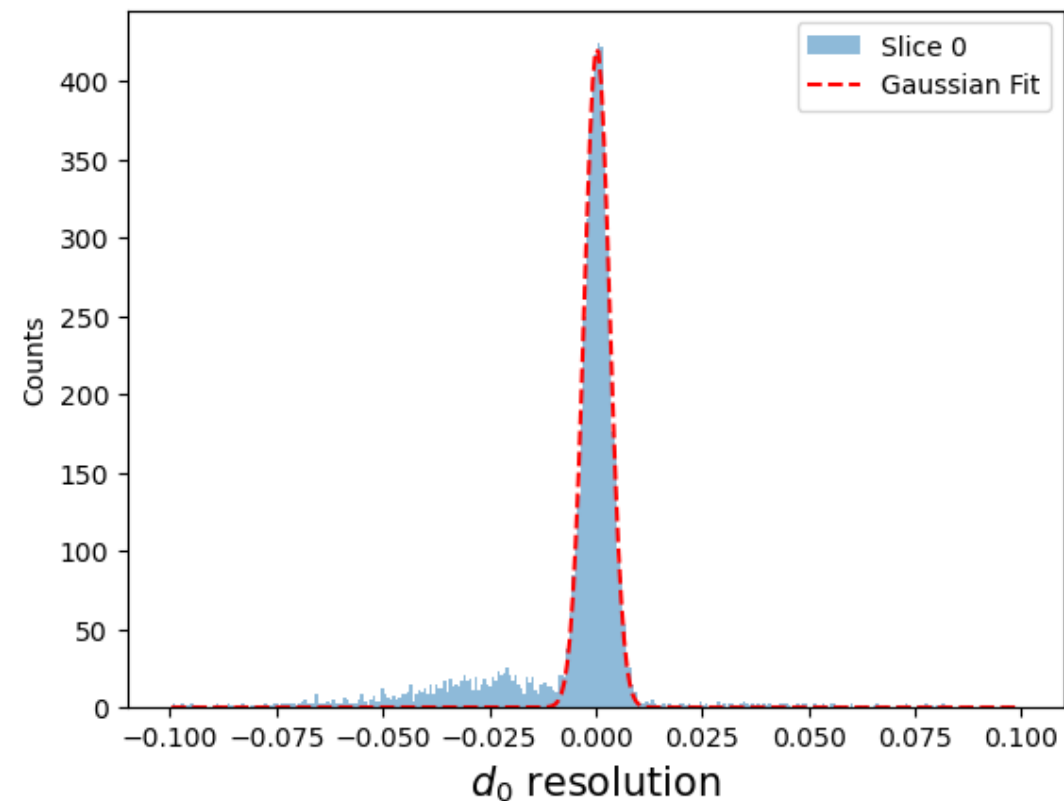
pT Bulk vs Tails using 5σ cutoff (pt: 0-50)

- Mean from Fit: 0.28309599682693337
- Sigma from Fit: 0.002726736622490658
- (NB: off-centre resolution, not sure why)



