



DM studies in $\mu\mu$ monohiggs to $\tau\tau$ (signal events)

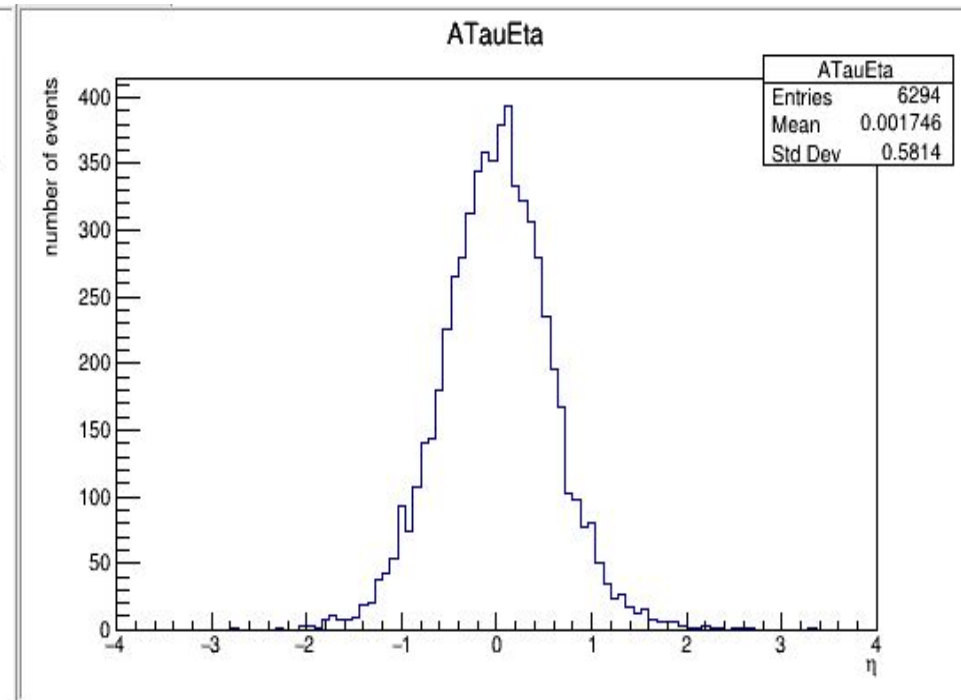
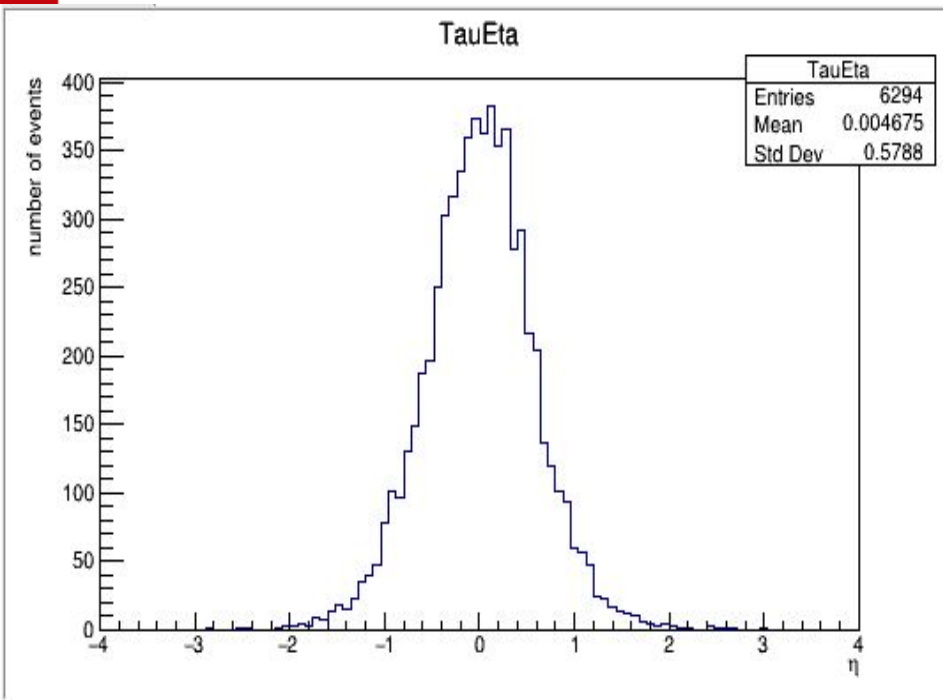
By: Philip Bjorklund

