fsPHENIX Jets

Joe Osborn

University of Michigan

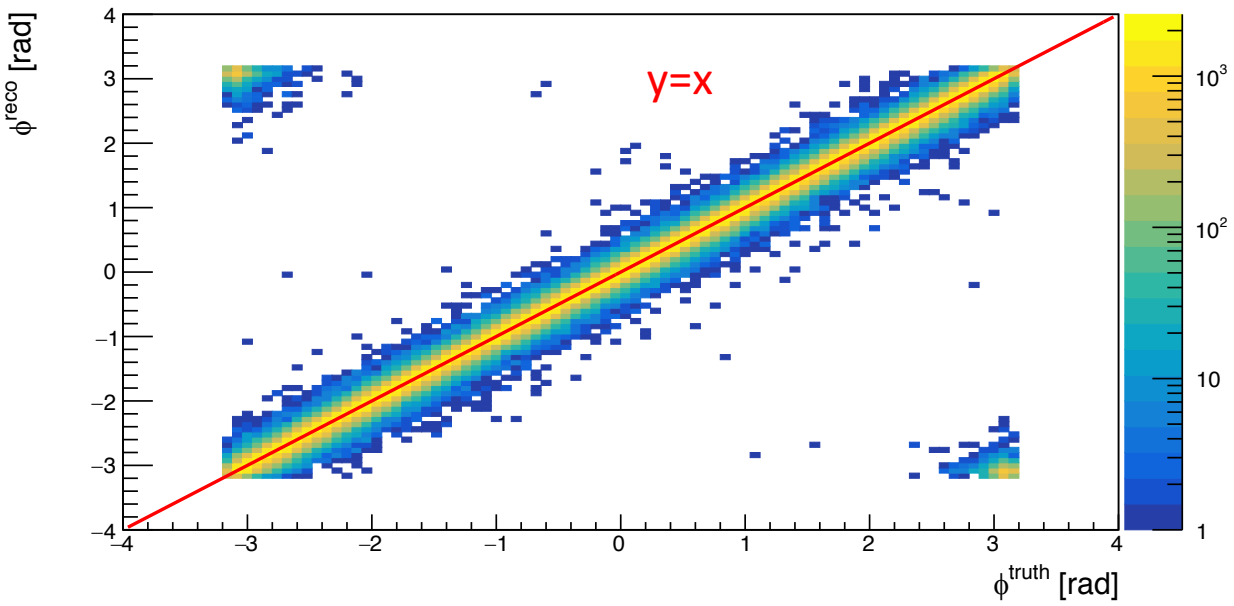
PYTHIA8 Config File

- CTEQ6L PDFs
- HardQCD:all = on
- PhaseSpace:pTHatMin=2
- Trigger on a R=0.3 truth jet in the fsPHENIX acceptance with p_T>4 GeV

