

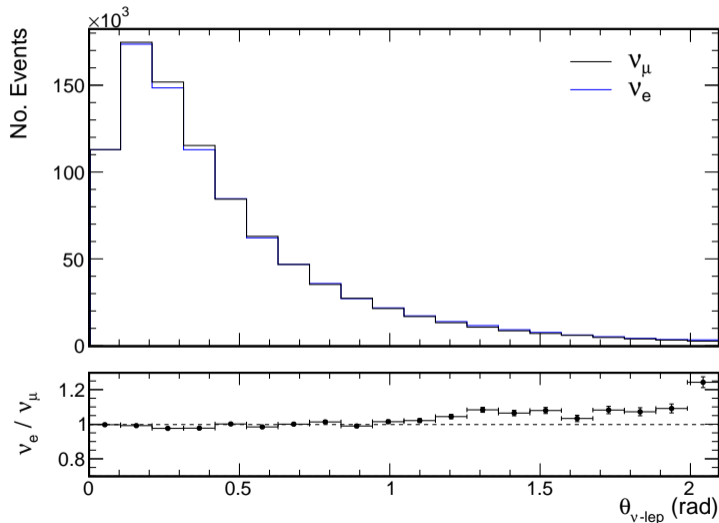
Appearance Paired Dataset Exploration

Alex Wilkinson

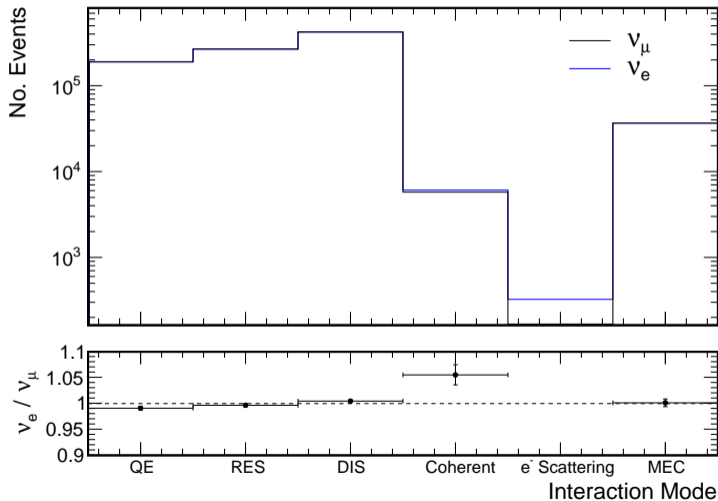
November 2024

- ▶ Made some plots looking into the validity of pairing the ND numu interaction with a FD nue interaction by swapping the muon for an electron with the same kinematics
 - Are the initial electron and muon kinematics the same?
 - How different are the hadronic final state particles of the interaction?
- ▶ Look at what GENIE says:
 - MC samples: true numus from `FD_FHC_nonswap.root` and true nues from `FD_FHC_nueswap.root`
 - Almost the same true neutrino energy interaction spectra for numus and nues, reweight the nue sample to match the numu
 - Compare the 1D distributions for different interaction properties

