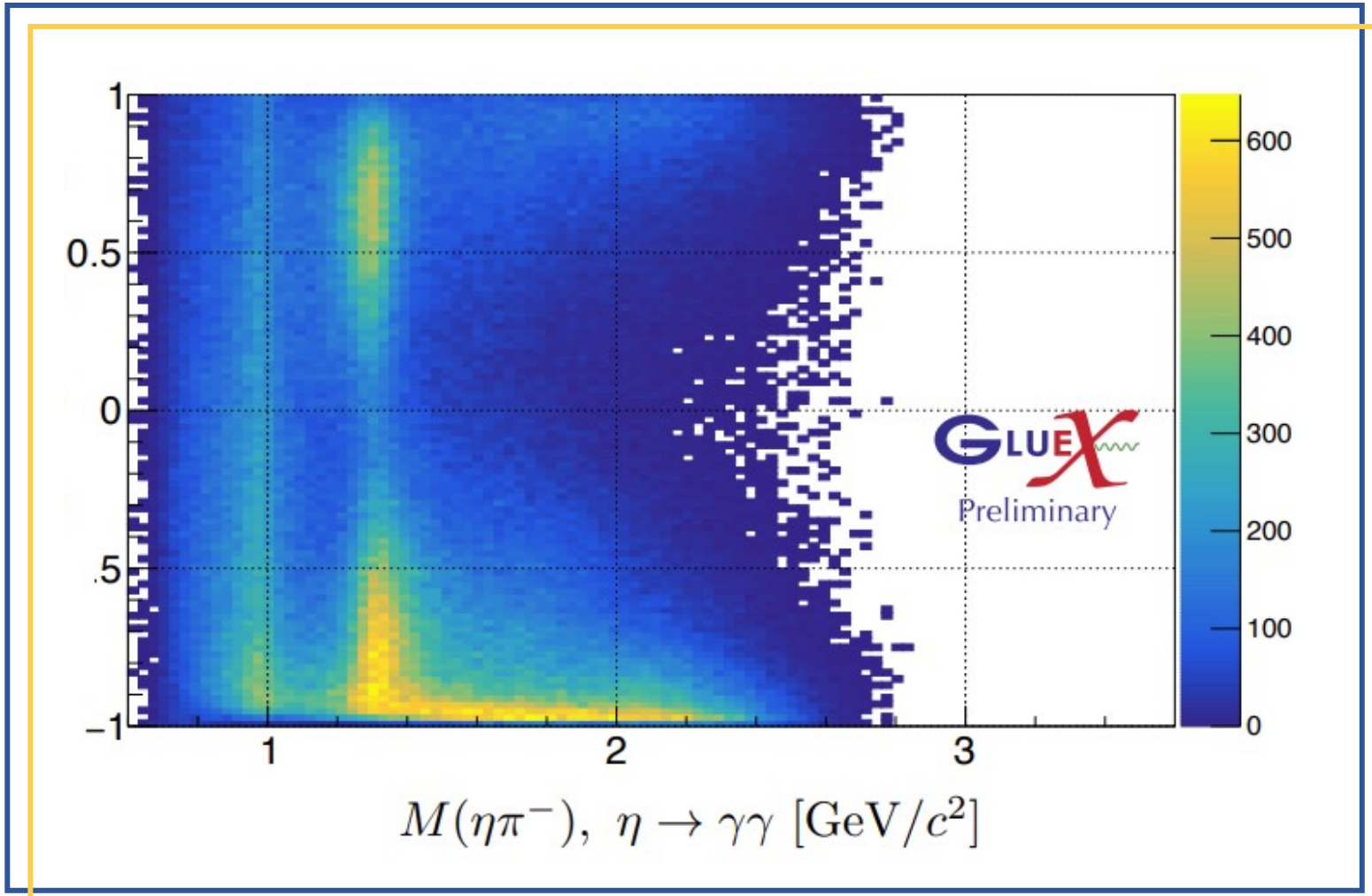