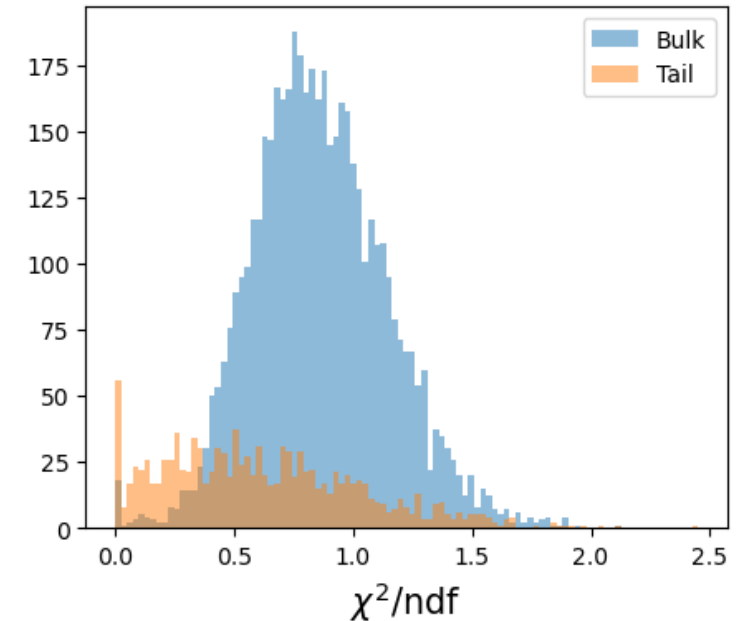
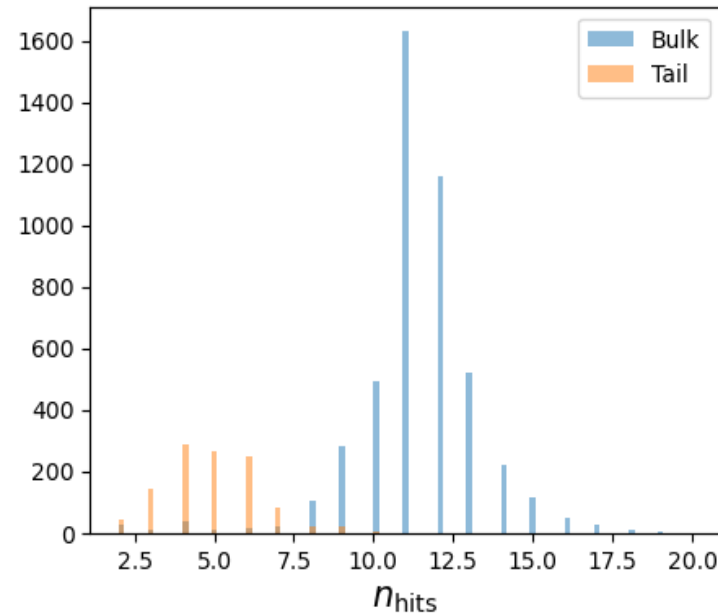
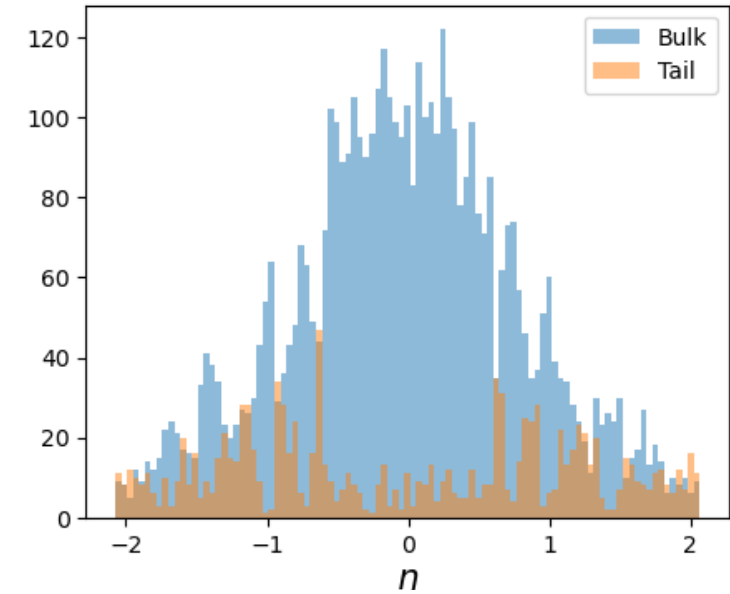