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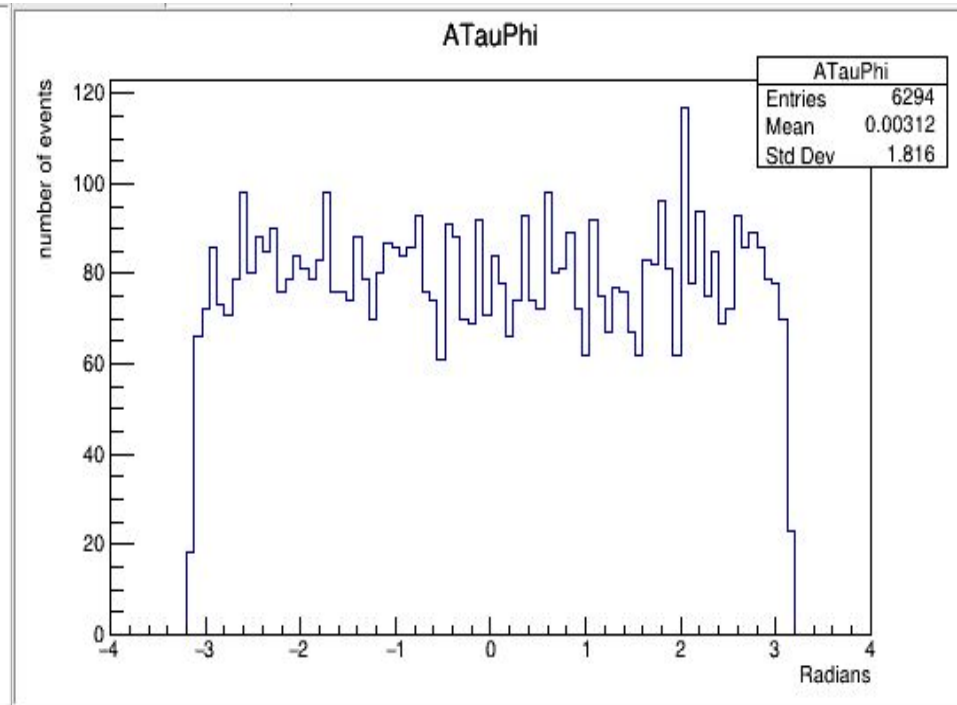
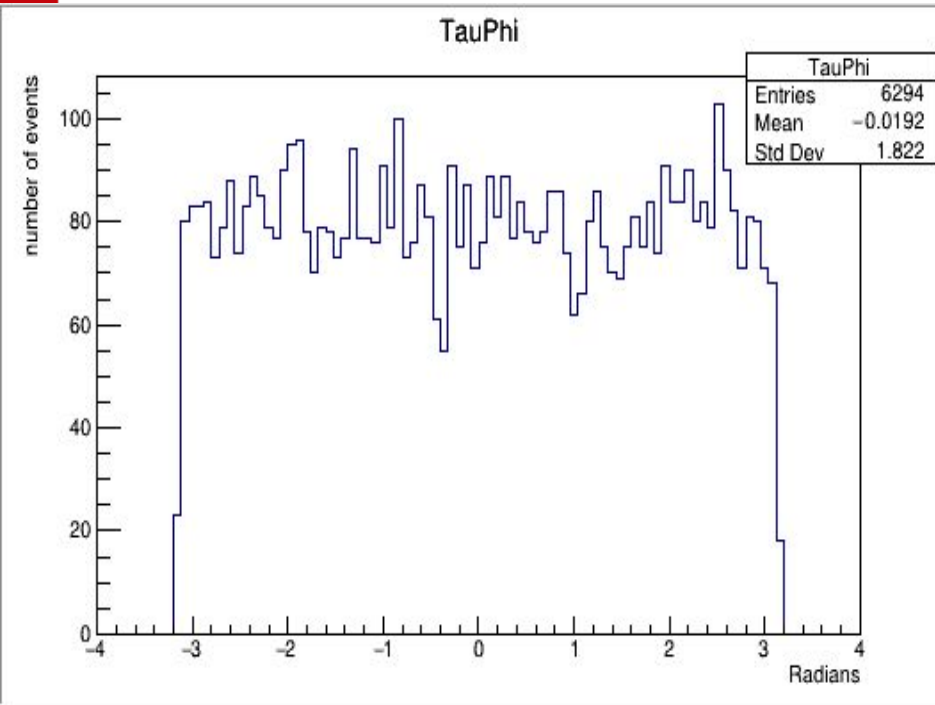
Simulation

