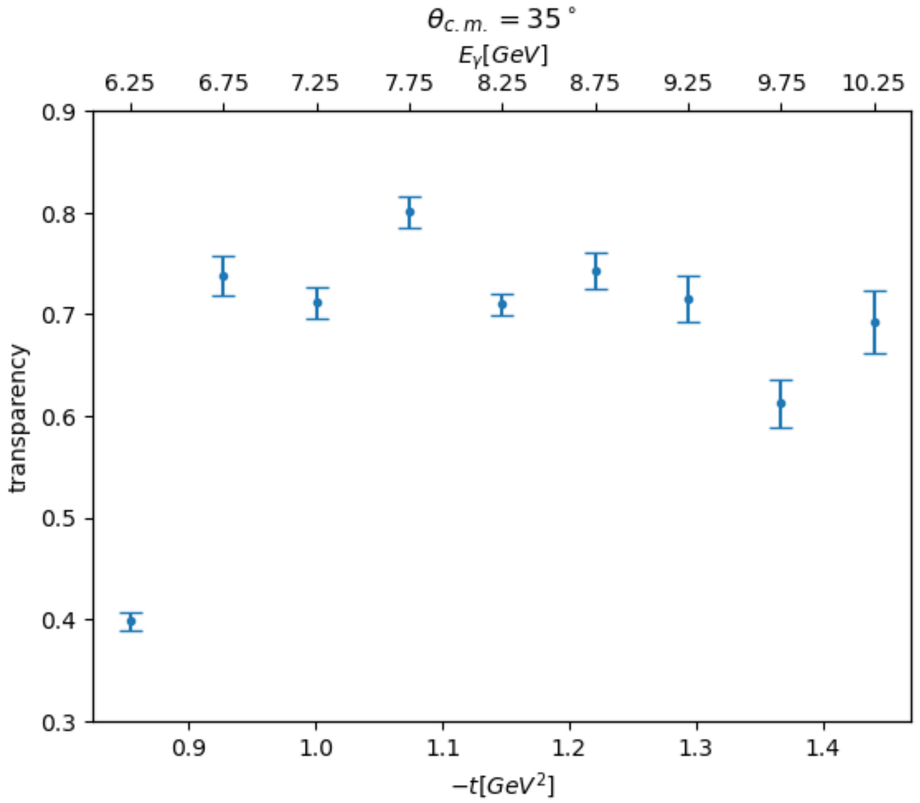
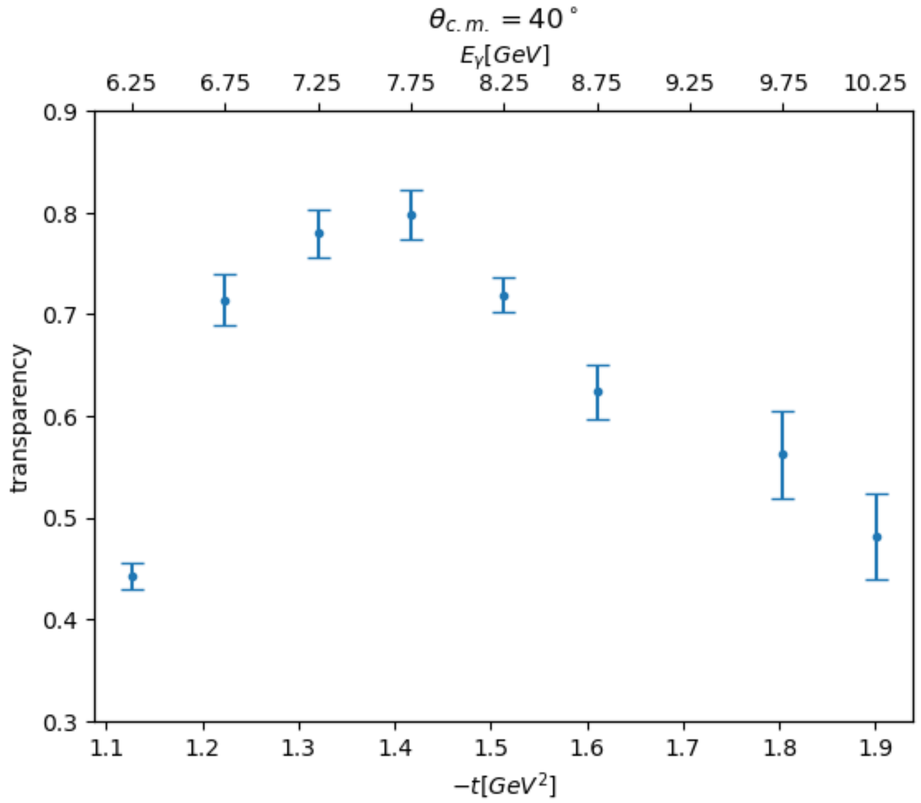
Nuclear transparency with $\gamma n \rightarrow \pi^- p$ channel