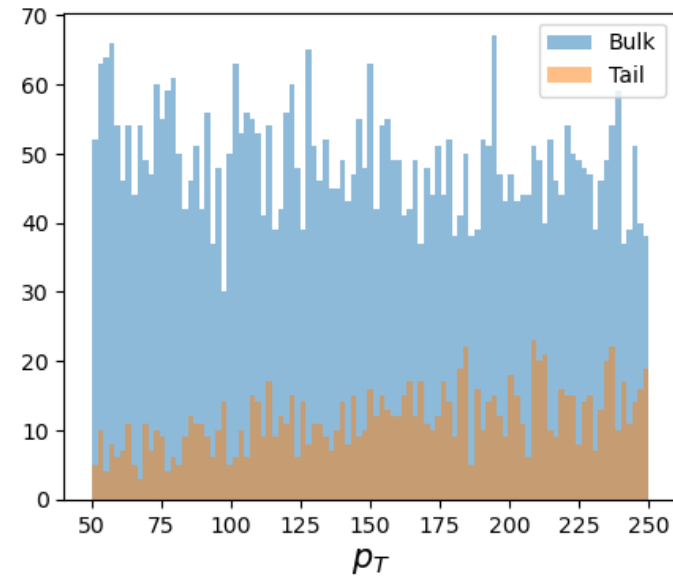
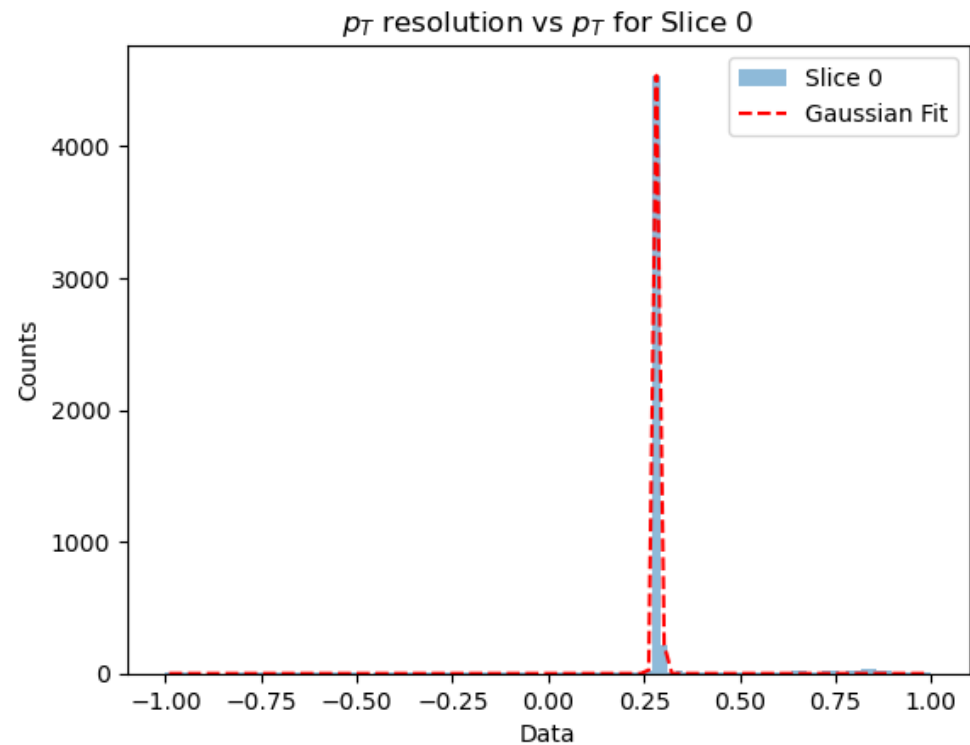
d0 Bulk vs Tails using 5σ cutoff (pt: 50-250)

