# Current GlueX Analysis Status

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Analysis Method

- (Fixed environmental variable issues; software working correctly)

- Looked at events with 3 charged tracks: 2 positive, 1 negative

- Examined both charged particle hypothesis in the case of two ambiguous positive particles

- Required $E_p + E_{\pi-} + E_{\pi+} > 6$ GeV

- Ignored dE/dx and photon information for now

2-Pion Mass for All Hypotheses
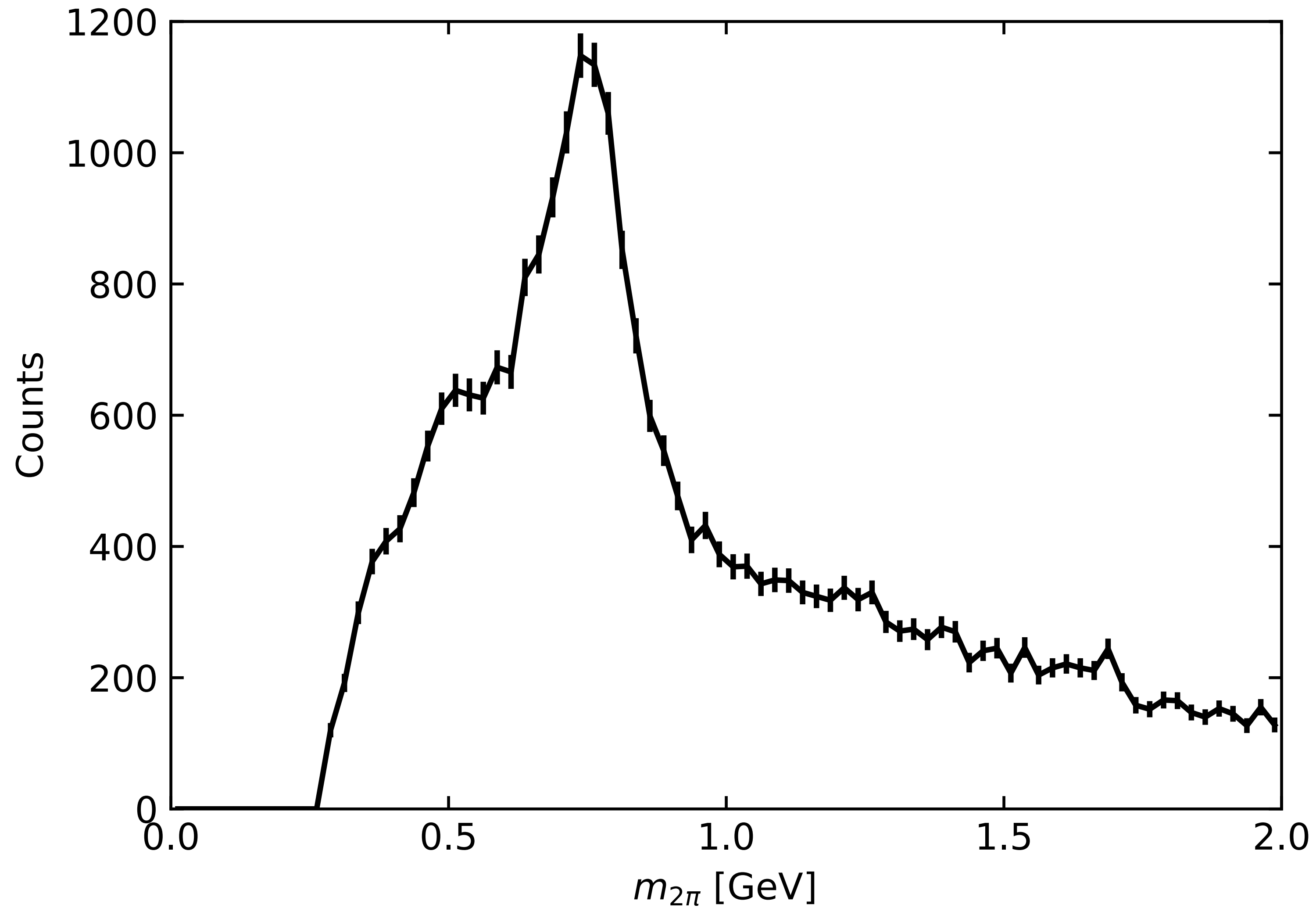
Mandelstam t for All Hypotheses
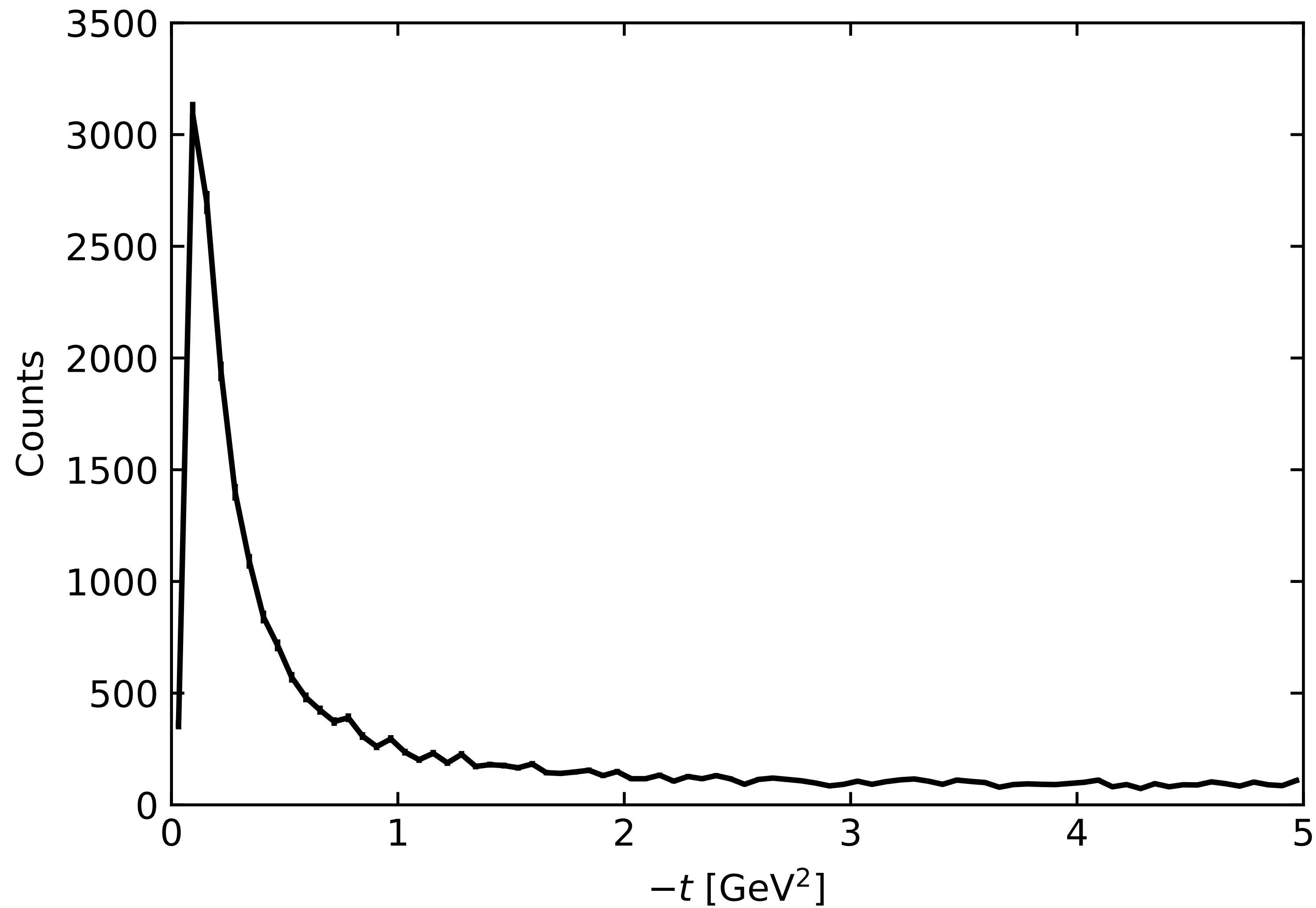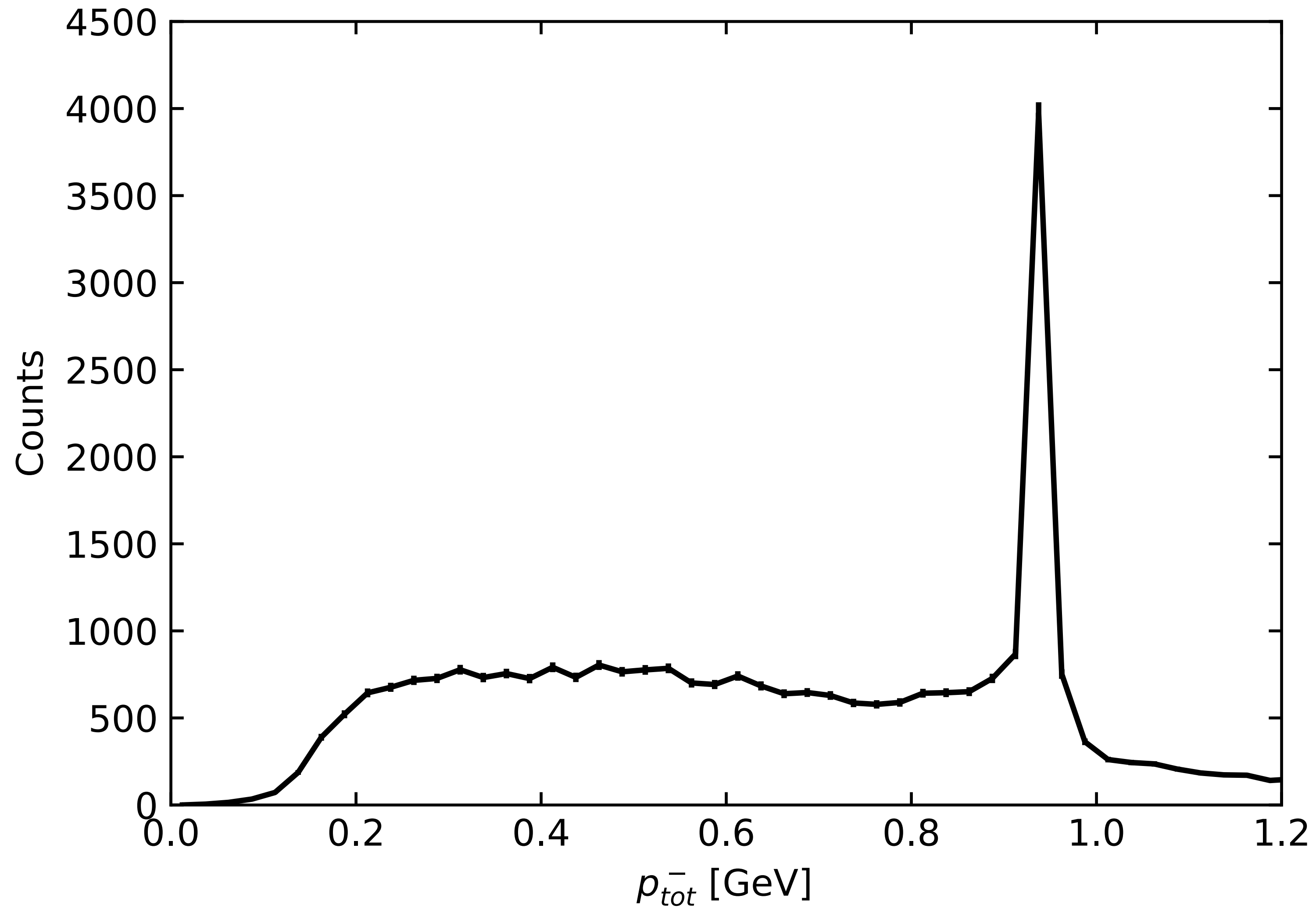
Significant Signal Leakage