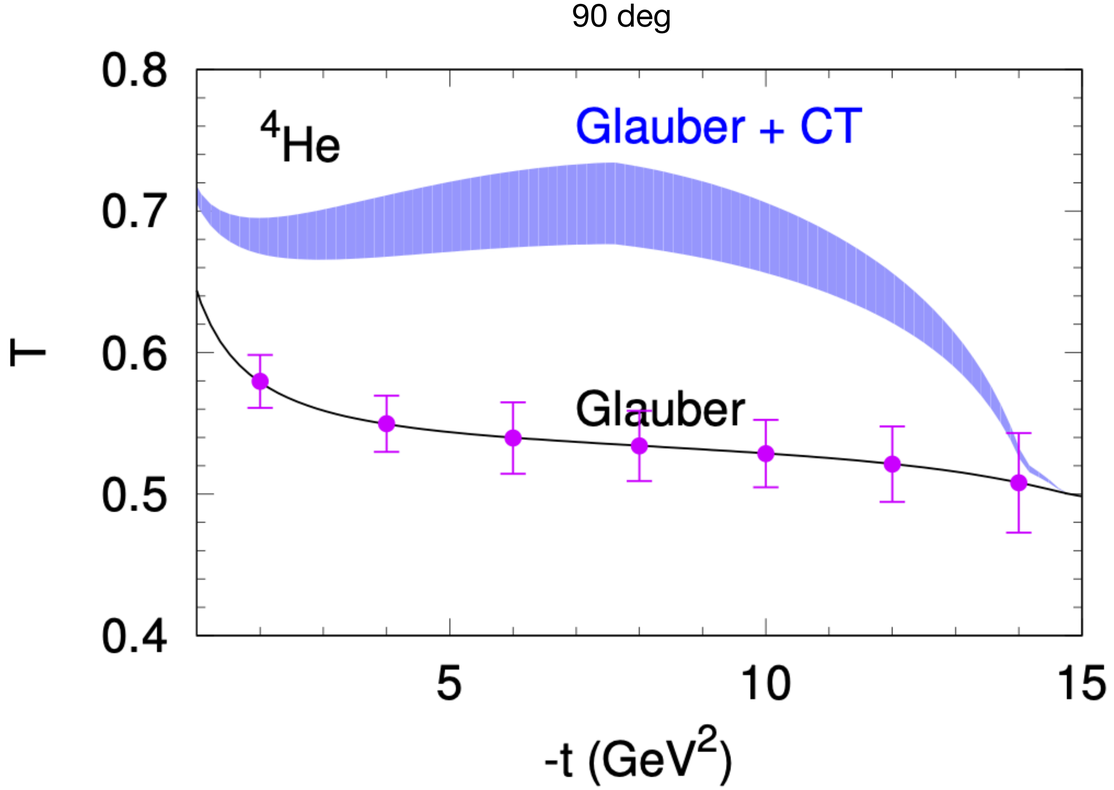
- Transparency on helium at larger angles
- Fitting converged by tweaking the fitting process
- First data point at 6.25 GeV is systematically deviating

