Pion Electroproduction from the LD2 Target

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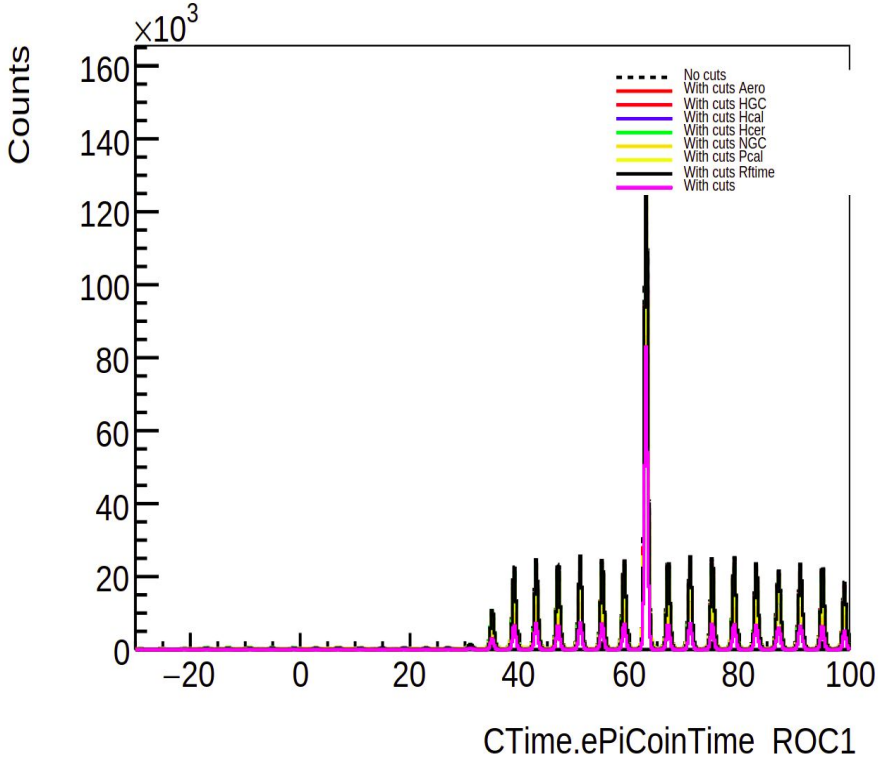
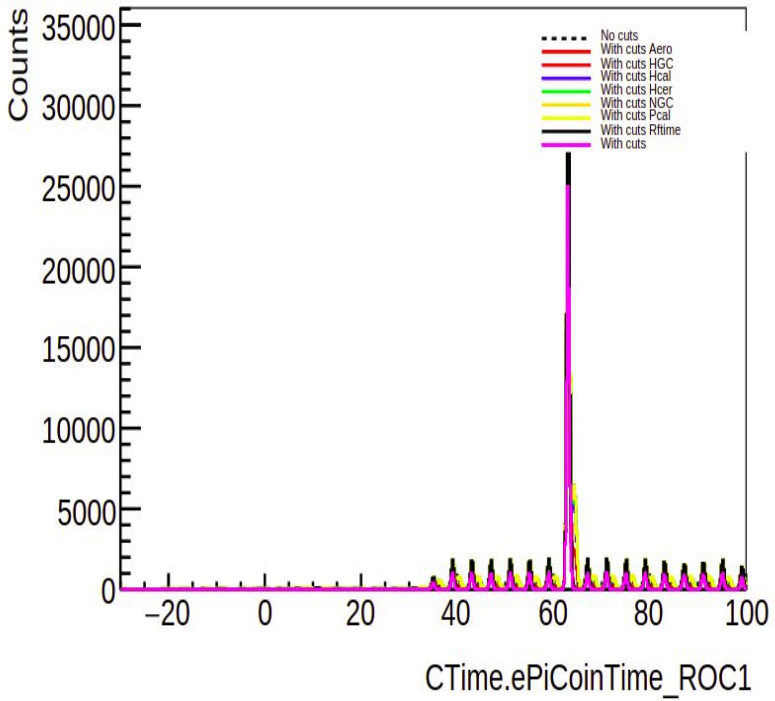
First Step: Reviewing Das' PID Study for LD2+/LD2- Target

- LD2 allows us to study both π^+ and π^- production
- Run lists:
    1. π^+: {15091,15092,15093,15094}
    2. π^-: {15091,15092,15093,15094}