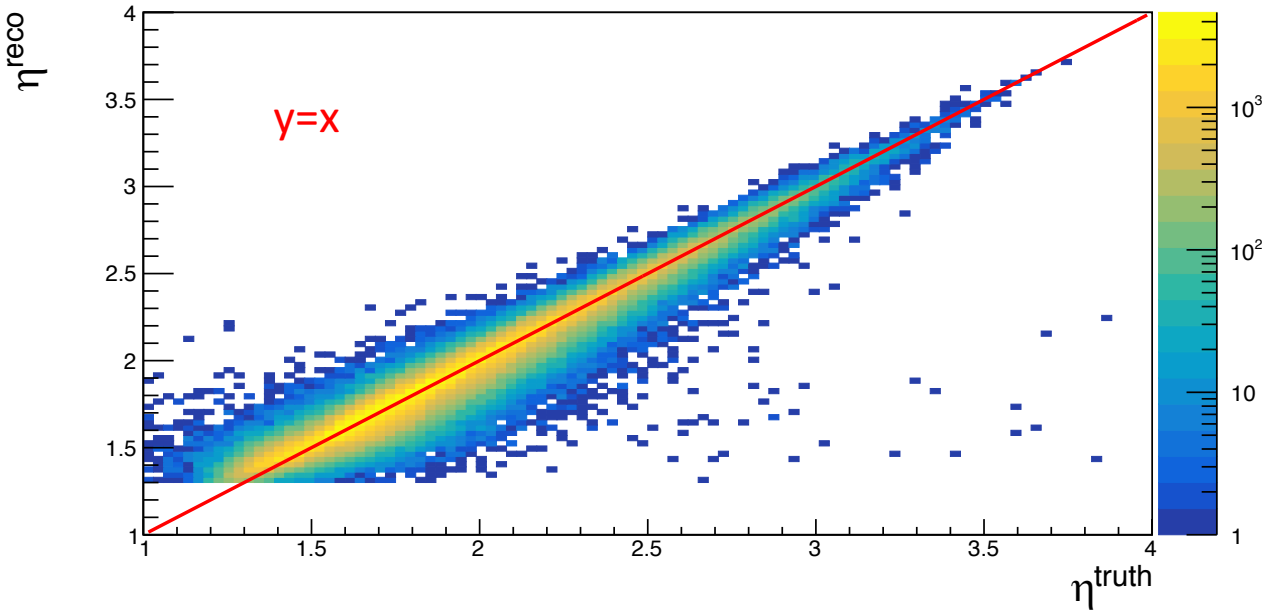
- Note: what is shown here is for R=0.3 anti-k_T jets