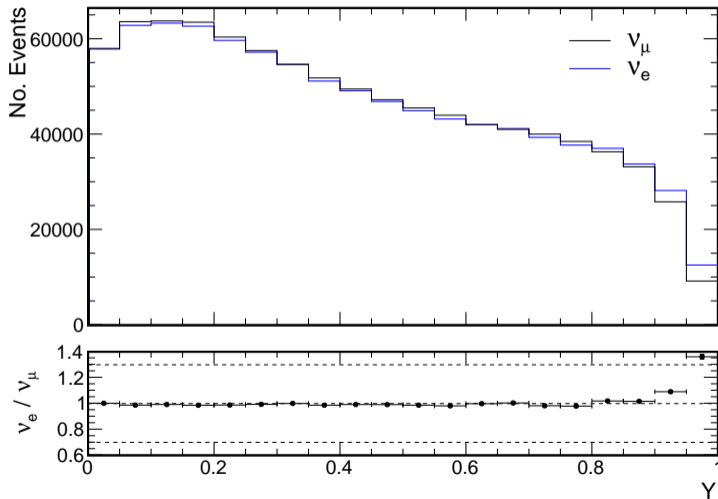
Neutrino-Lepton Angle



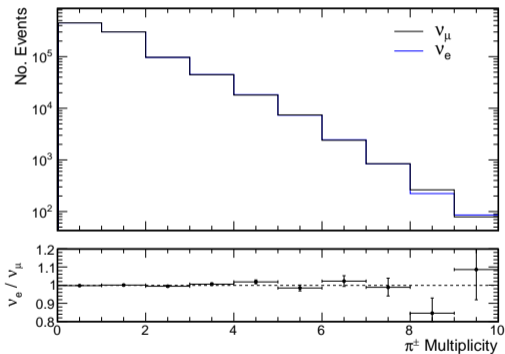
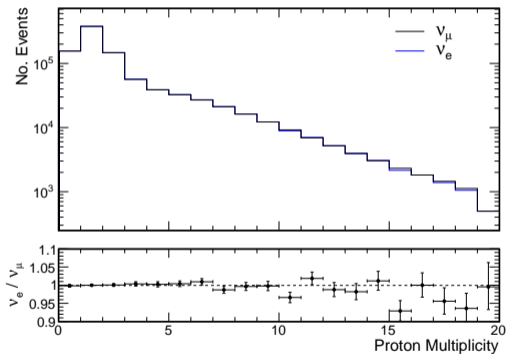
Interaction Modes



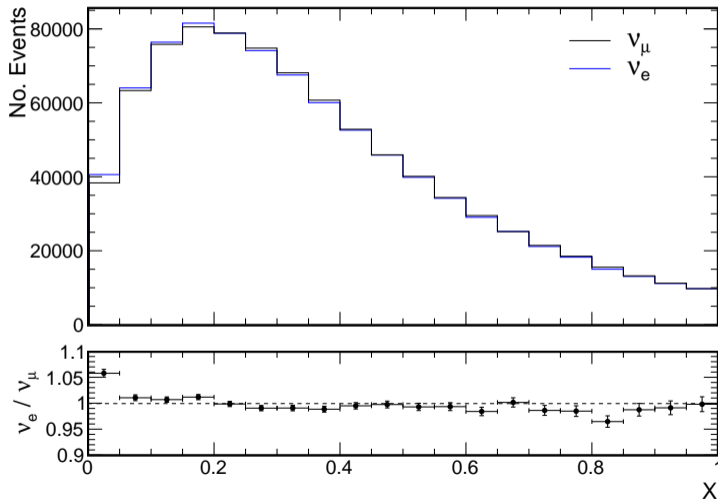
Inelasticity

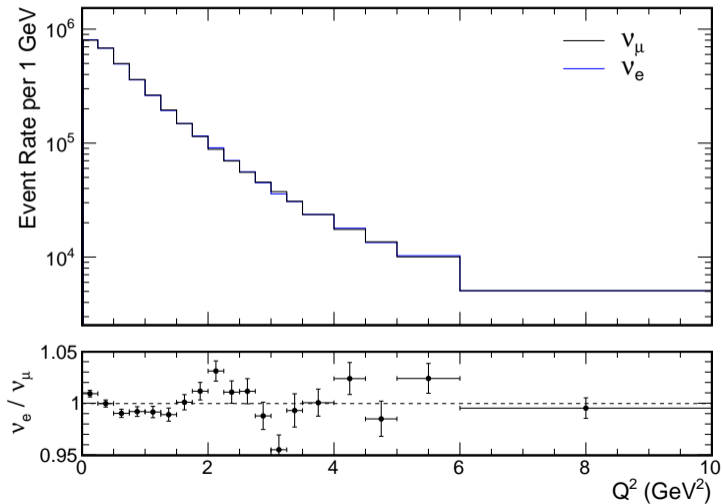


Final State Particles

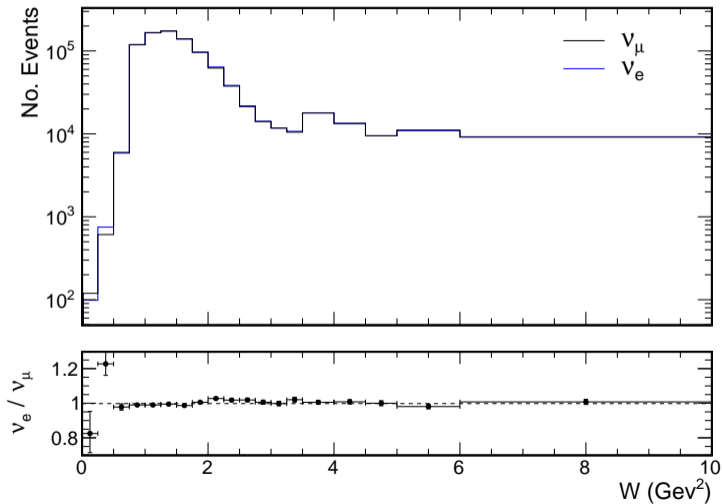


Backup





Invariant Hadronic Mass



Other Final State Particles