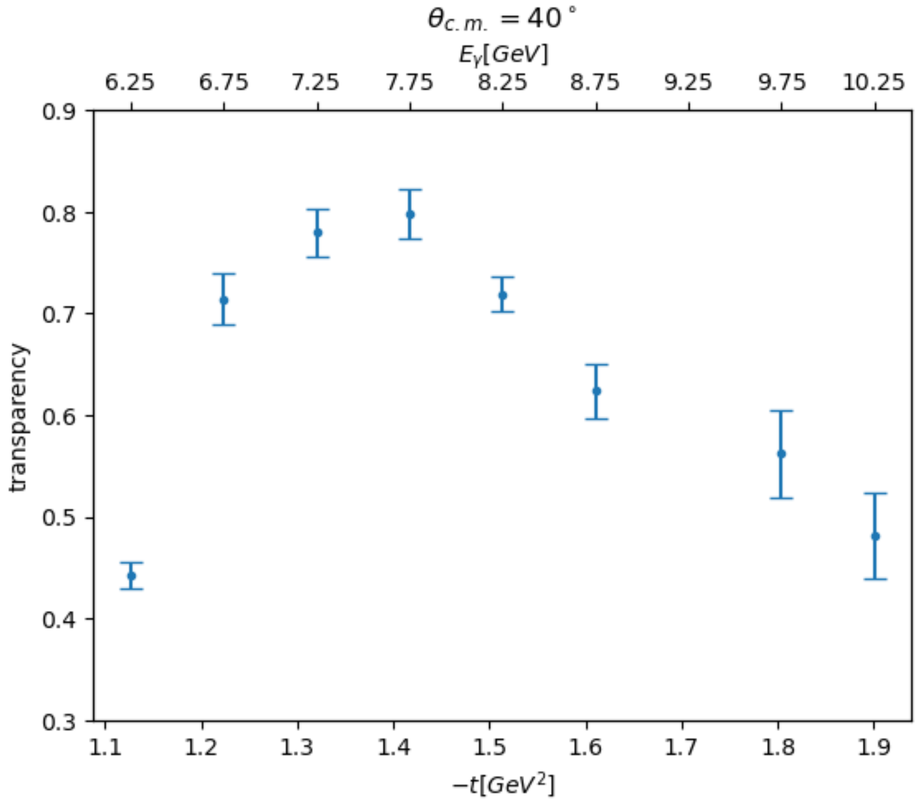




Nuclear transparency with $\gamma n \rightarrow \pi^- p$ channel

- Compared with theoretical calculations in the proposal



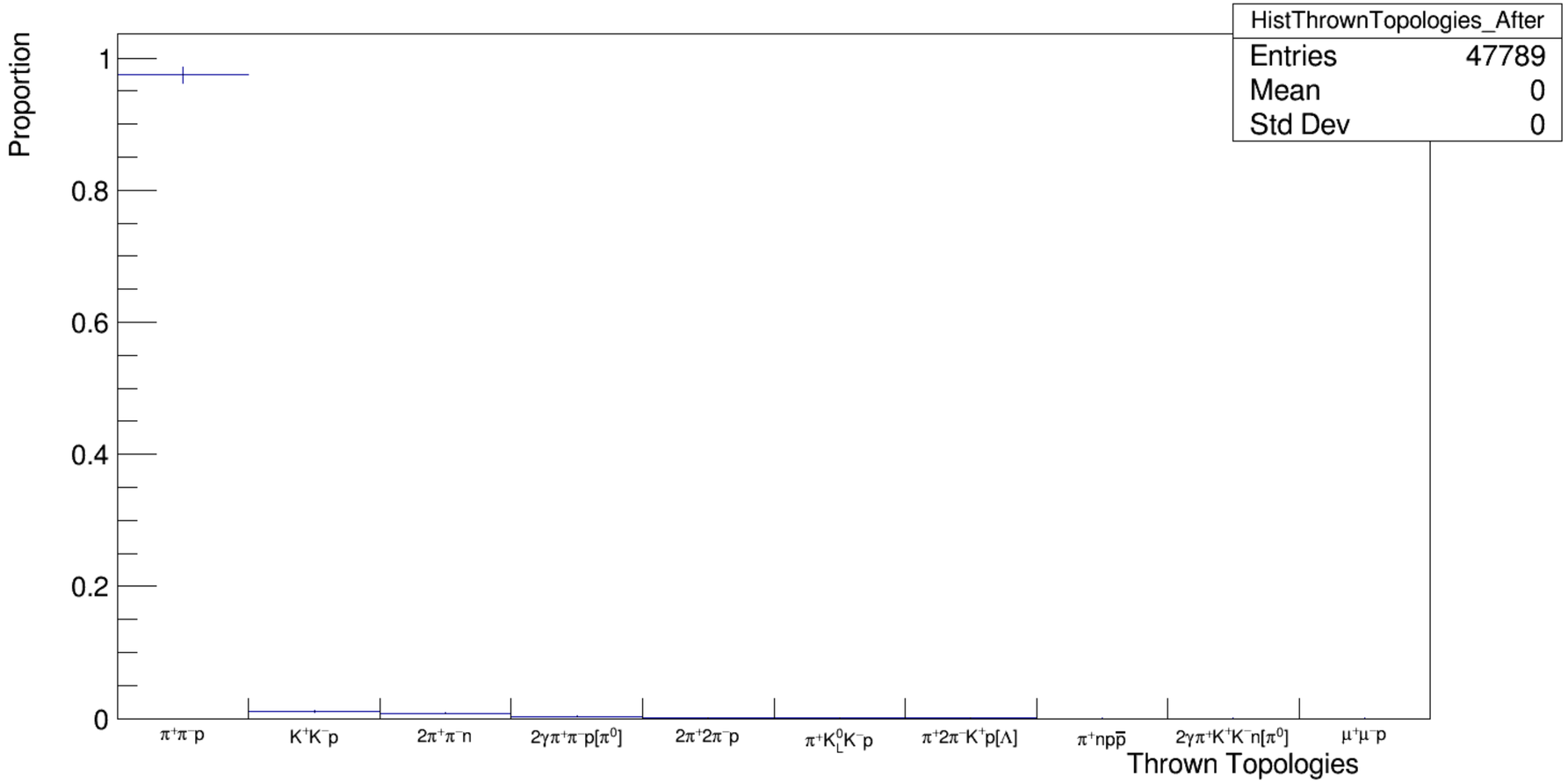


Background simulation study

- Bggen event generator from GlueX simulation package
- Simulation of photoproduction of hadronic background based on Pythia
- Simulated events processed with the same cuts as the data
- Currently showing simulation on protons in He-4

