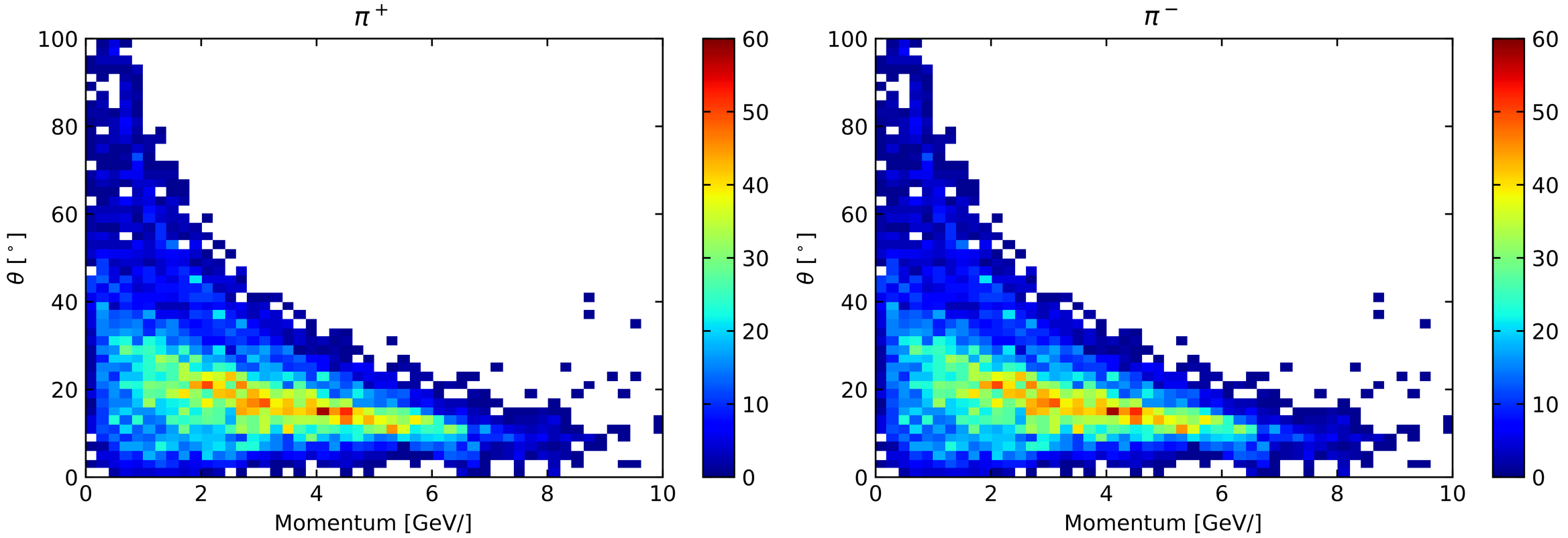
Preliminary $(\gamma, \rho^0 p)$ Studies