2D Response Histograms

Azimuthal ϕ

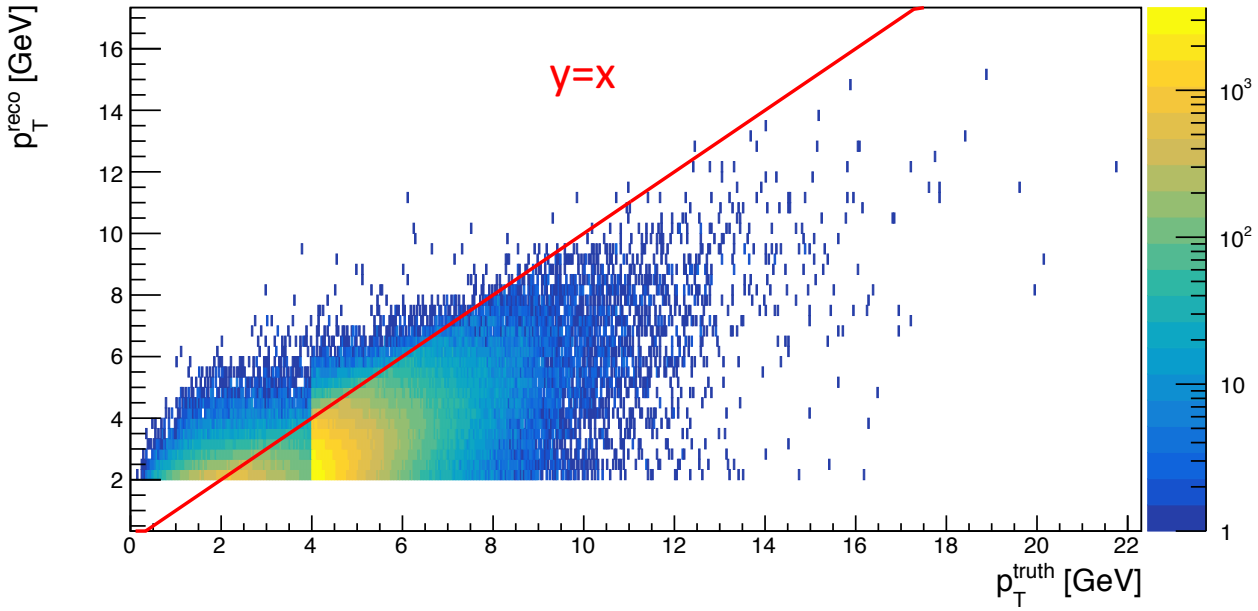


Pseudorapidity η

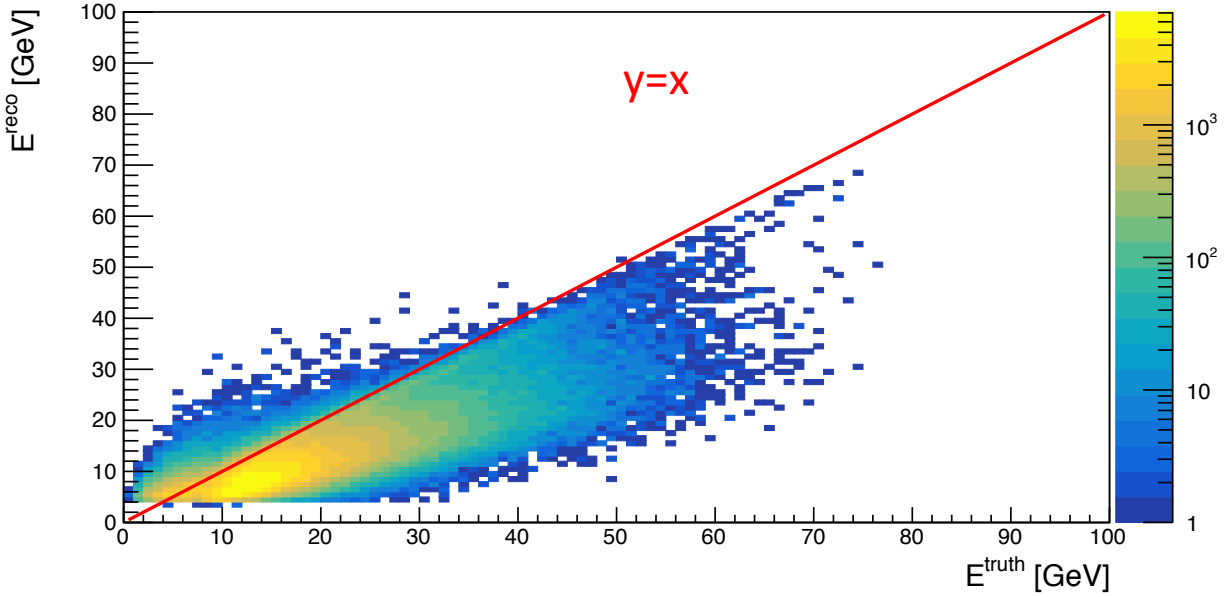


