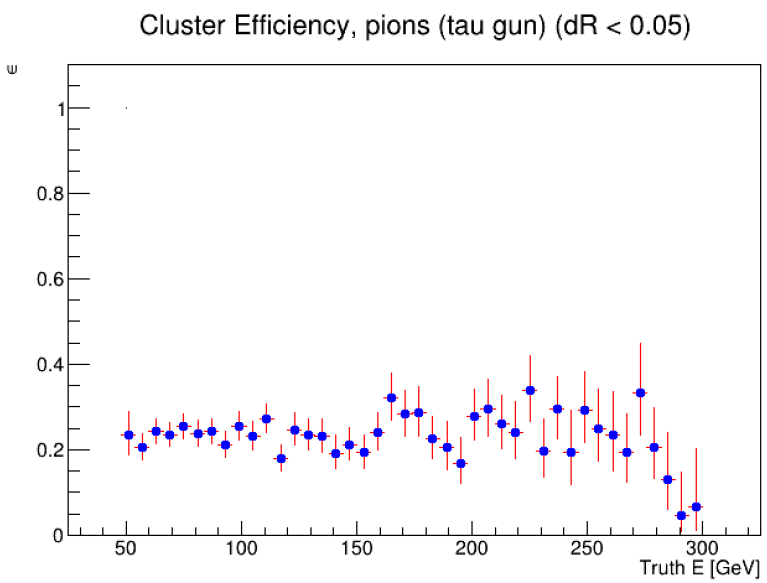
Updates 1/24/24

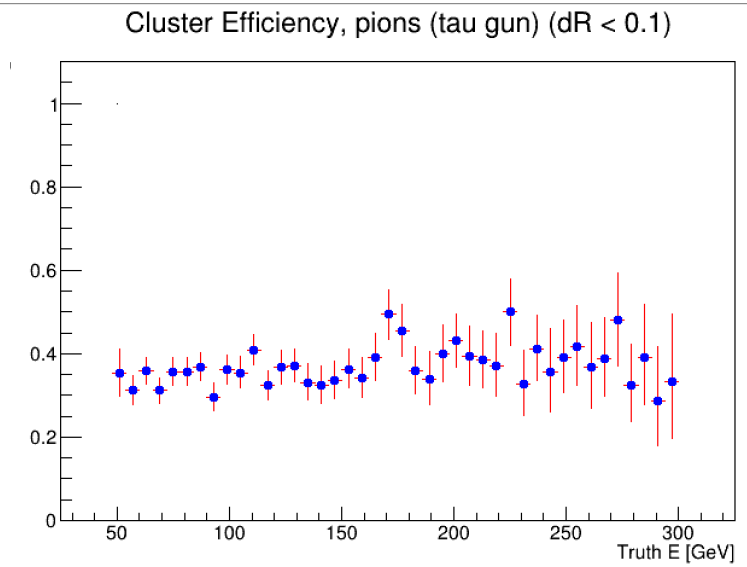
- Tau studies: more relaxed timeline!
- Status quo
- Pandora or first principles?