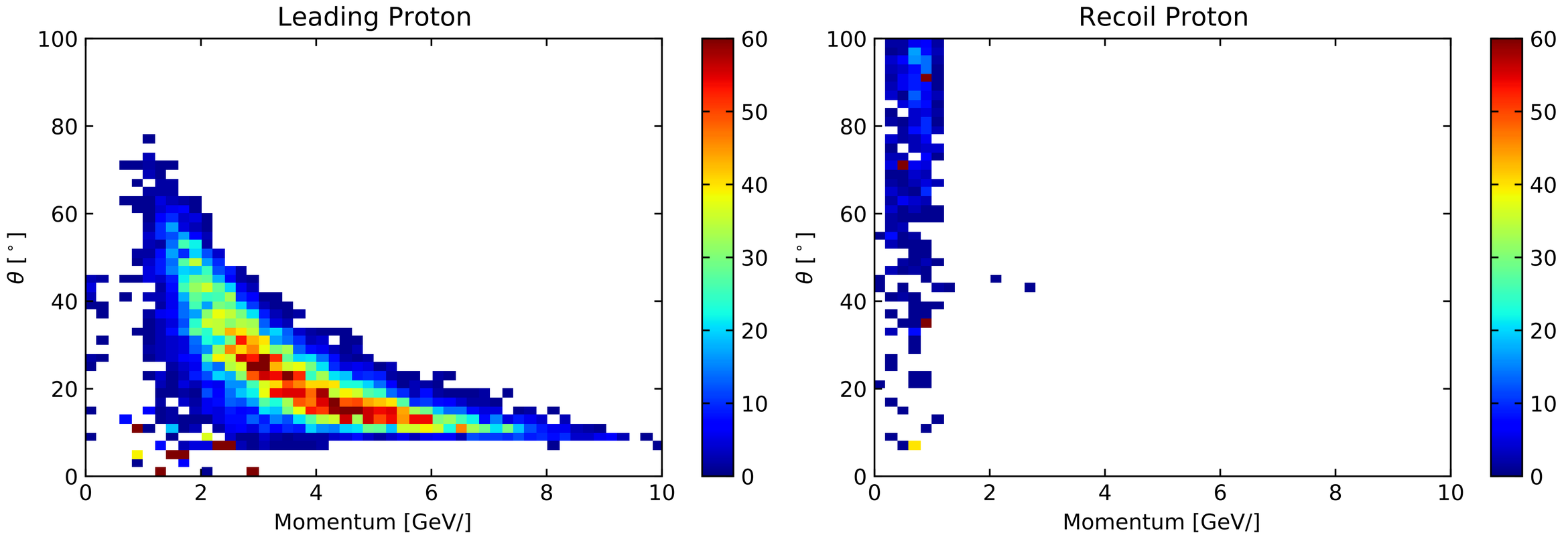
Progress Summary

- Implemented $\gamma + p \rightarrow \rho^0 + p$ cross section
- Implemented decay $\rho^0 \rightarrow \pi^+\pi^-$
- Assume isotropy in ρ^0 decay; ignoring polarization for now