- Model: Zp2HDM
- Signal: $\mu^+ \mu^- \rightarrow a_0 h / z, a_0 \rightarrow n_1 n_1^-, h \rightarrow t a^+ t a^-$
- Background: $\mu^+ \mu^- \rightarrow \text{lep}^+ \text{lep}^-$
 $\mu^+ \mu^- \rightarrow z z, z \rightarrow \text{lep} \text{lep}, z \rightarrow \nu \nu$
lep = e & mu
- Ebeam1: 1500 Mass n1: 300 GeV
Ebeam2: 1500
- Cross Section: $1.533 * 10^{-13}$ pb

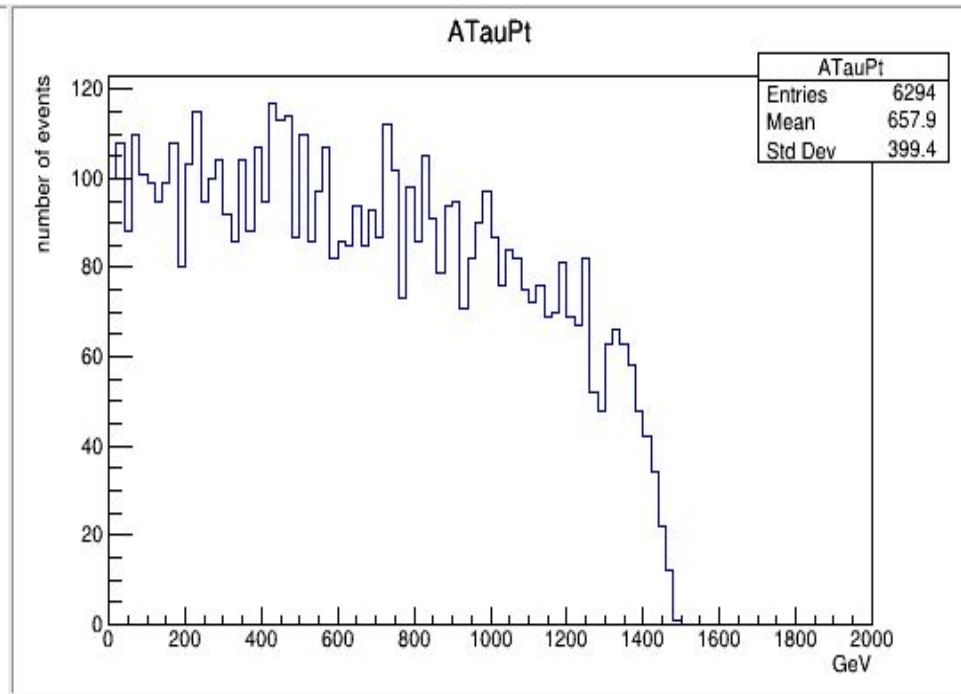
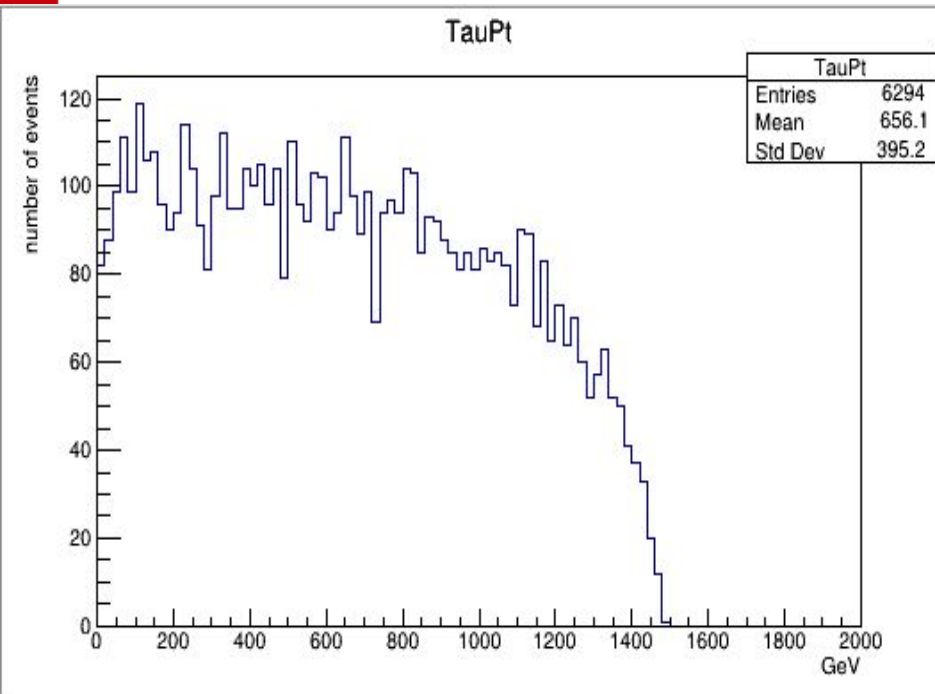
Eta for Tau and AntiTau