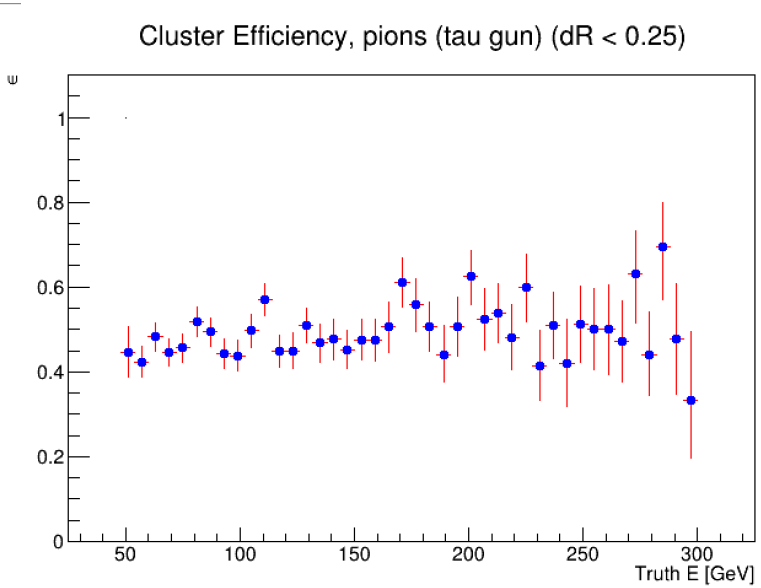
Timeline extended for tau studies

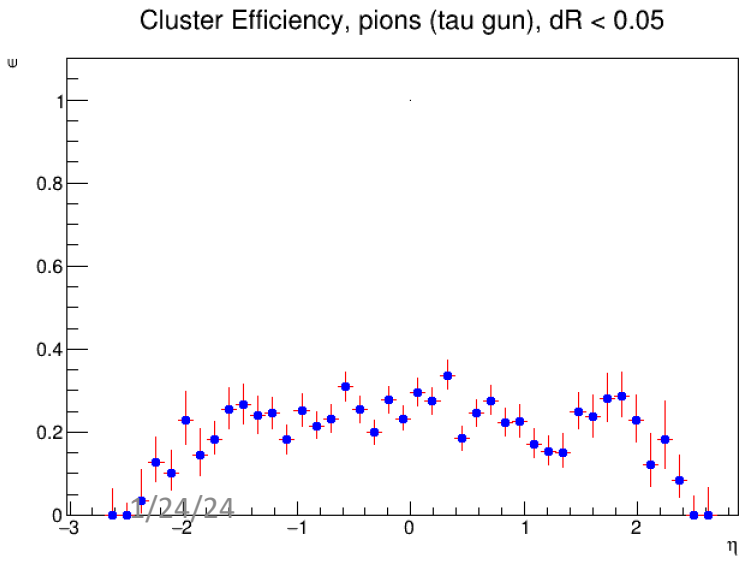
- Will instead be published in a secondary paper
- We now have more time to get to the bottom of our issues
- In the meantime, I'd also be up for helping out with any areas of the current studies for the paper that need extra hands
- In terms of taus, went into the holidays at a bit of an impasse

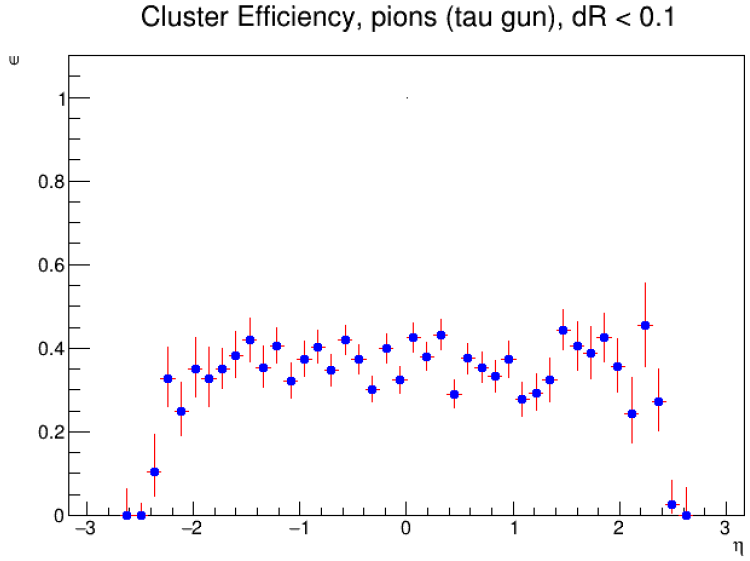
Status quo: charged and neutral pion clustering efficiencies vs E, eta with varied dR

