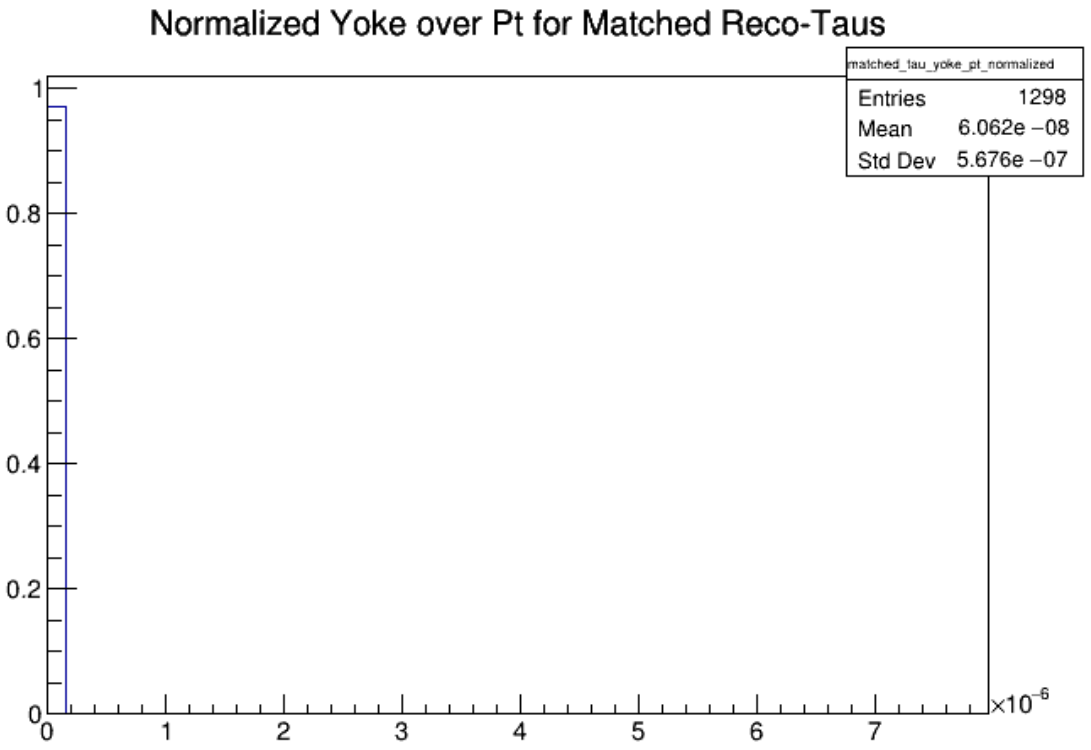
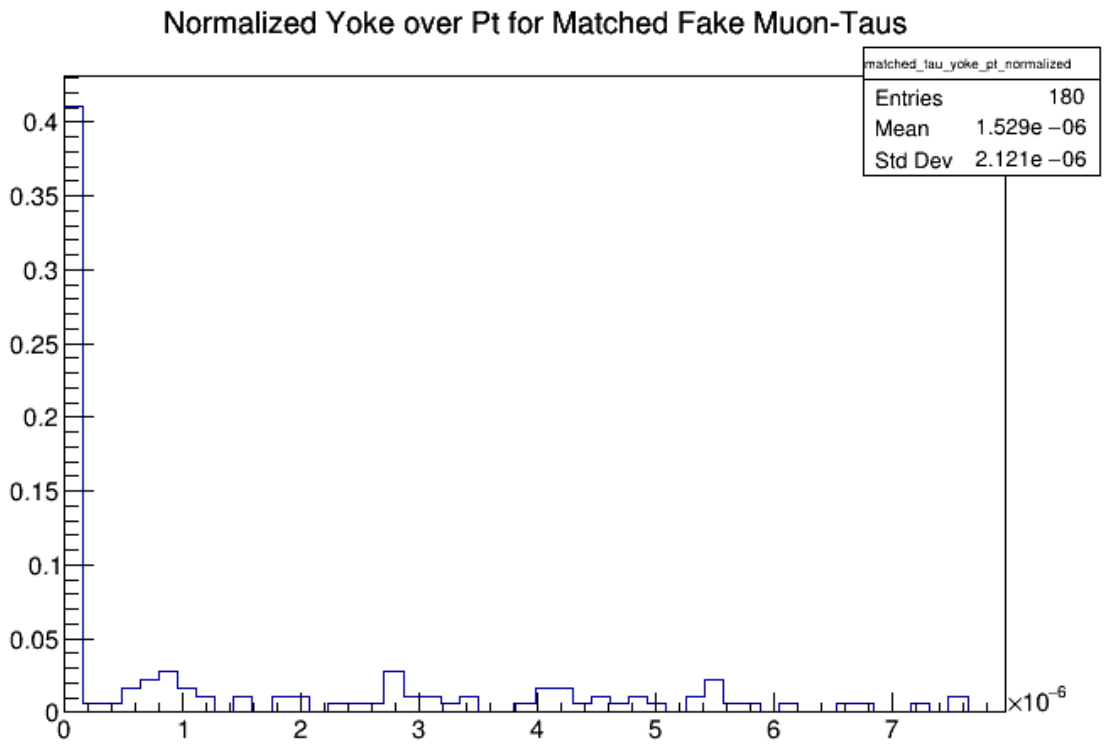
Yoke/Pt Distributions