- Mean from Fit: 0.0003061676728036983
- Sigma from Fit: 0.0029933548097349676



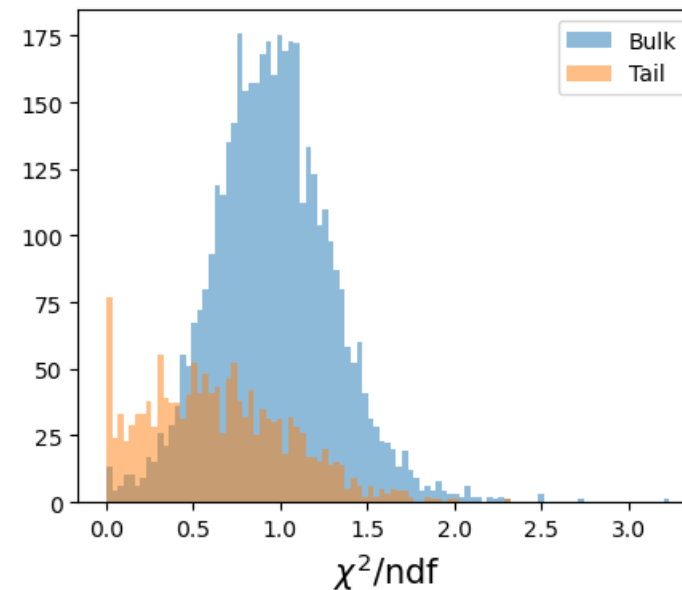
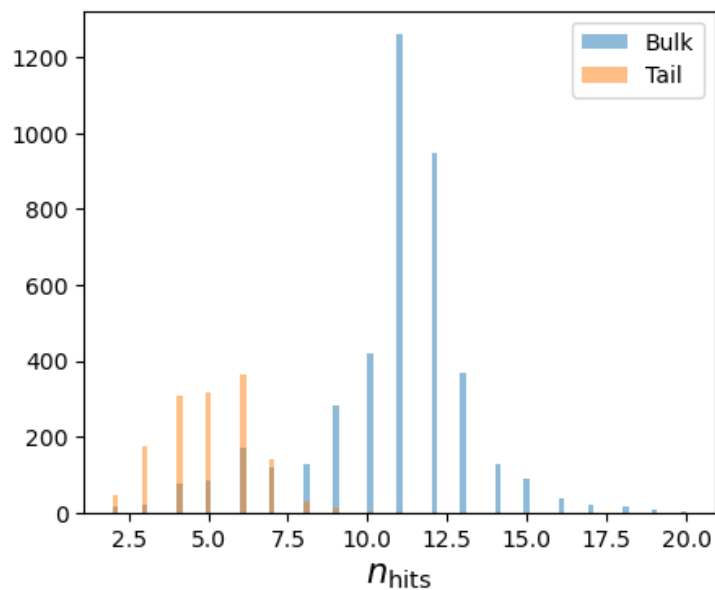
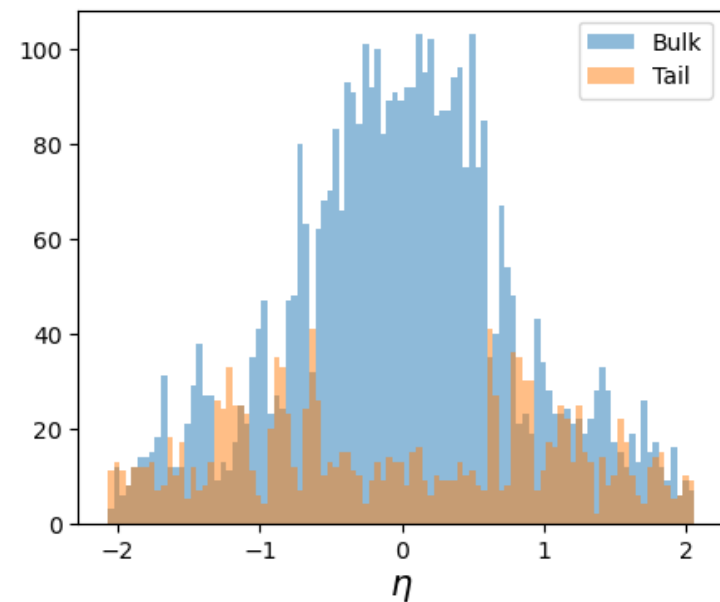
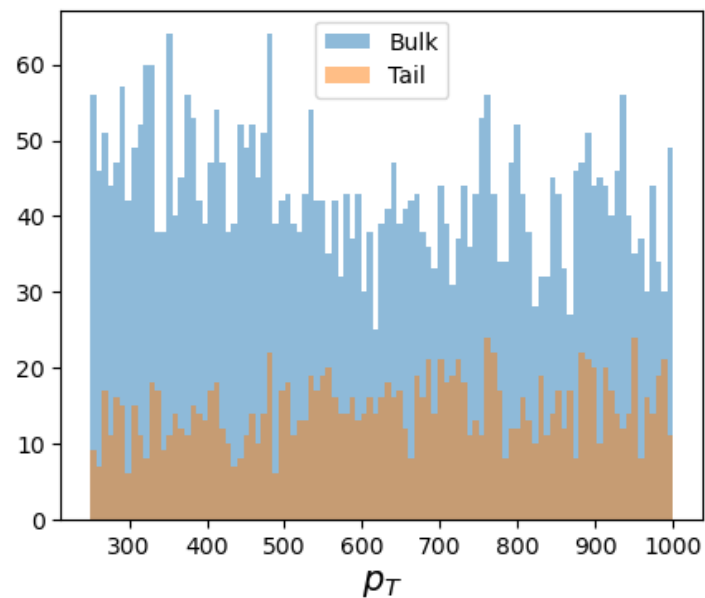
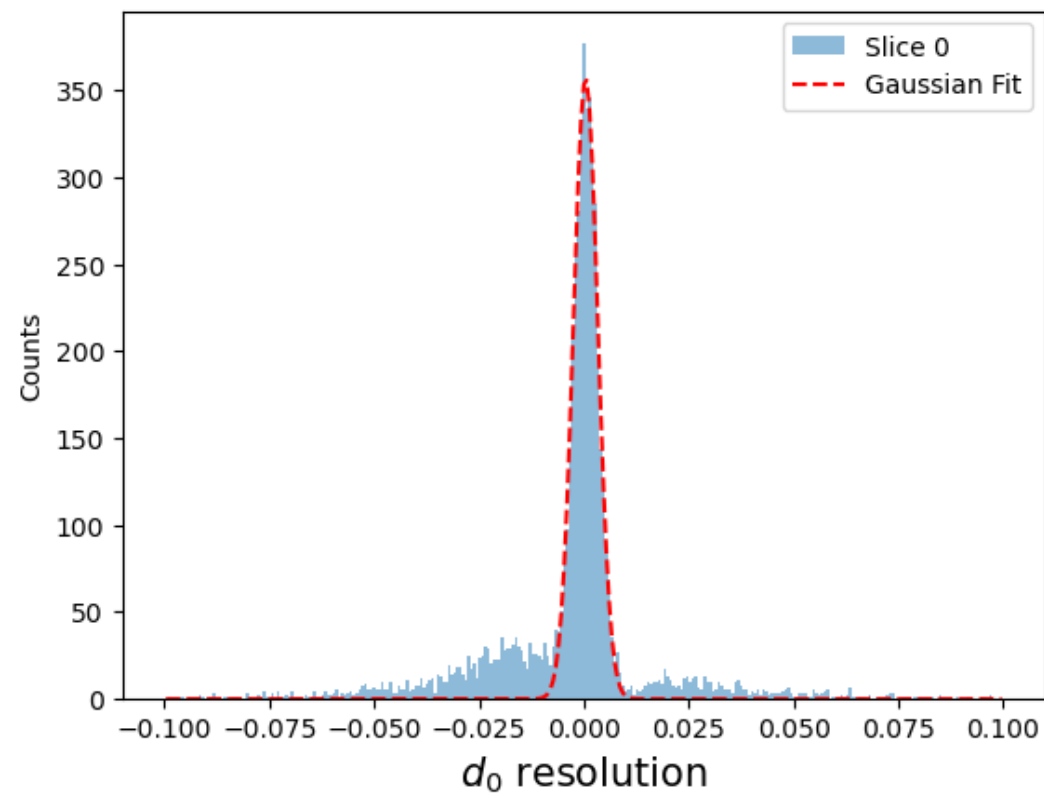
pT Bulk vs Tails using 5σ cutoff (pt: 50-250)

- Mean from Fit: 0.2854270814443211
- Sigma from Fit: 0.00705020790980997
- (NB: off-centre resolution, not sure why)



d0 Bulk vs Tails using 5σ cutoff (pt: 250-1000)

- Mean from Fit: 0.0003061676728036983
- Sigma from Fit: 0.0029933548097349676



pT Bulk vs Tails using 5σ cutoff (pt: 250-1000)

- Mean from Fit: 0.2854270814443211
- Sigma from Fit: 0.00705020790980997
- (NB: off-centre resolution, not sure why)