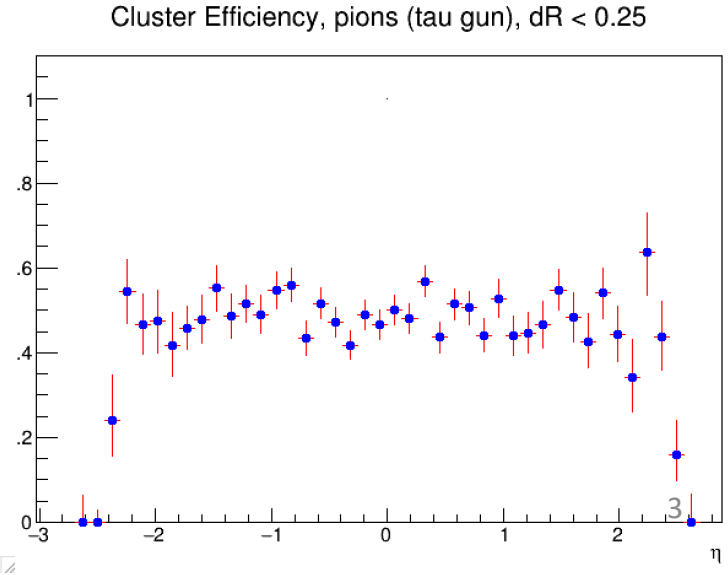




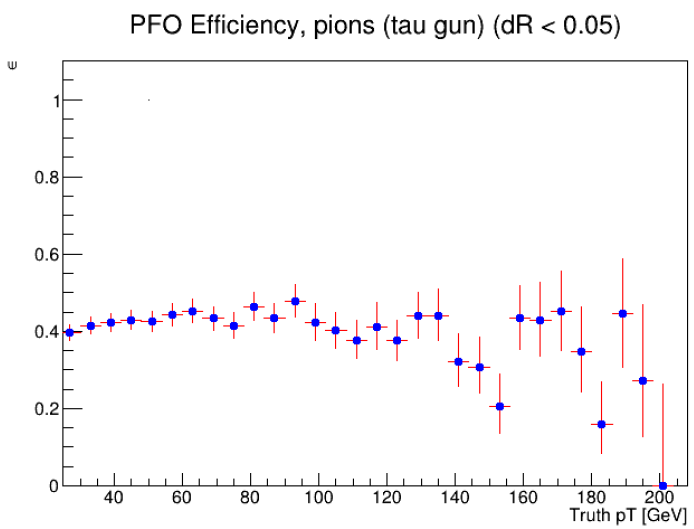


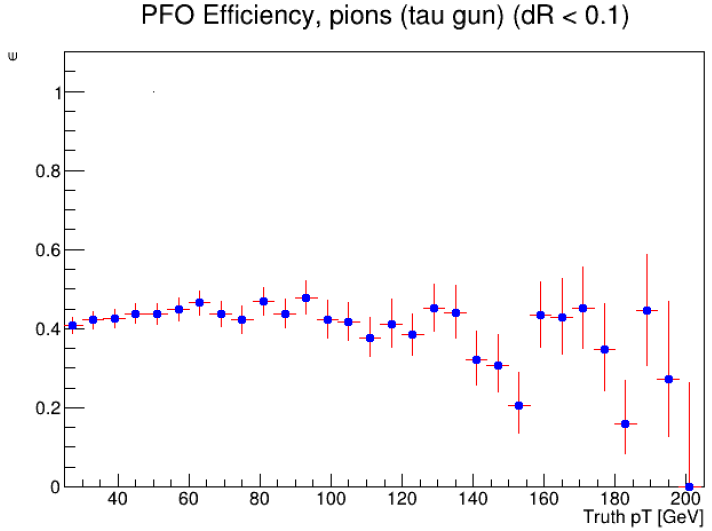


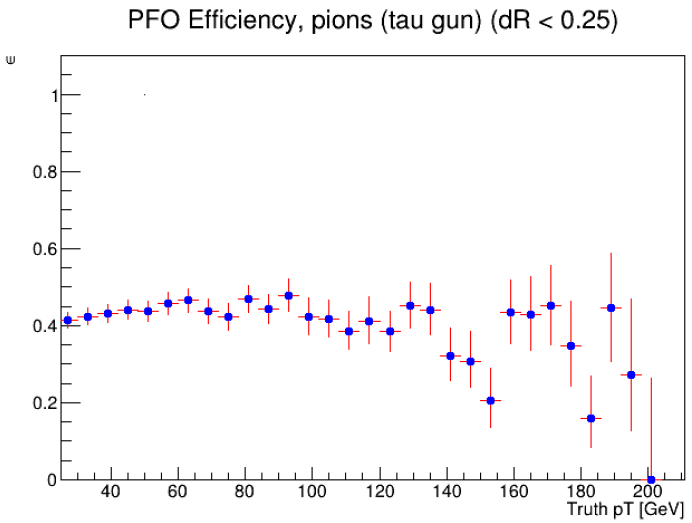


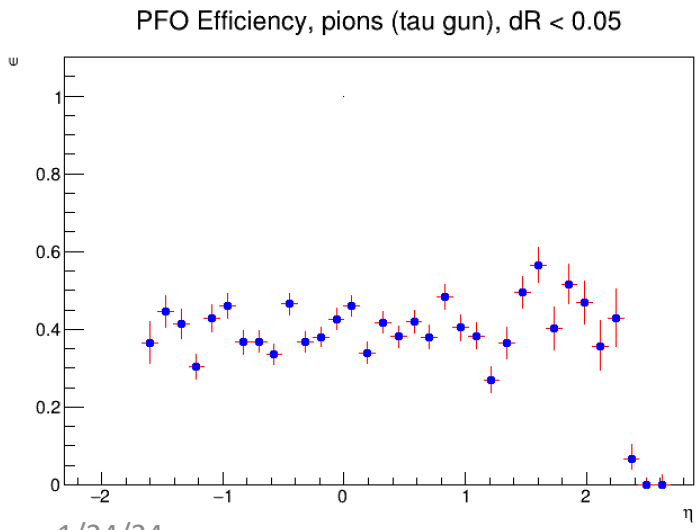


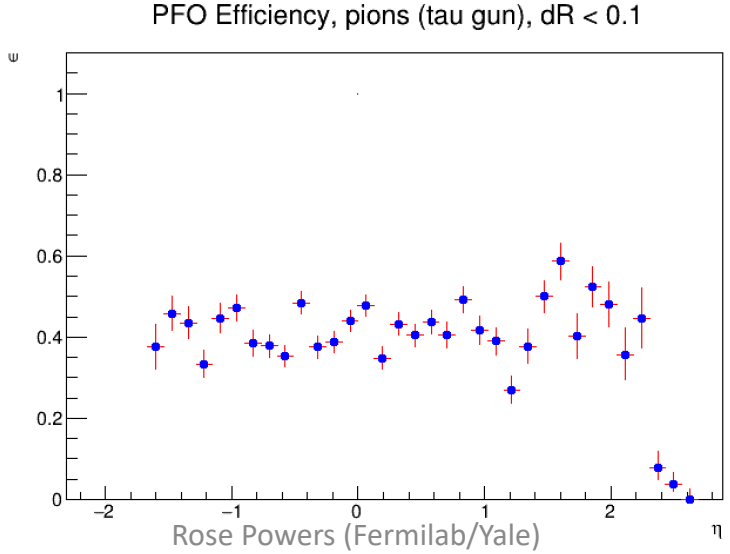
Status quo: charged pion PFO efficiencies vs pT, eta with varied dR

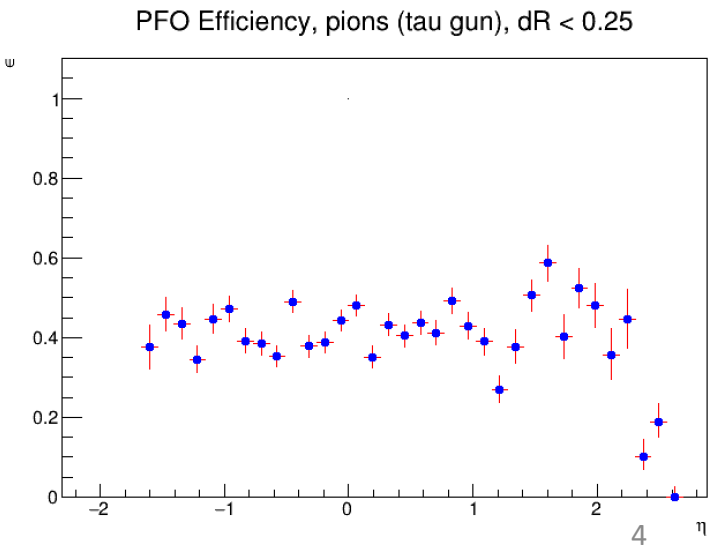












Summary

- Clusters are significantly displaced from MC objects
- True for both neutrals and MC pions
- However, relaxing track-cluster distance requirements only boosts efficiency to ~40%, so the displacement can’t be the only culprit
- Hcal calibration… hidden momentum-energy check?
- Until we can understand Pandora better…

Going forward (Pandora vs first principles)

- I may look into performing some simpler matching between tracks and clusters
- In terms of the poor clustering efficiency, I also want to better understand the clustering algorithms in addition to the geometrical distribution of clusters
- I may also look at the pion gun samples to investigate performance with pions that are not displaced from the origin