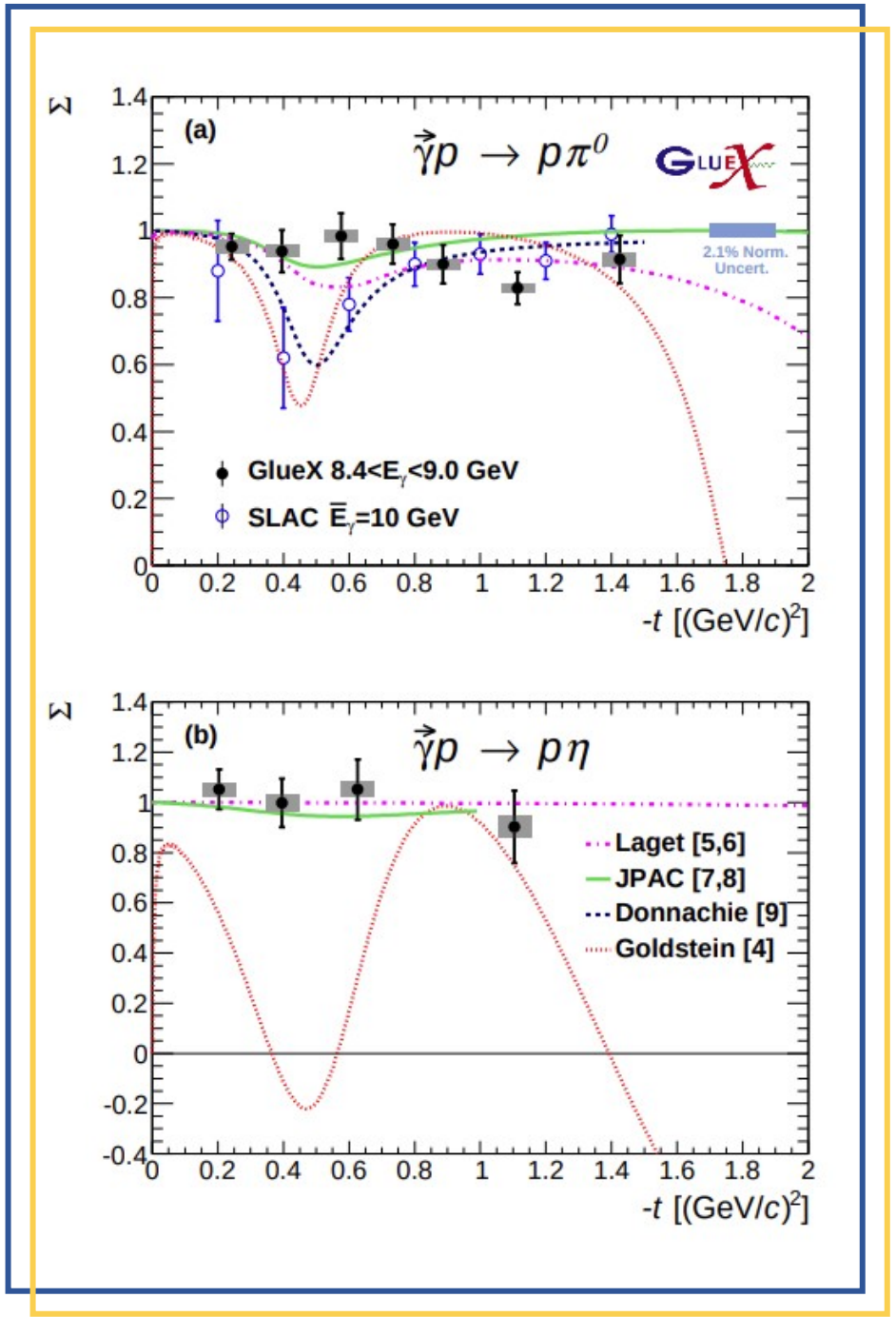
GlueX & CLAS12