2D Response Histograms

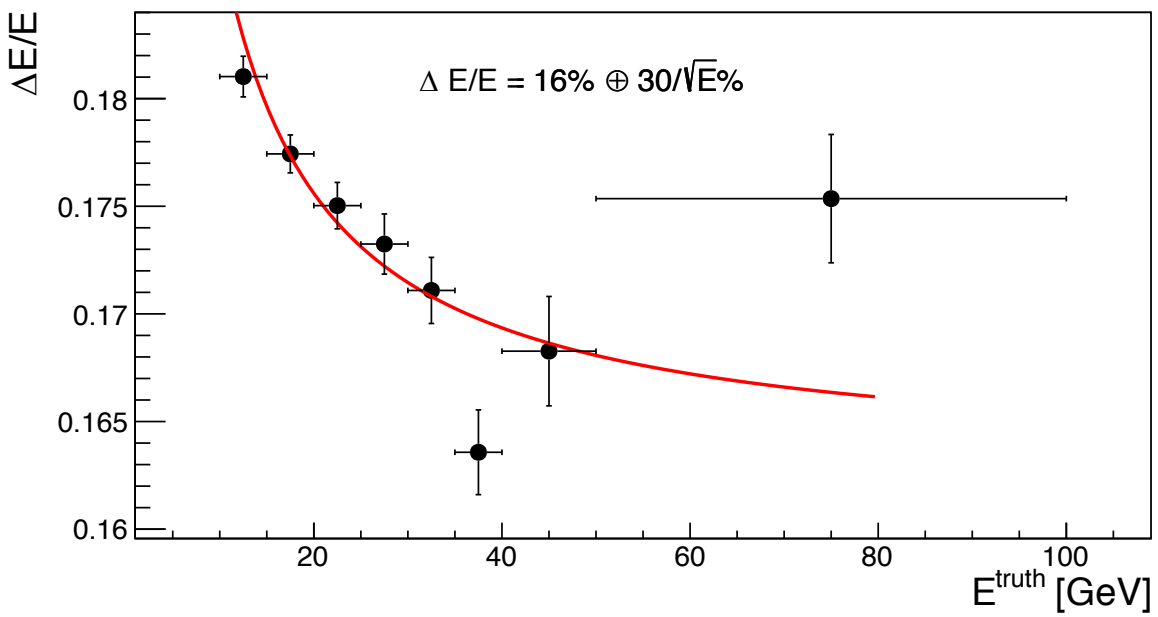
p_T

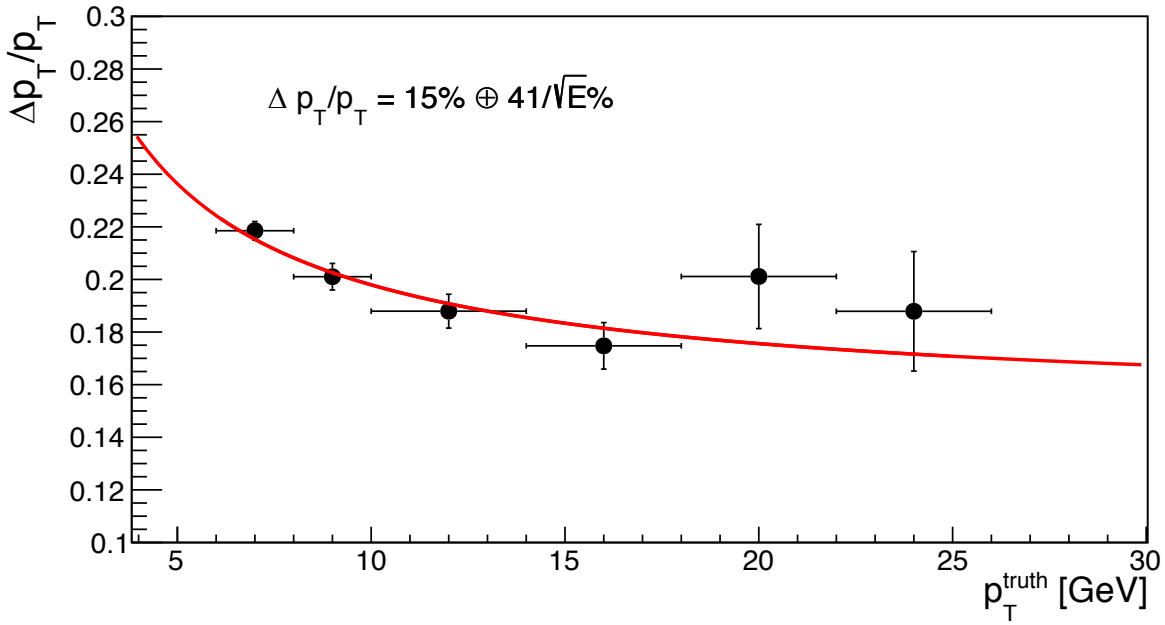


Energy