- Applying cuts to reduce events with misidentified or undetected particles

- Without examining the photon information (many candidates), we can look at $p_{tot}^{-} = E_{tot} - p_{z,tot}$ for the final state

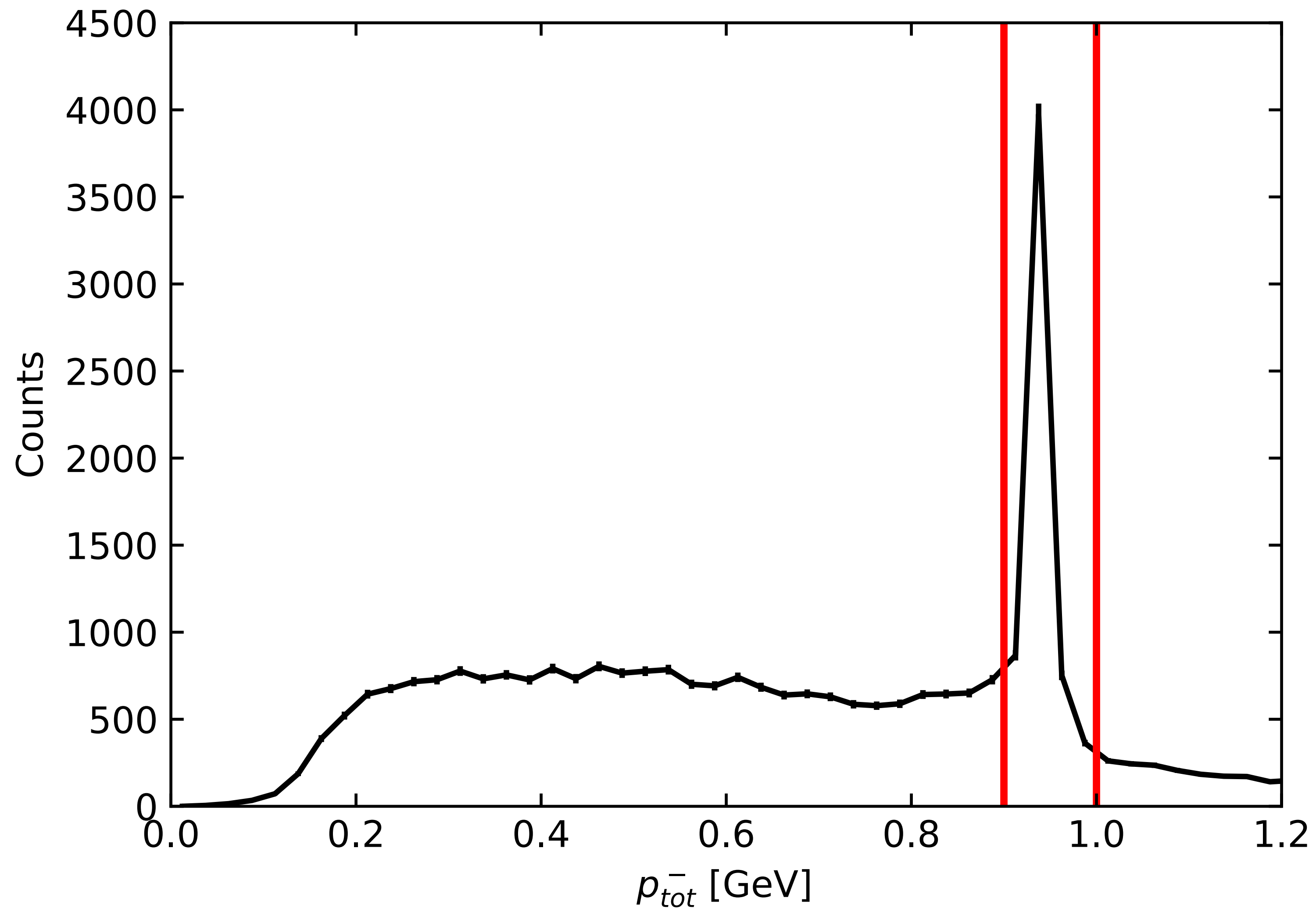- For $\gamma p \to \rho p \to (\pi^{+}\pi^{-})p$ we expect:

$$E_{tot} - p_{tot} = E_{\gamma} + m_{N} - E_{\gamma} = m_{N}$$

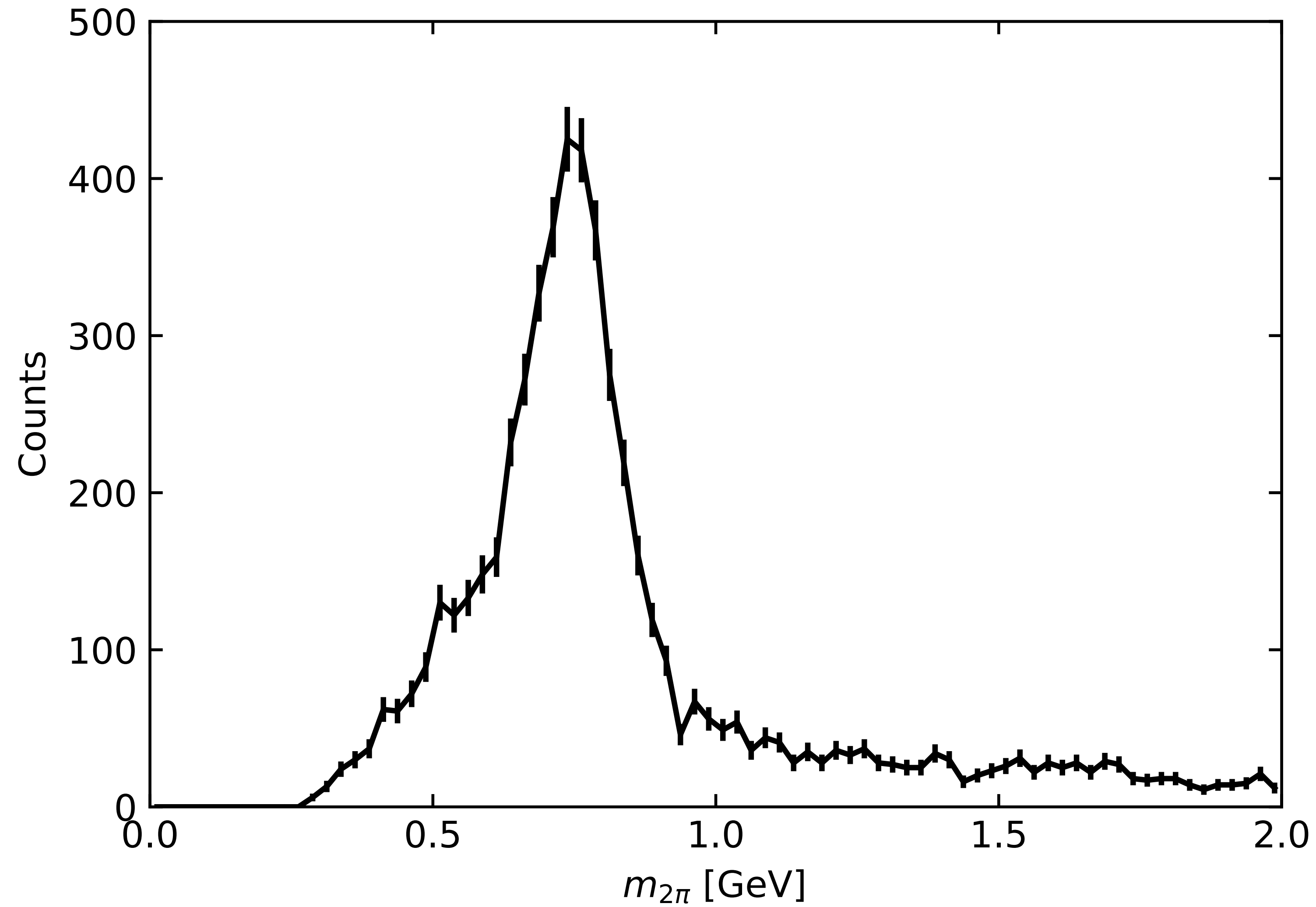- 4-momentum conservation should give a sharp peak for exclusive reaction