CoinTime Plots for LD2+/-



e- + π^- CoinTime



e- + π^+ CoinTime

Coin-Time Selection Cuts

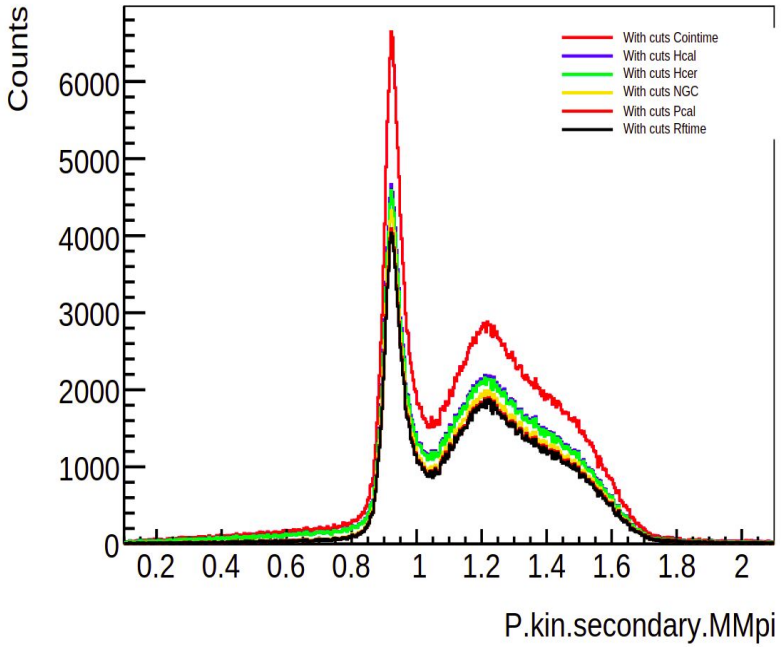
- SHMS PID (pion selection):

  Aerogel: P.aero.npeSum > 2.0
  Heavy Gas Čerenkov: P.hgcer.npeSum > 2.0
  Calorimeter: P.cal.etottracknorm < 1.0
  Noble Gas Čerenkov: P.ngcer.npeSum < 2.8

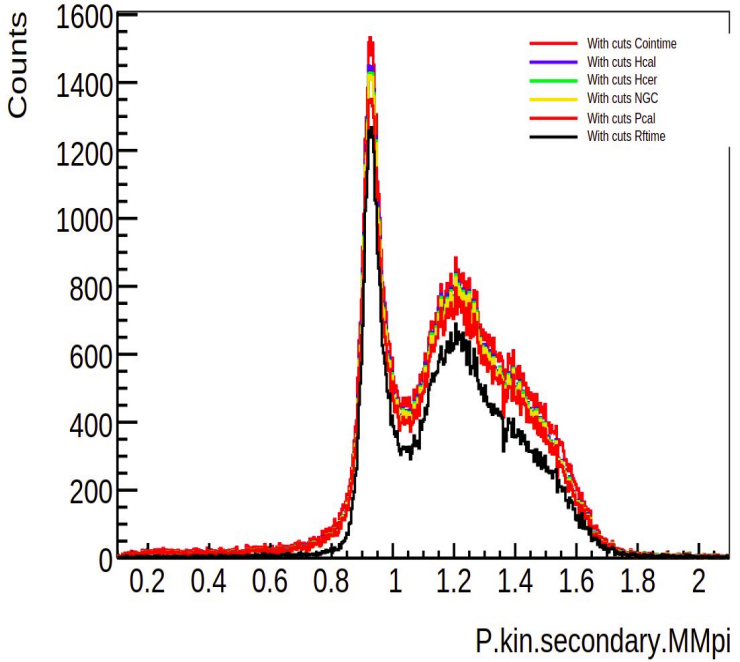
- HMS PID (electron selection):
  Calorimeter: 0.9 < H.cal.etottracknorm < 1.12
  Gas Čerenkov: H.cer.npeSum > 4.5

- Timing cut:
  SHMS RF time: 1.6 < RFTime.SHMS < 3.0

Missing Mass for LD2+/-



Proton's missing mass for the LD- data



Neutron's missing mass for the LD+ data

Missing Mass Selection Cuts

- HMS: H.cal > 0.7, H.cer > 2.0
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- SHMS: P.cal < 0.8, P.ngcer < 2.4
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- Timing: 1.5 < RF < 3.0, |CoinTime| < 2.0

Plan for the coming weeks

1. Do replays/ Root files for all the LD2 data sittings
2. PID study for the different sittings
3. Particle Efficiency Study
4. Particle Purity Study