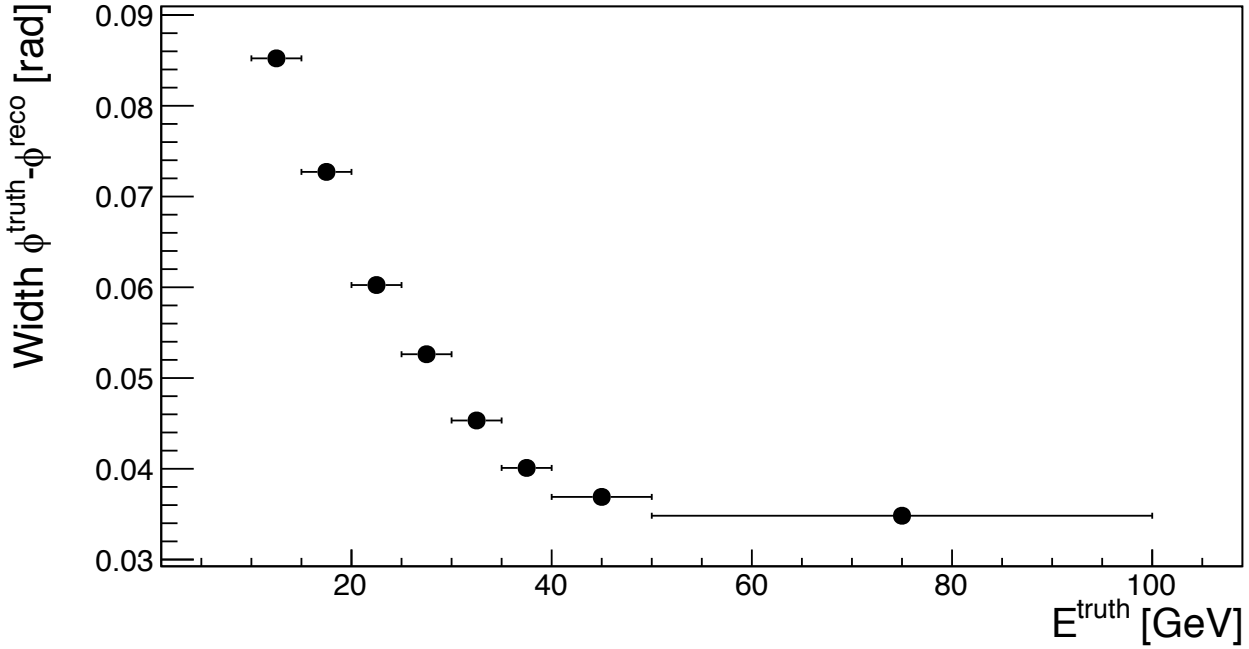
Resolutions

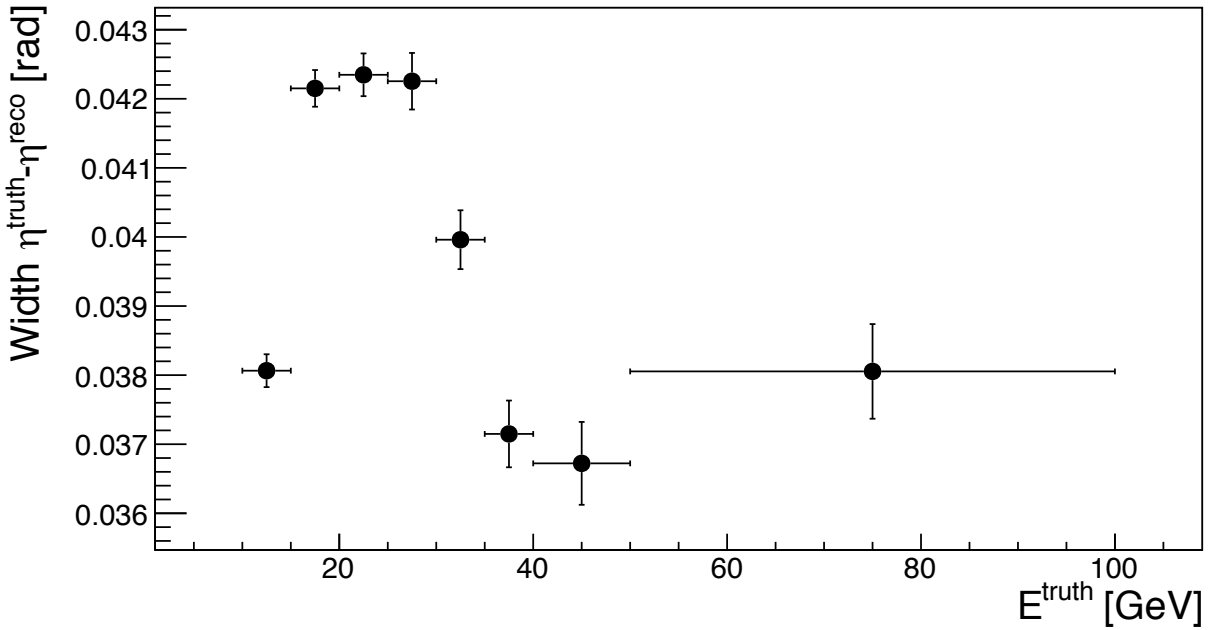




- I find similar constant term to John, but stochastic term seems way too good
- Not sure how believable the stochastic terms are though, since low p_T and/or energy is not constrained at all by the fit