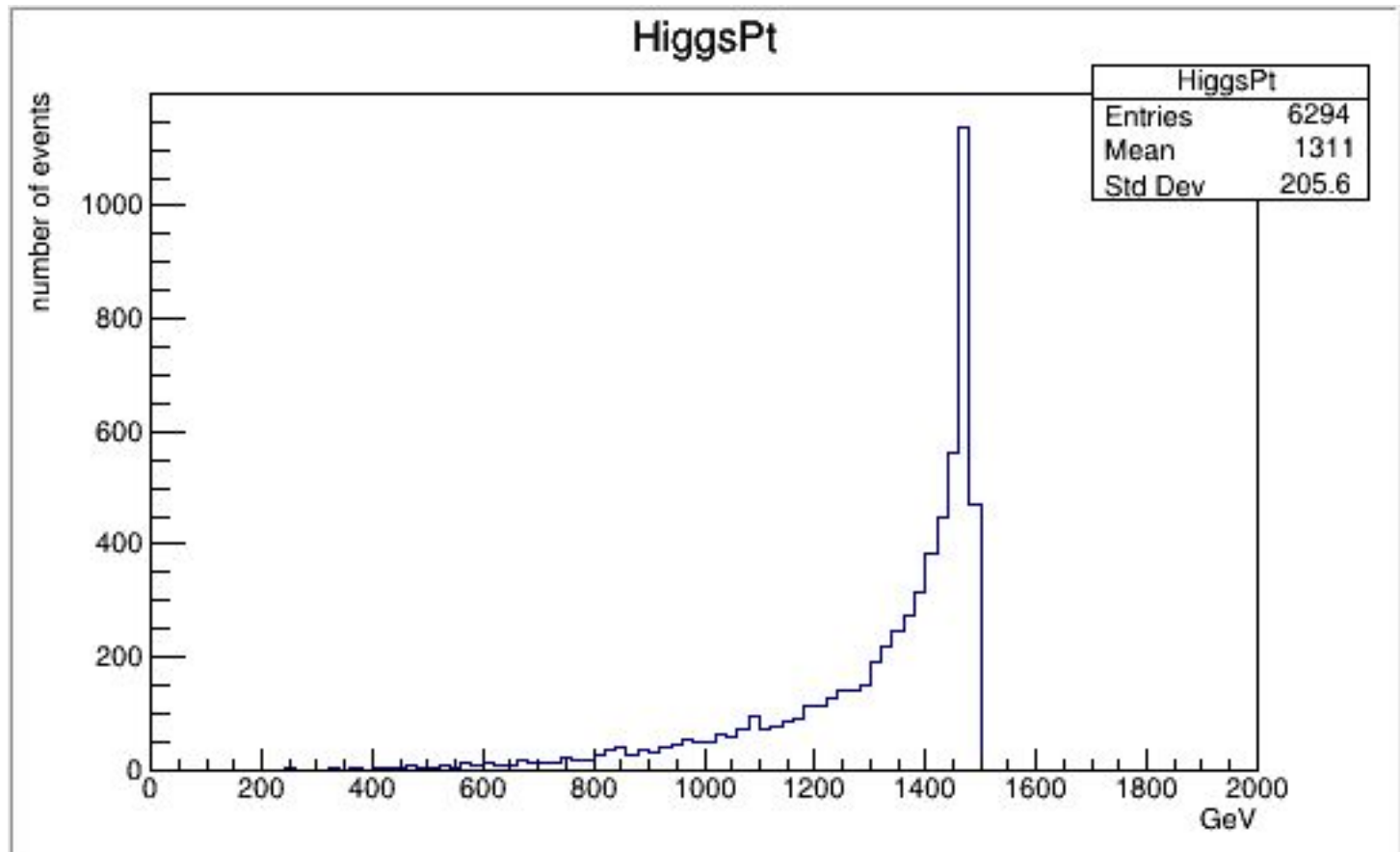
Phi for Tau and AntiTau



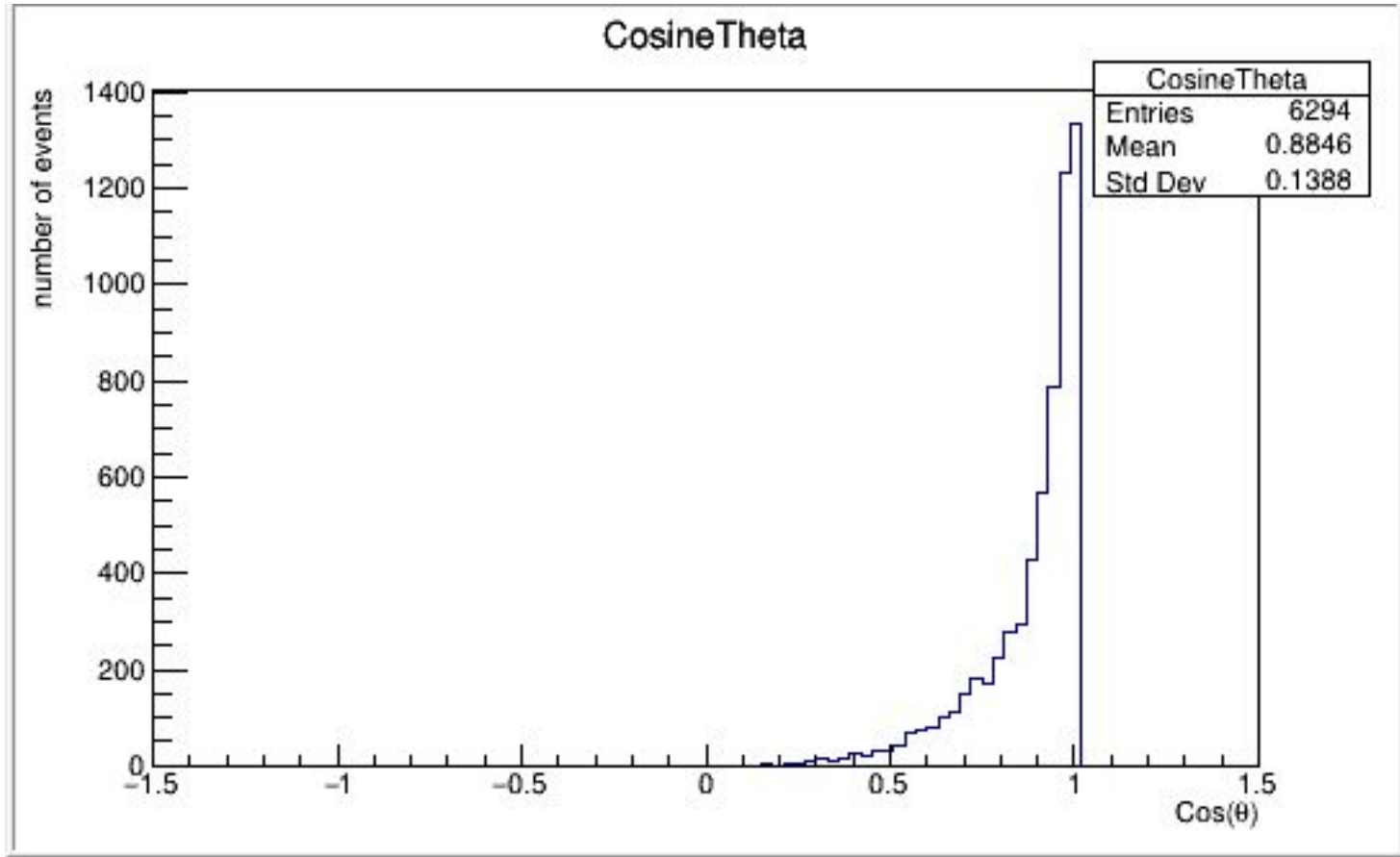
Pt for Tau and AntiTau



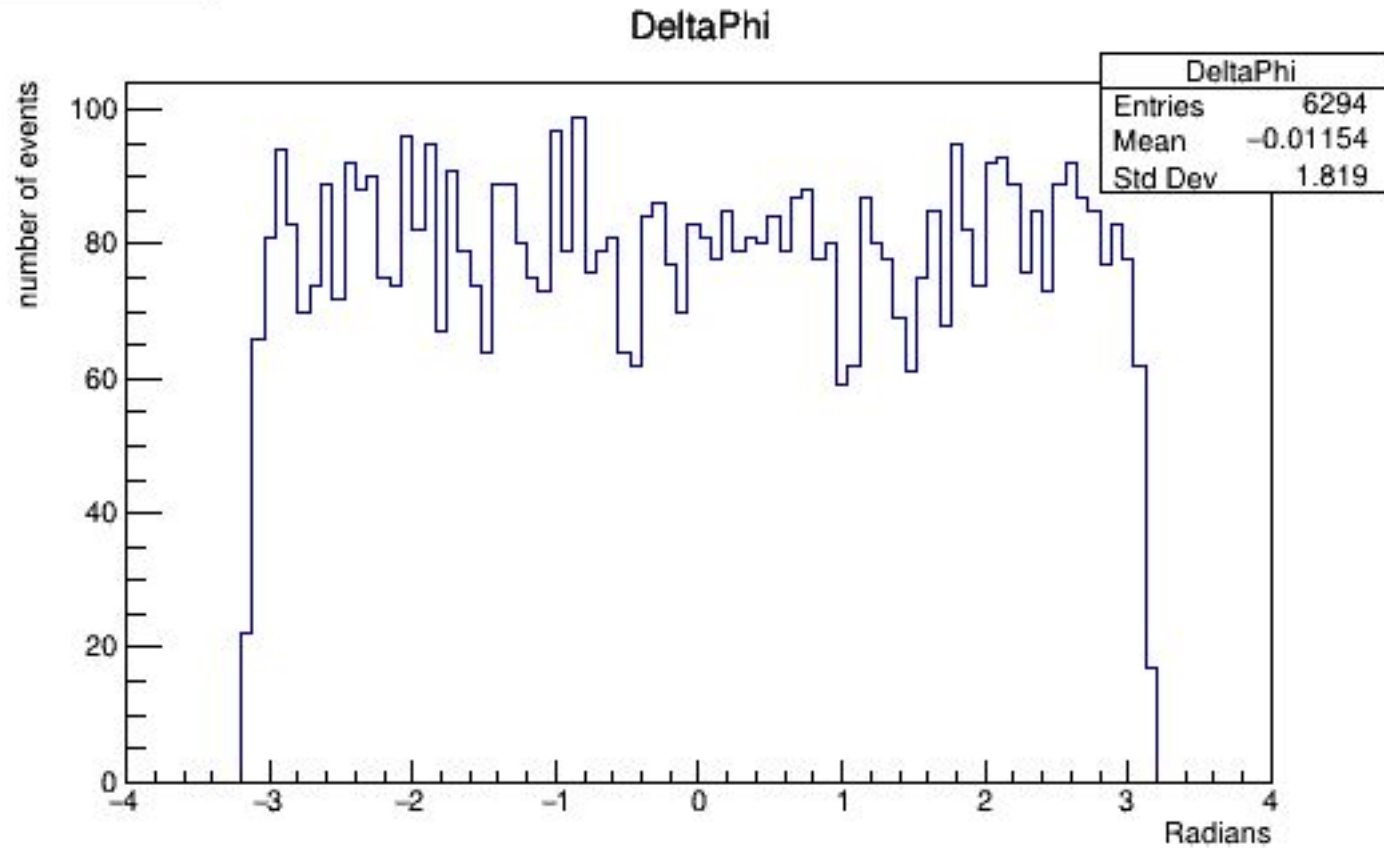