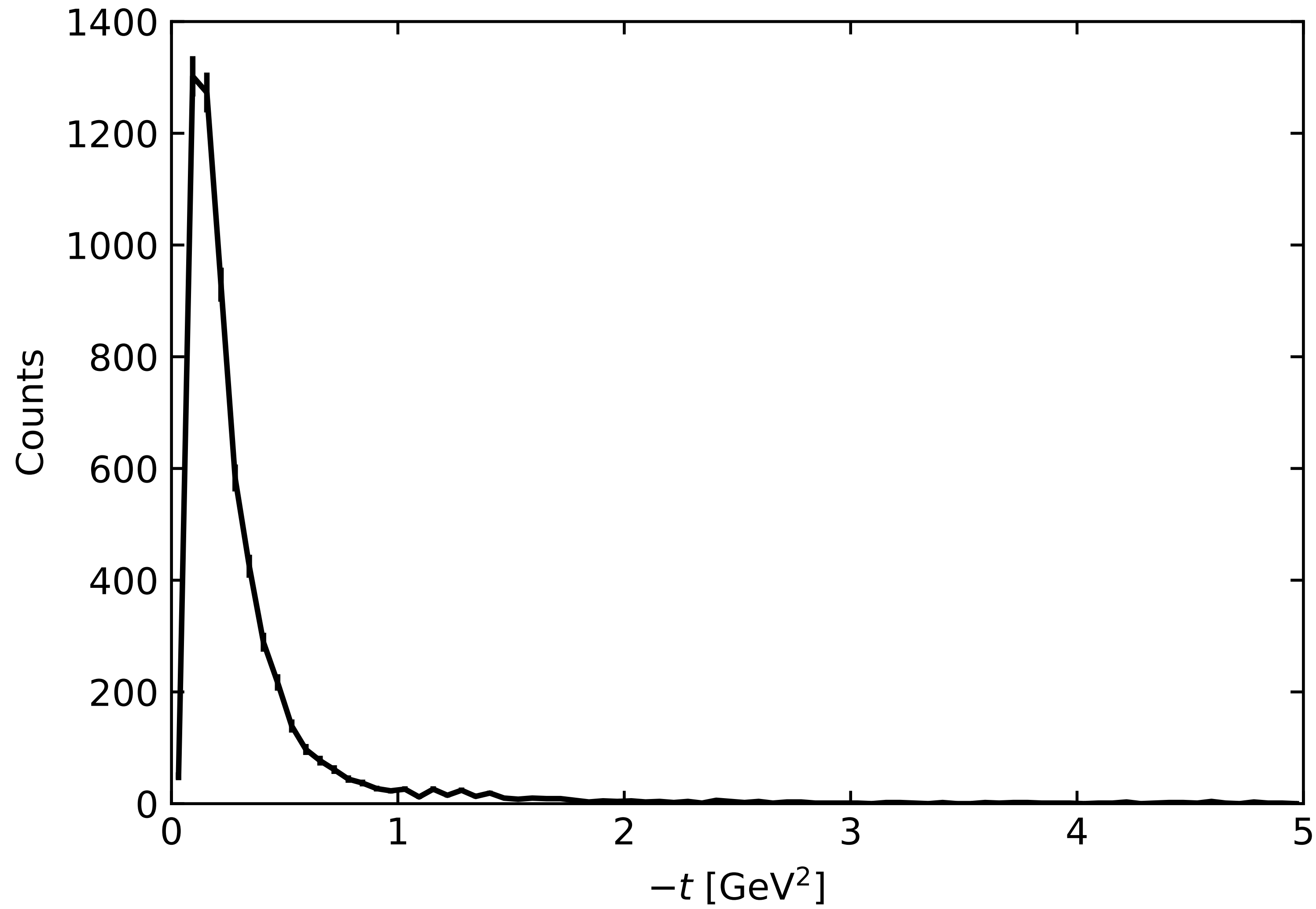# 4-momentum Conservation Peak

Cut on peak: $0.9 < p_{tot}^- < 1.0$ GeV

2-Pion Mass After Cut

Mandelstam t After Cut

Caveats:

- This method requires exclusivity, which will not be the case in the SRC@GlueX run

  - Can be substituted by assuming a standing pair and calculating expected recoil + remnant momenta

- These events with low-$|t|$, low-E_p; tracking is more discriminating in this case for the proton, reducing misidentification