Angular Resolutions



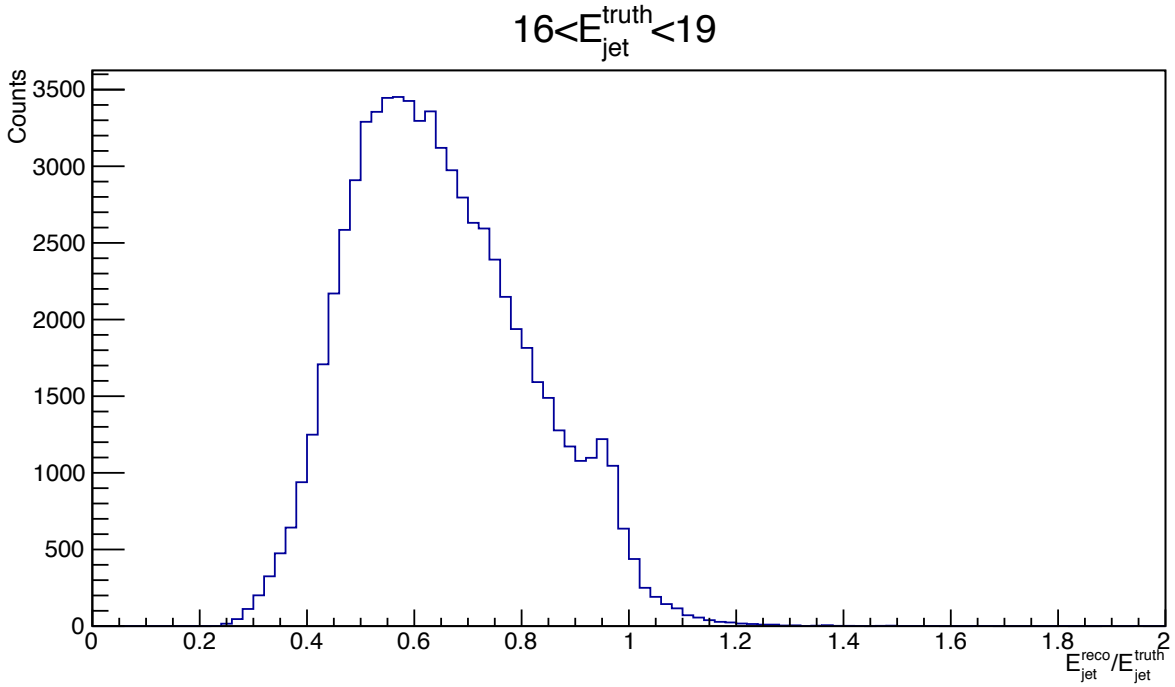


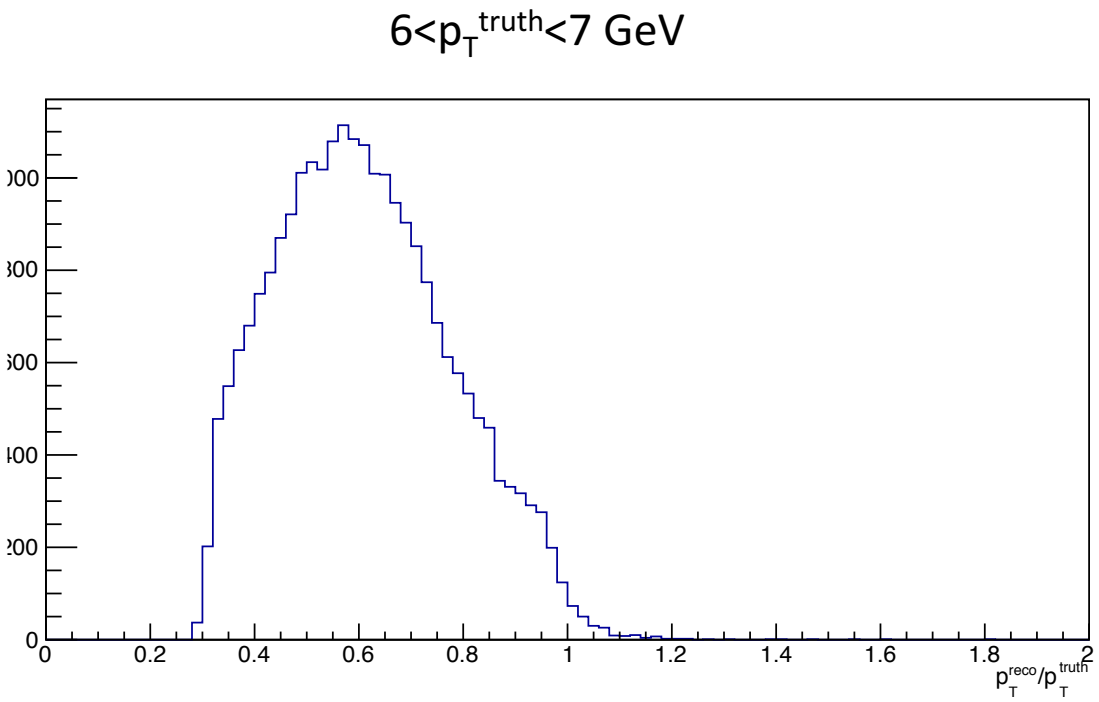
- Width of ϕ_{truth}-ϕ_{reco} or corresponding residual for η
- ϕ looks physically reasonable, η response looks kind of strange
- Part of the reason for this is that the η residuals are offset from 0
- 1D ϕ response histograms show interesting behavior as well (see back ups)

Conclusions

- Made R=0.3 anti-k_T tower jet resolutions for energy, p_T, and angles
- Comparing to R=0.5 jets as well, condor jobs finishing up tonight
  - R=0.7 jets also?
- Can make plots look nice and exclude the constant+stochastic term fits to put in the LOI
  - The stochastic term doesn't really mean anything for jets anyway since we won't measure jets at small p_T or energy anyway