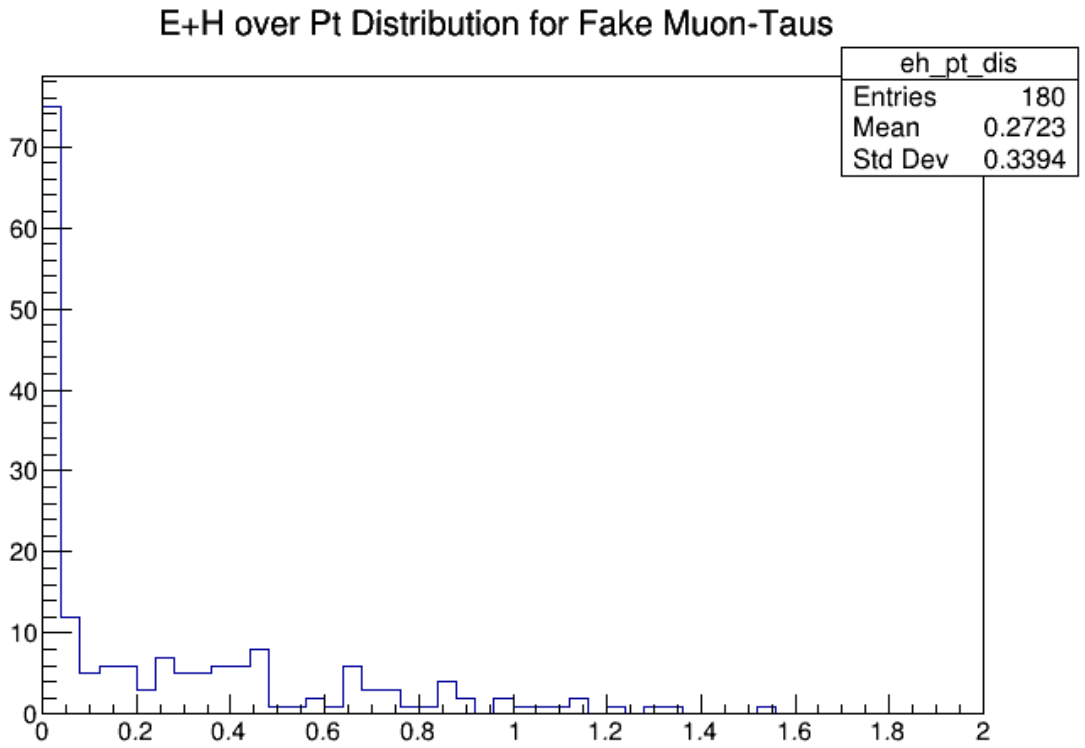


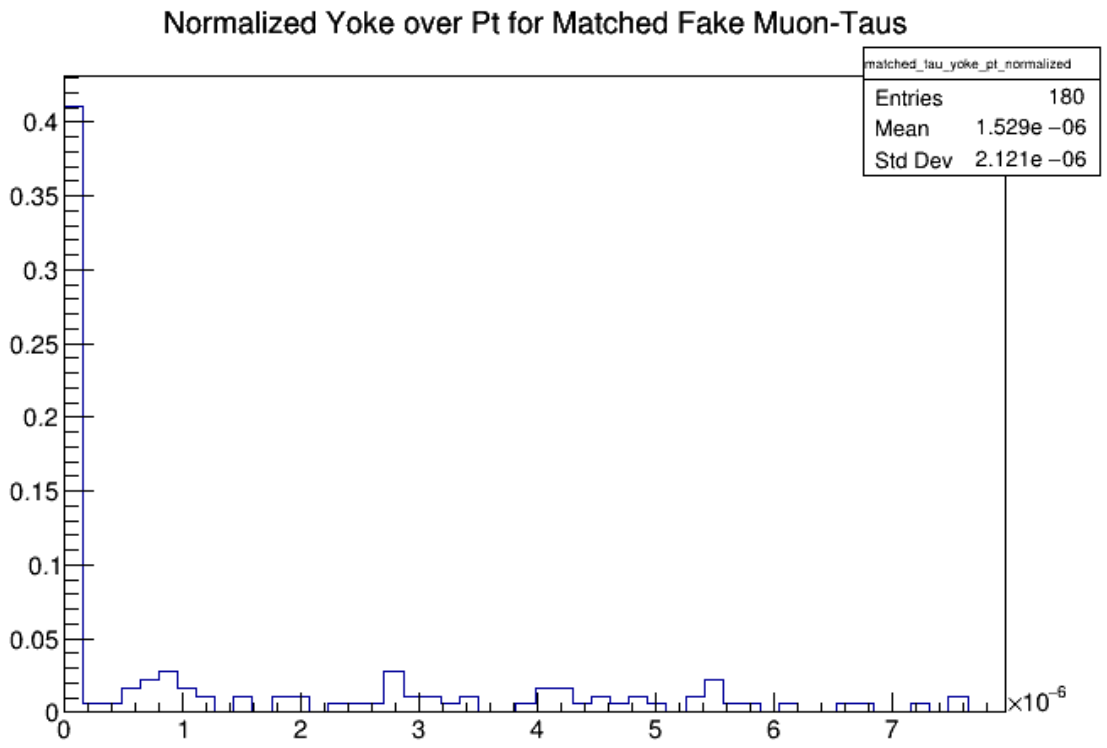
Both tau and muons spike at having zero energy in the yoke with muons having a much longer tail towards higher ratios.

Tau: 1262/1298 - 97% - Muon: 73/180 - 41%

A Y = 0 cut will be more damaging to tau reconstruction efficiency than the (E+H)/Pt was at its most conservative.