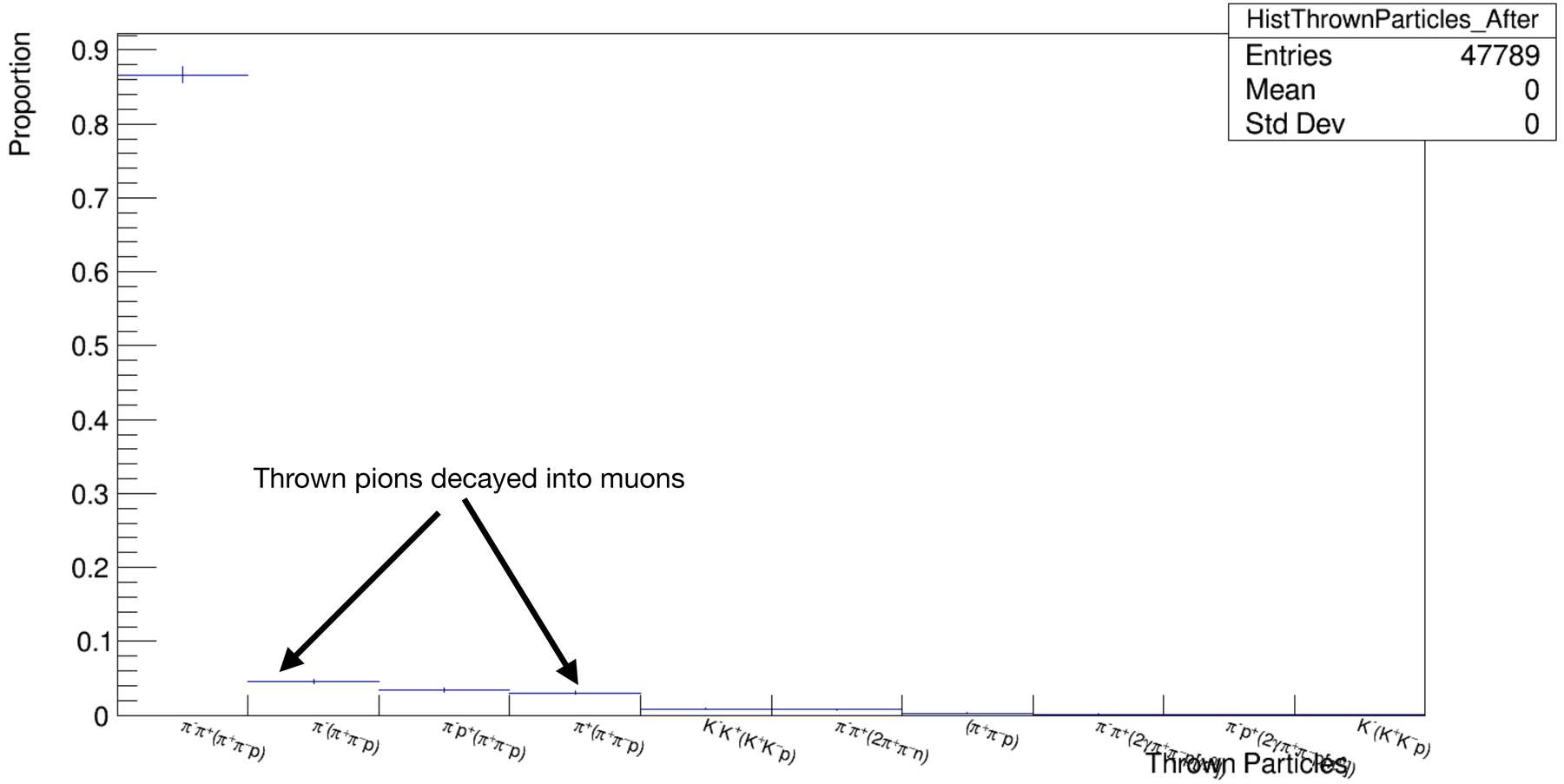
Thrown topology of survived events

- Signal channel is $\gamma n \rightarrow \pi^{-} p$
- Dominant background is $\gamma p \rightarrow \rho^{0} p \rightarrow \pi^{+} \pi^{-} p$