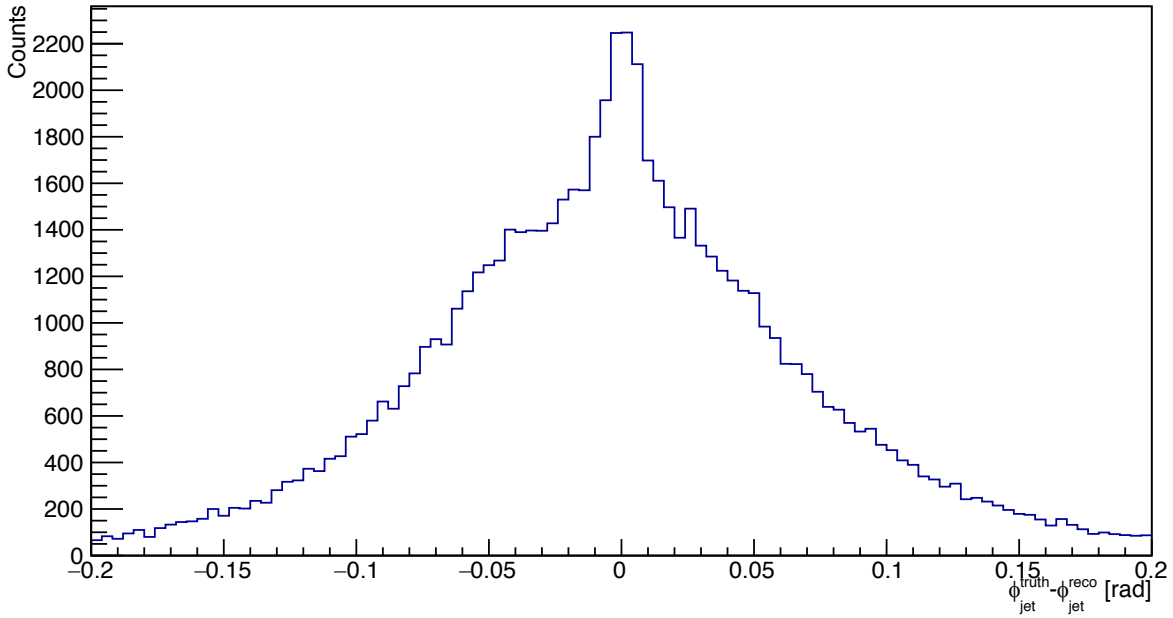
Example Energy and p_T 1D Response



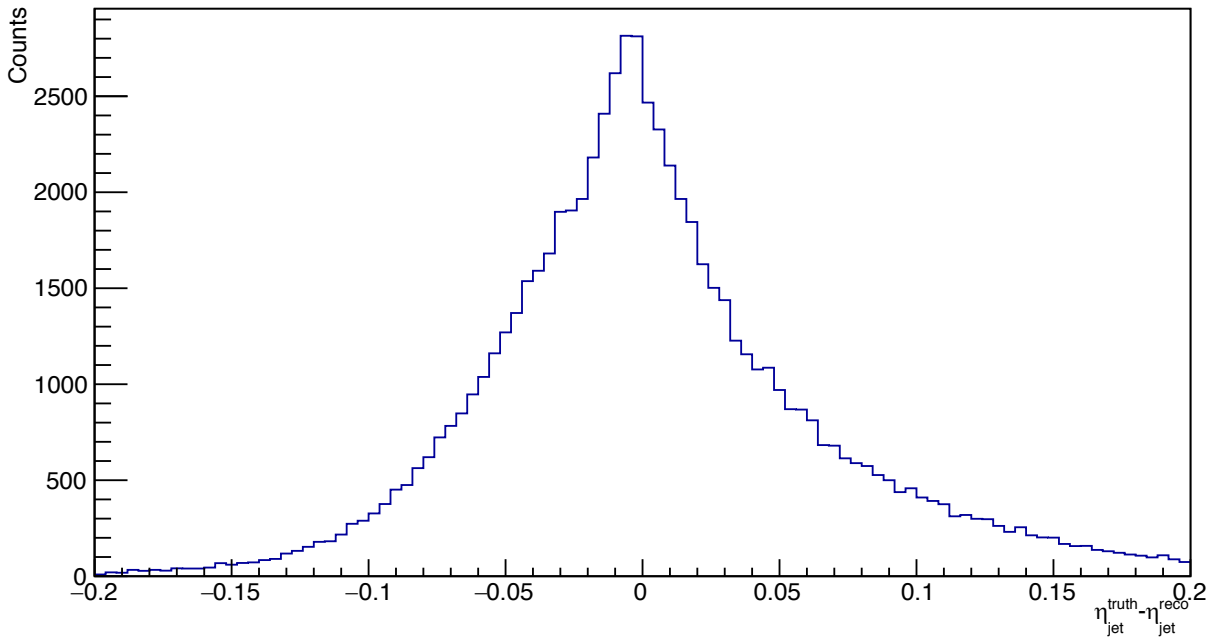


Example Angular 1D Histograms

ϕ : 16<E<19 GeV



η : 16<E<19 GeV



- η response shows offset from 0 – reco jets are more likely to be reconstructed with smaller η than truth jet η
- ϕ response shows almost 2 Gaussian structure – sharper peak about 0 and then broader peak likely representing actual resolution
  - Note that this feature tends to go away with higher energy jets