Pion Kinematics

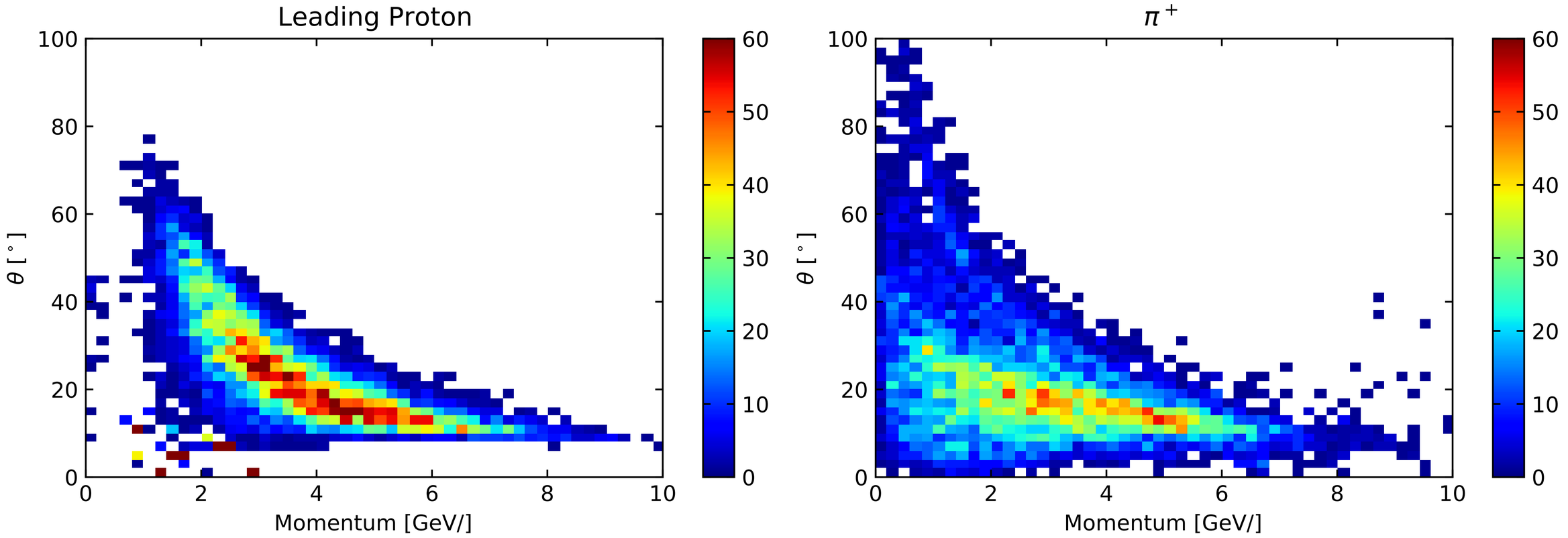


Proton Kinematics

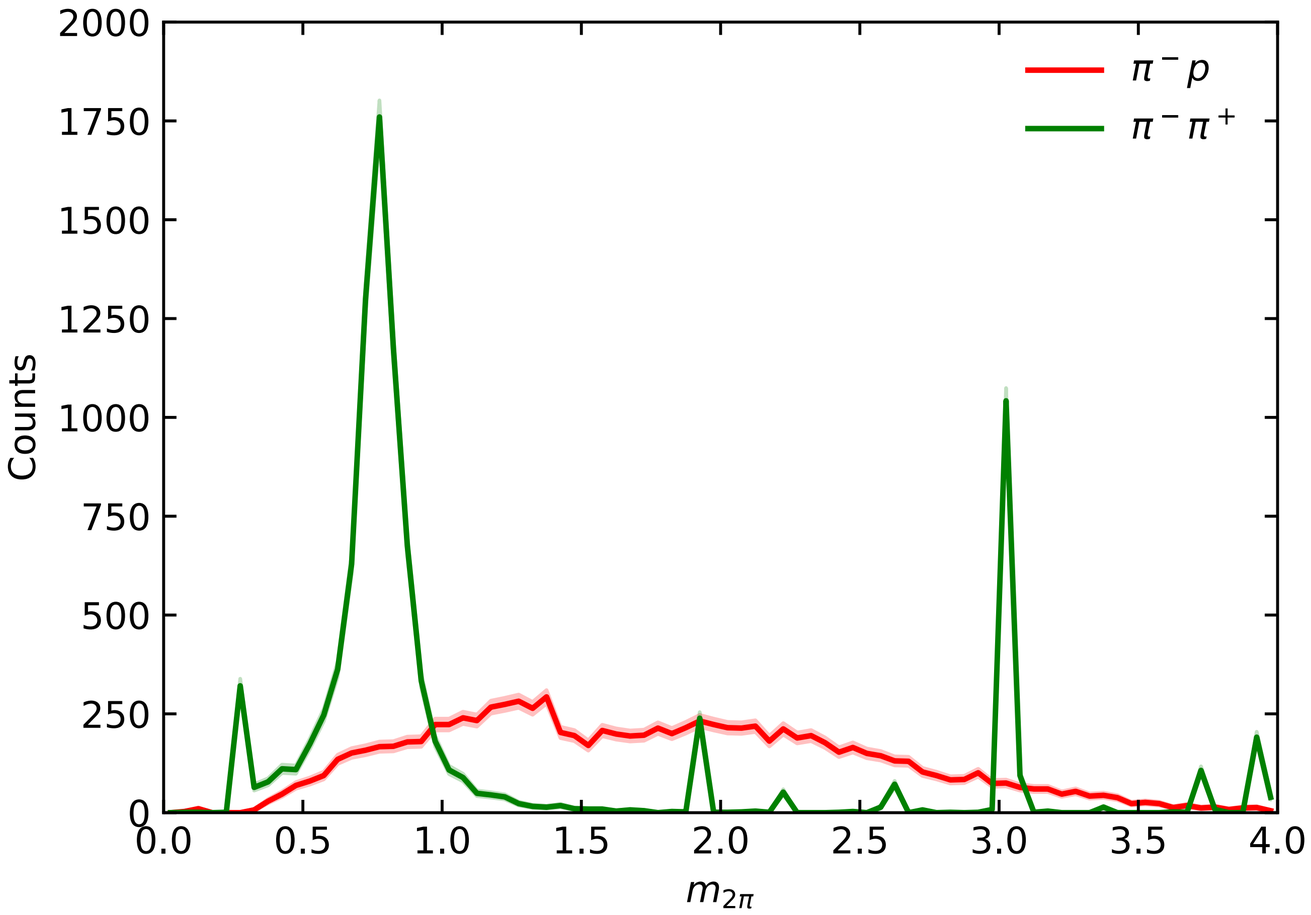


Recoil protons no longer abundant due to *np*-dominance

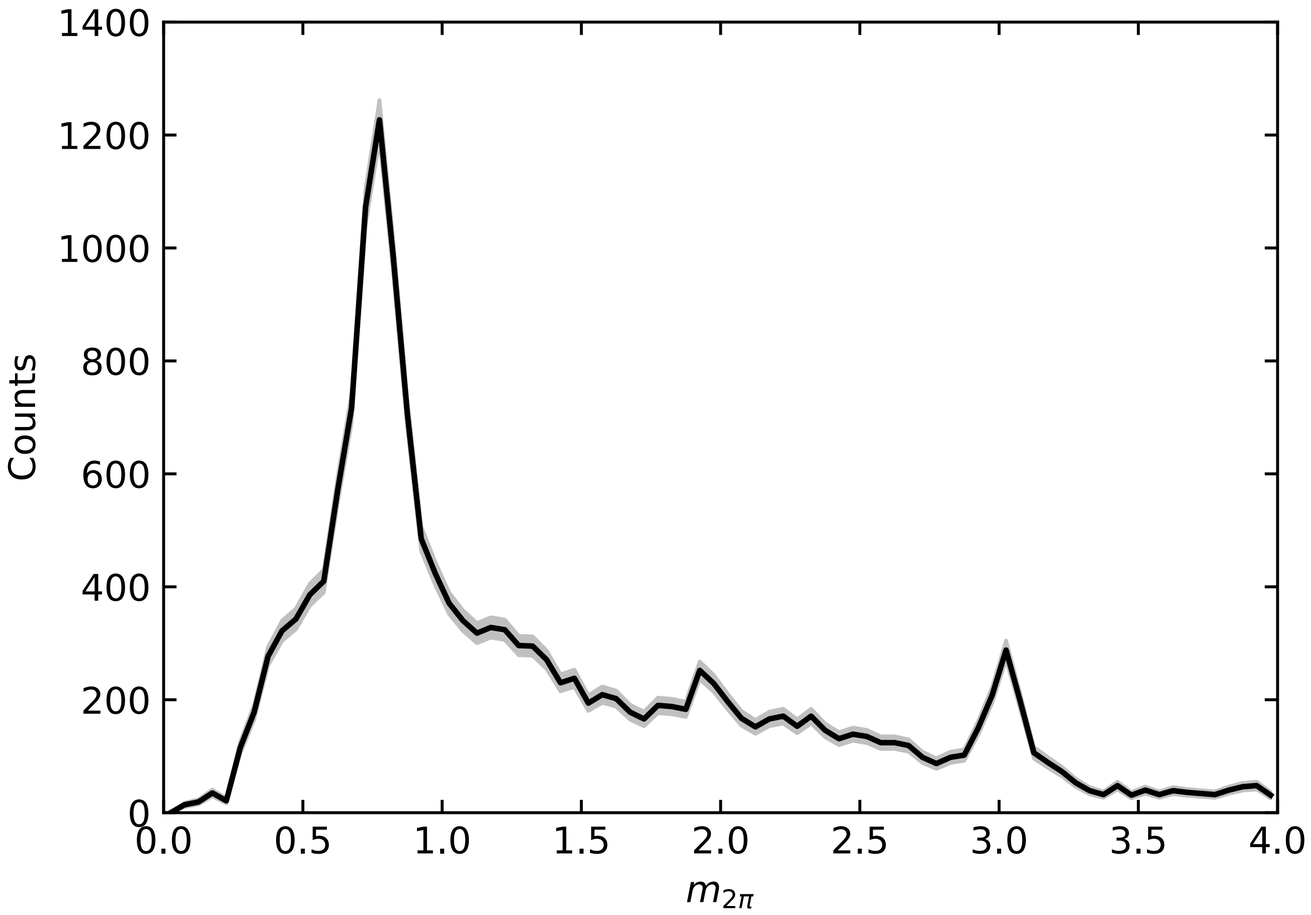
Current Challenge: $p - \pi^+$ Separation



Reconstructed ρ^0 Mass Spectrum



Examining all candidate 2π systems in reconstruction:



To Do

- Need to improve PID to distinguish p and π^+
  - Detector Information? (dE/dx, BCAL information, …)
  - Kinematics Observables?
- Perform similar studies in ρ^0 channel to previous writeup
- Examine leakage into apparent $(\gamma, \pi^- p)$ signal