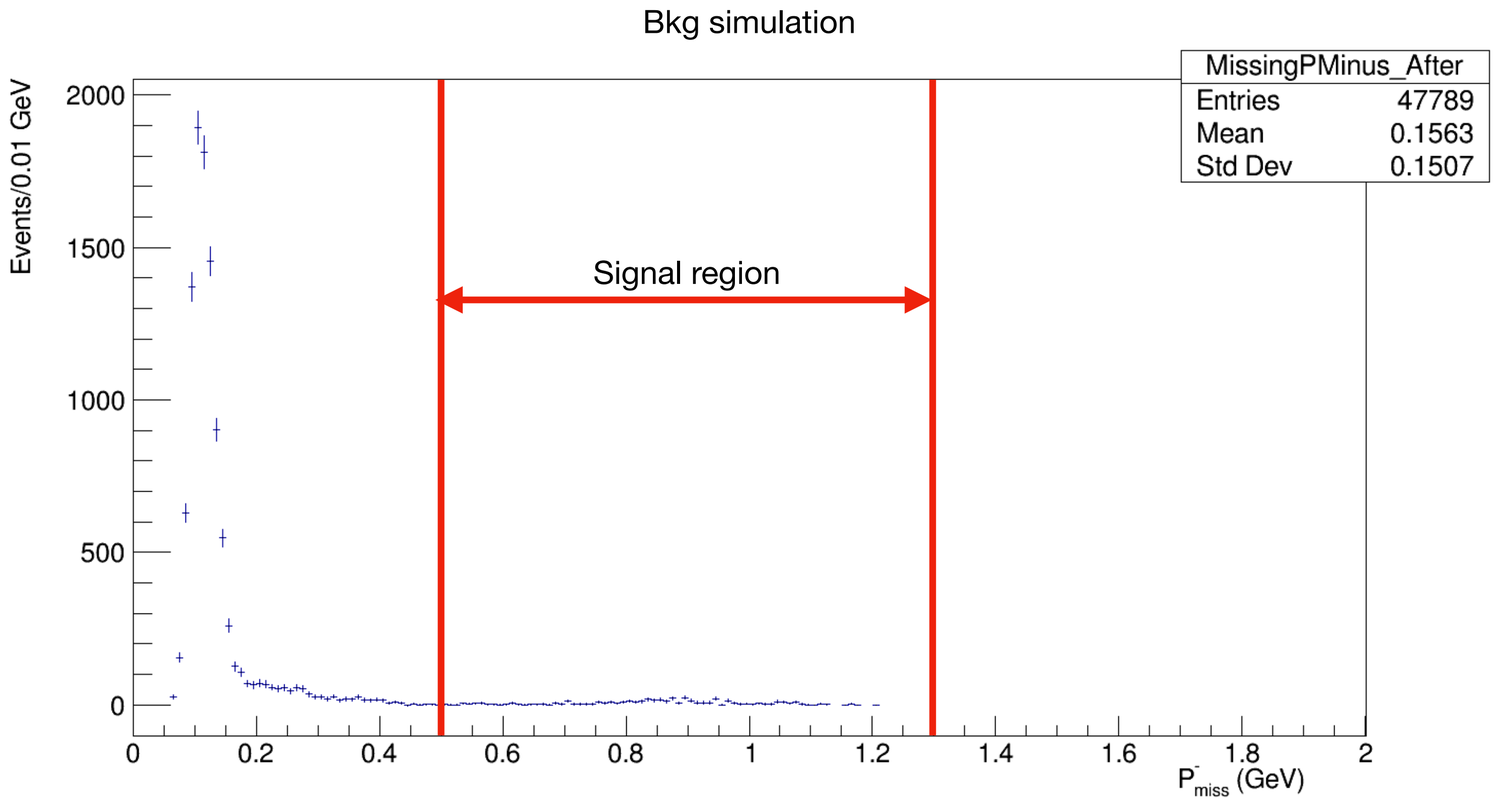
Thrown PID of survived events

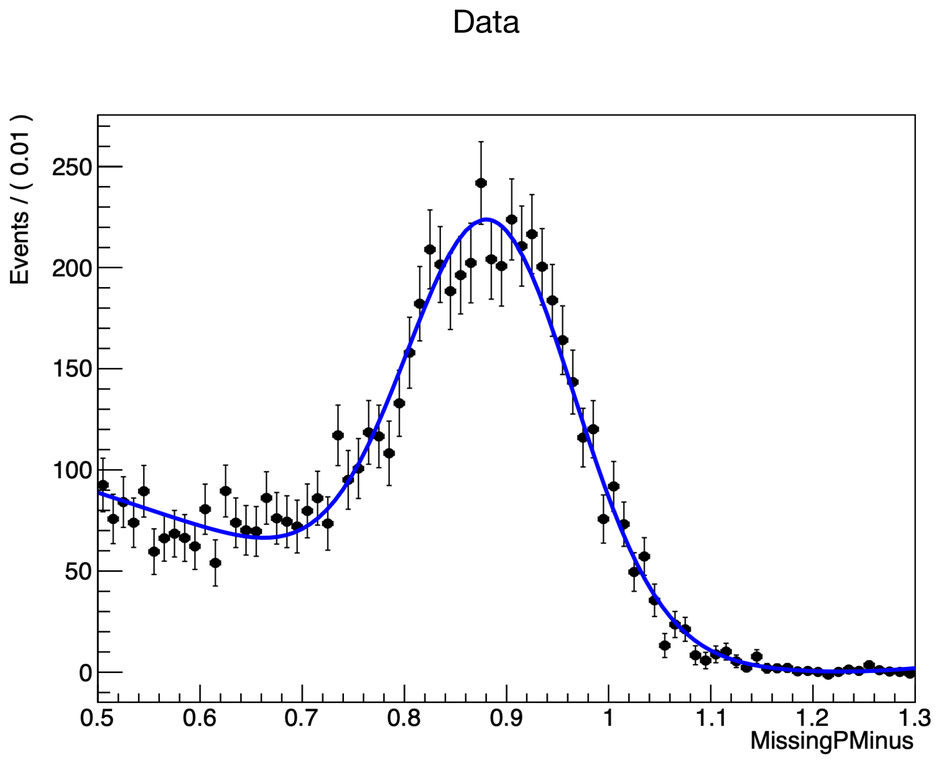
- Misidentification of π^+ as p dominates
- Spectator p goes undetected



Distribution of the observable P^{-}_{miss}

- Contributes to the background tail in the signal region
- Simulated events are dominantly in the low t region





Invariant mass with $\pi^-\pi^+$ hypotheses

- Peaked around $m_{\rho^0} = 775$ MeV