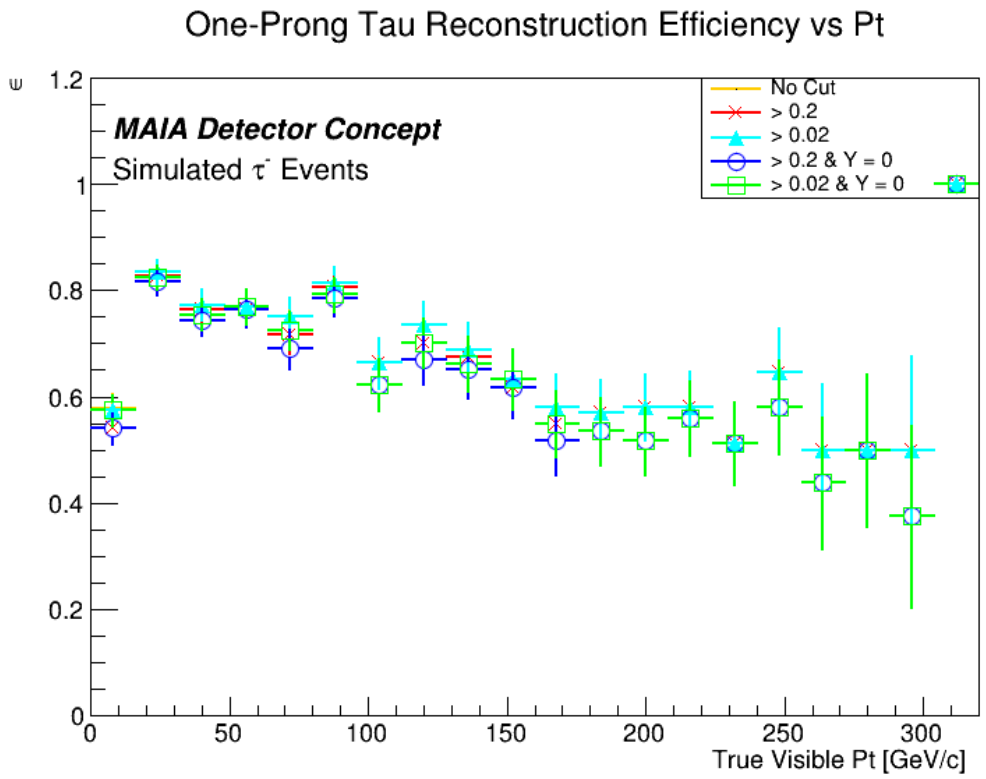
(E+H)/Pt vs Yoke/Pt Distribution

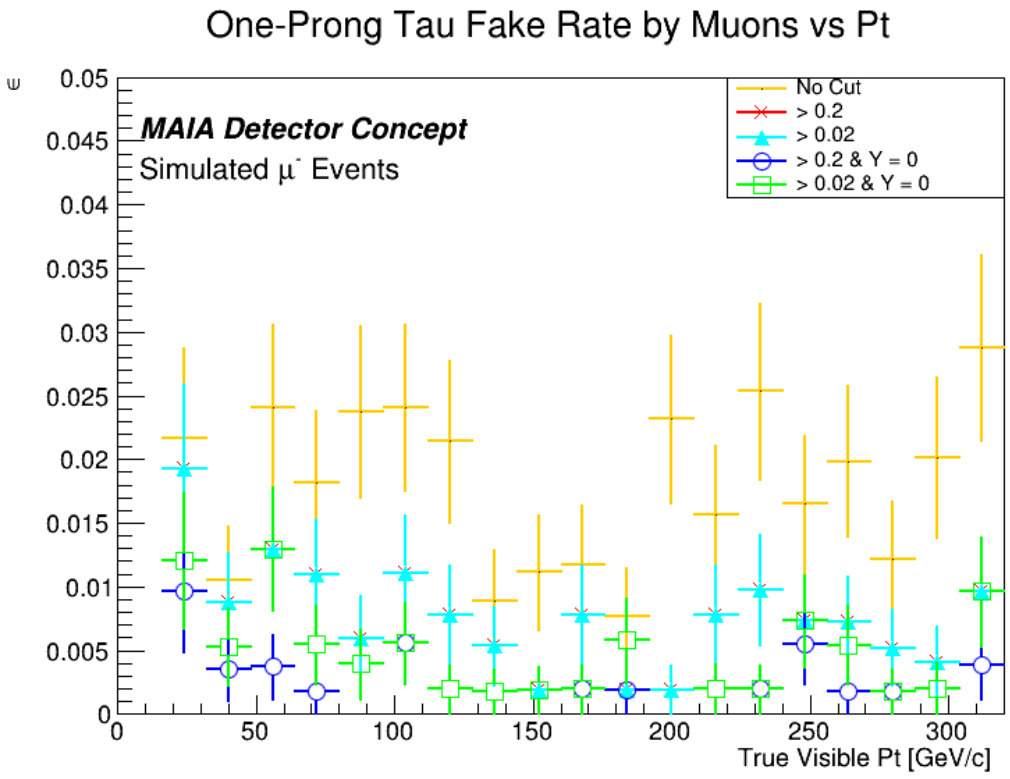




Both distributions appear very similar making me think they were highly correlated, meaning a cut with one would be equivalent as using the other or both. This was wrong.

Applying the (E+H)/Pt & Y = 0 Cut





The additional condition of Y = 0 did decrease the fake rate significantly. For > 0.2 & Y = 0, only 22 (compared to 76 with just > 0.2) got through for a net fake rate of 0.22%. For the more conservative cut of > 0.02 & Y = 0, the net fake rate was 0.46%.

> 0.02 & Y = 0 decreased real tau reconstruction efficiency by ~3%, literally only one tau less than if it was just a Y = 0 cut.