- Searching for $\eta\pi^-$ channel in order to investigate exotic mesons production
- Seen at GlueX; ongoing partial wave analysis



GlueX & CLAS12

- Searched for $\gamma + p \rightarrow \pi_0 + p$ reaction at Gluex
- Discrepancies in beam asymmetry were found between GlueX & SLAC results

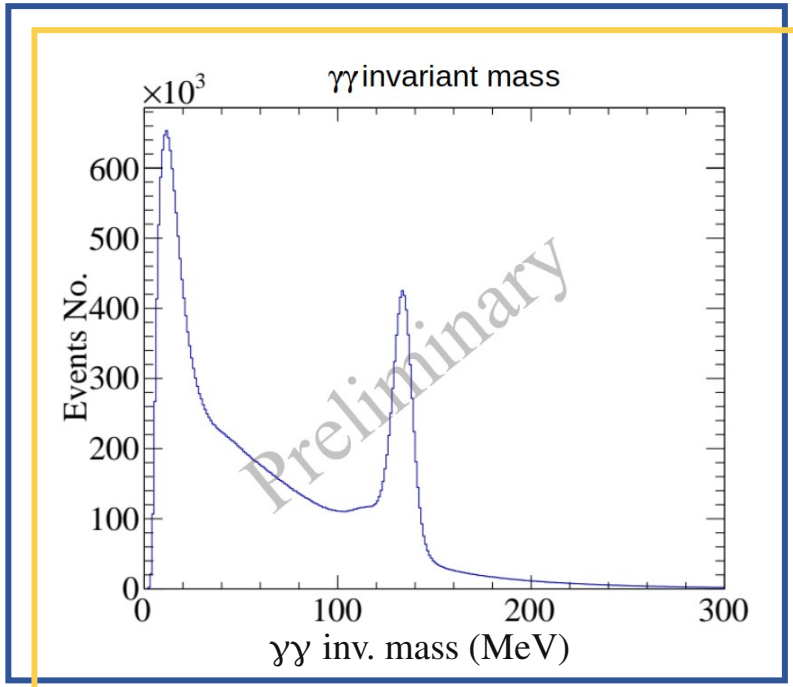


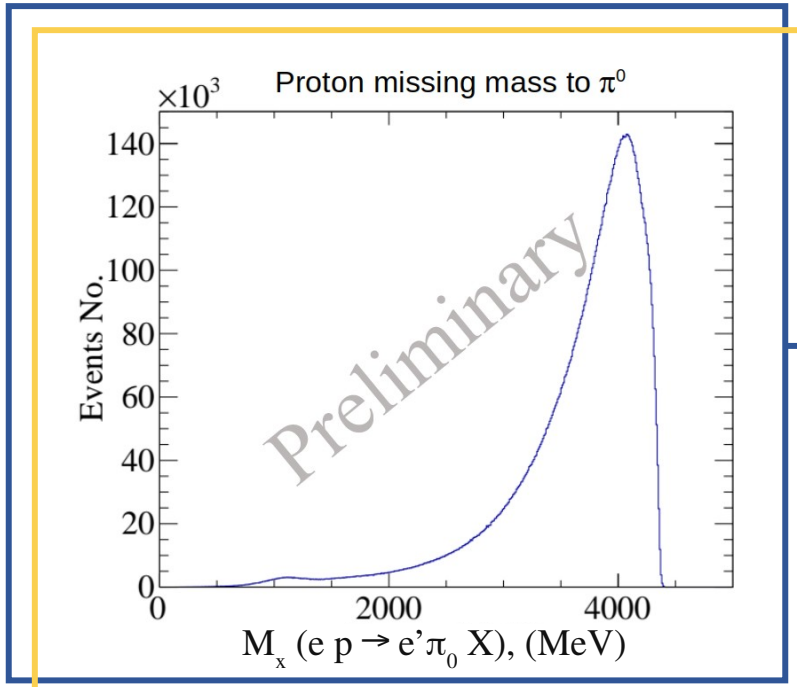
GlueX & CLAS12

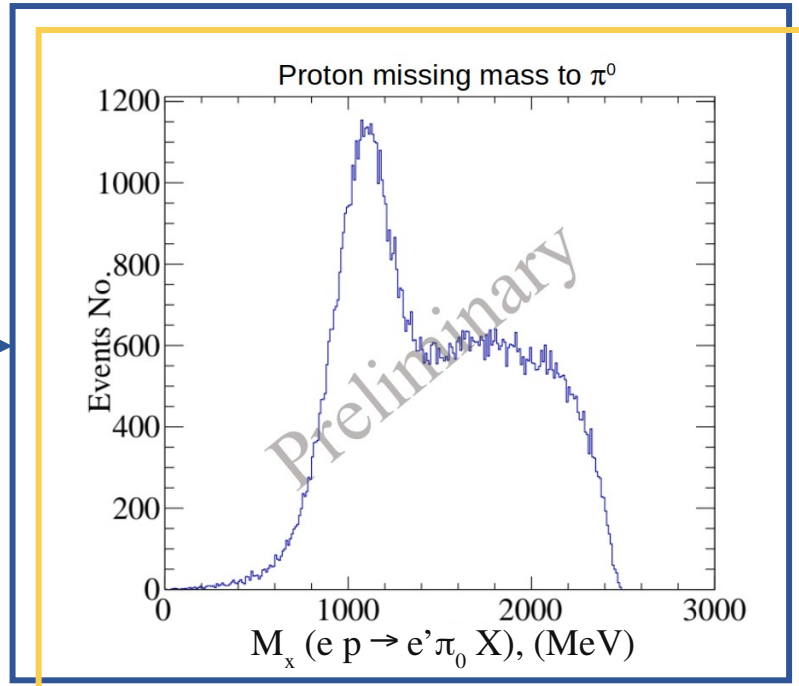
- Searched for $e + p \rightarrow e + \pi^0 + p$ reaction in CLAS12, using RG-A Fall 2018 dataset.
- 2γ system invariant mass and proton missing mass are shown, respectively.

Objective:
Differential cross section $d\sigma/dt$ measurement.

Reaction Identification:
1 electron and 2γ (E_γ = 500-8500 MeV) detected in Forward Tagger, with 2ns coincidence in detection time. π^0 reconstructed via 2γ system invariant mass. Proton reconstructed via missing mass to π^0.







GlueX & CLAS12

- Exclusive π_0 channel signal is extremely low compared to full datas.
- Cinematic selections were implemented to get a better Shot/Noise ratio for the proton peak.

Kinematic Cuts:

1) Invariant mass between π_0 peak centroid +/- 3σ

2) Sum of the two photons momentum between 5.5 and 10 GeV

3) Energy of the virtual photon between 3 and 9

4) No coincident charged or neutral particle detected in Central Detector and Forward Detector