Higgs Pt



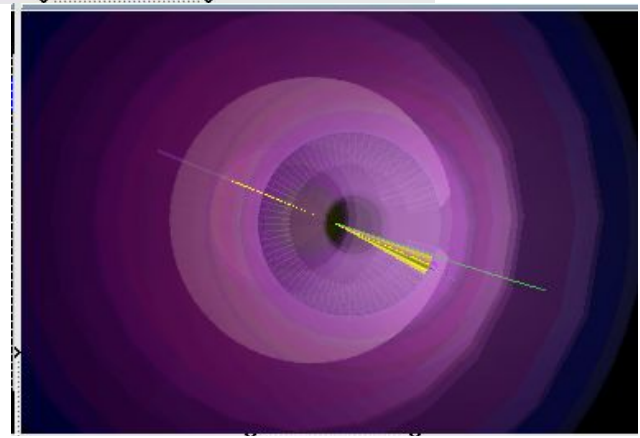
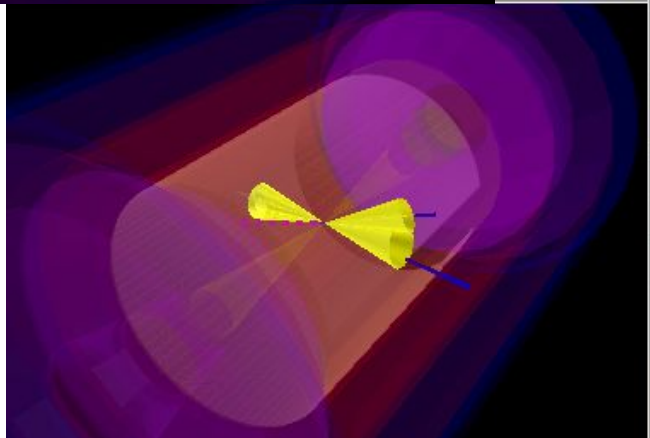
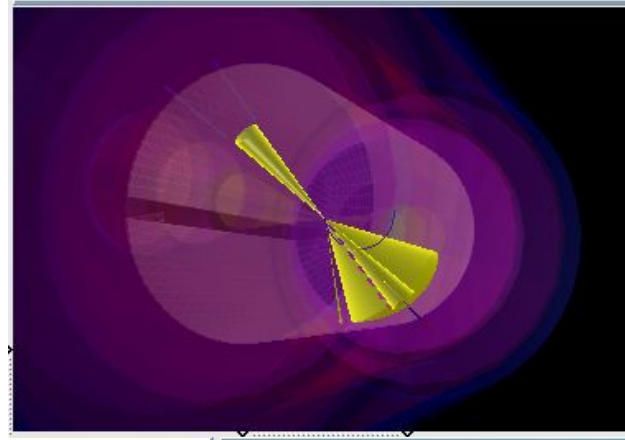
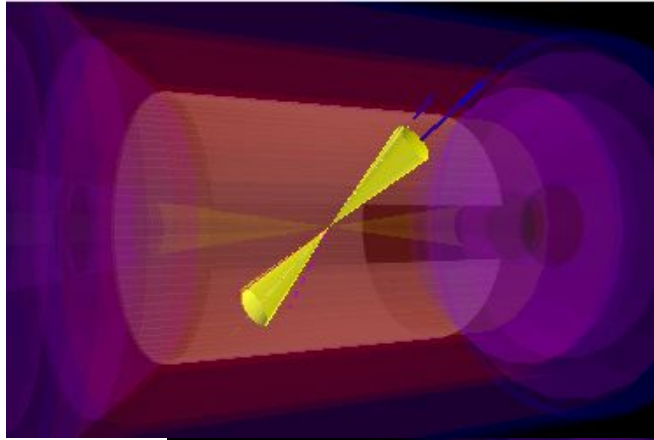
Cosine Theta between Higgs and MET



Delta Phi between Higgs and MET



Event Displays



Next Steps

1. Reconstruct Invariant Mass of Tau Tau system
2. Run background events
3. Compare background to signal and make some cuts
(currently, minimum pt for leptons is 10 GeV)