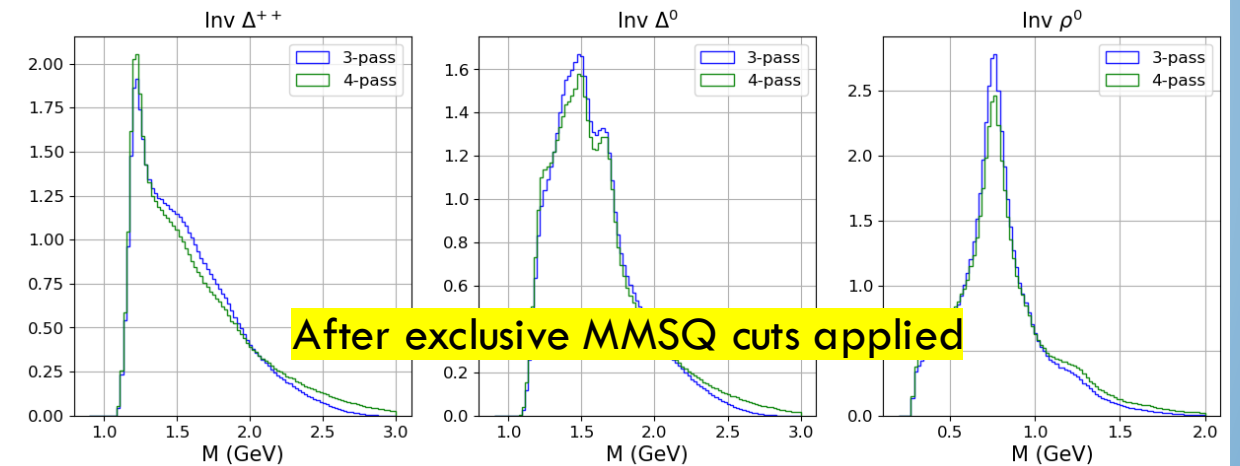
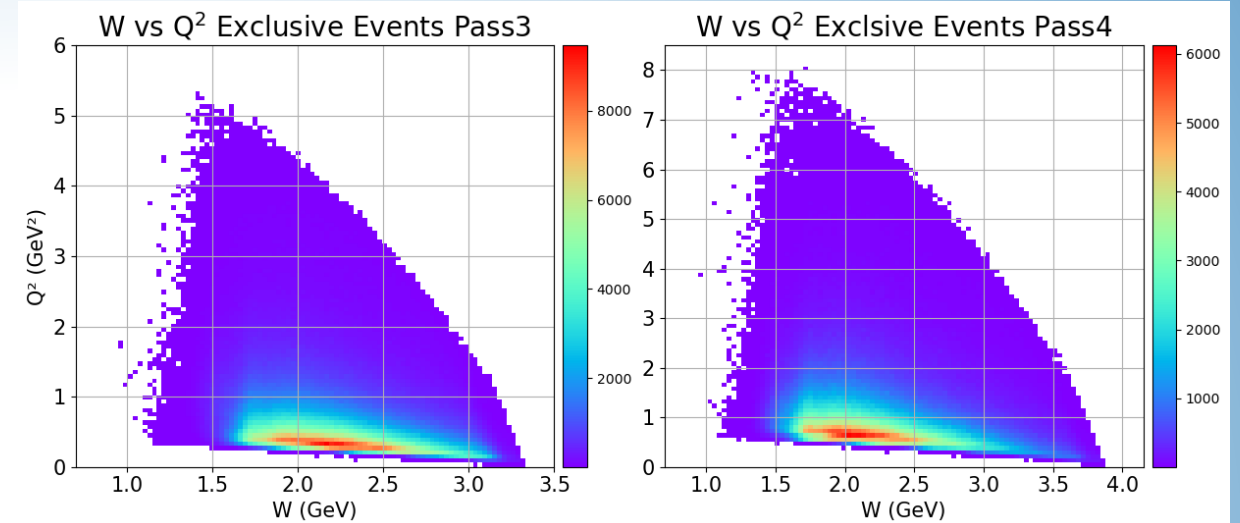
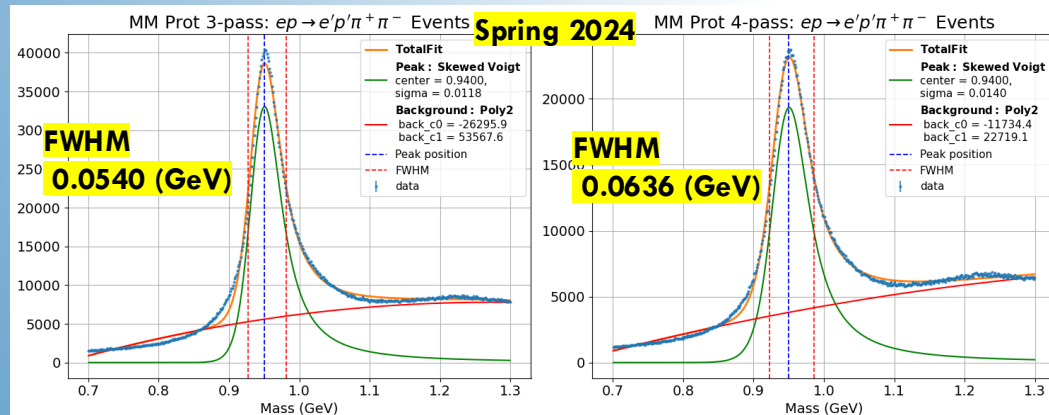
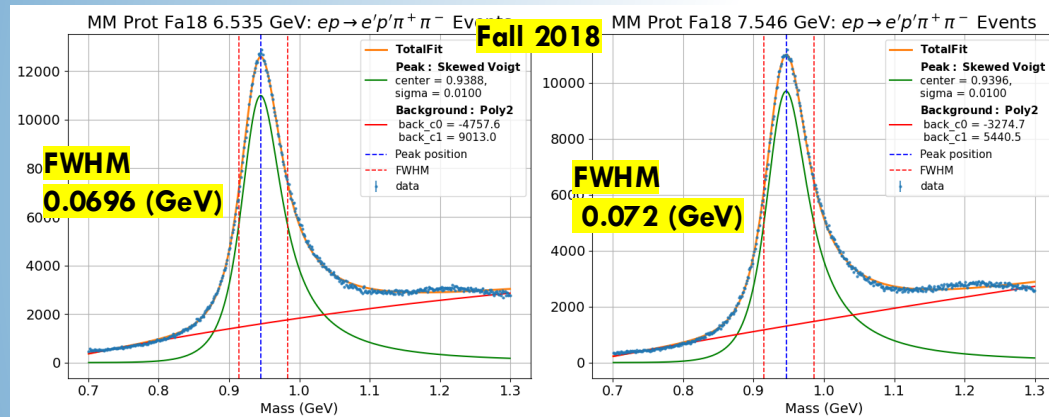


RGK Double-Pion Analysis

Krishna Neupane
CNF, JLab

- Double pion Channel, exclusive topology: $ep \rightarrow e'p'\pi^+\pi^-X$ is used
- **Both FD+CD** hadrons allowed
- Only **event builder pid** cuts are applied
- Peak fit: **Skewed Gaussian**, background: **2nd order polynomial**



Summary:

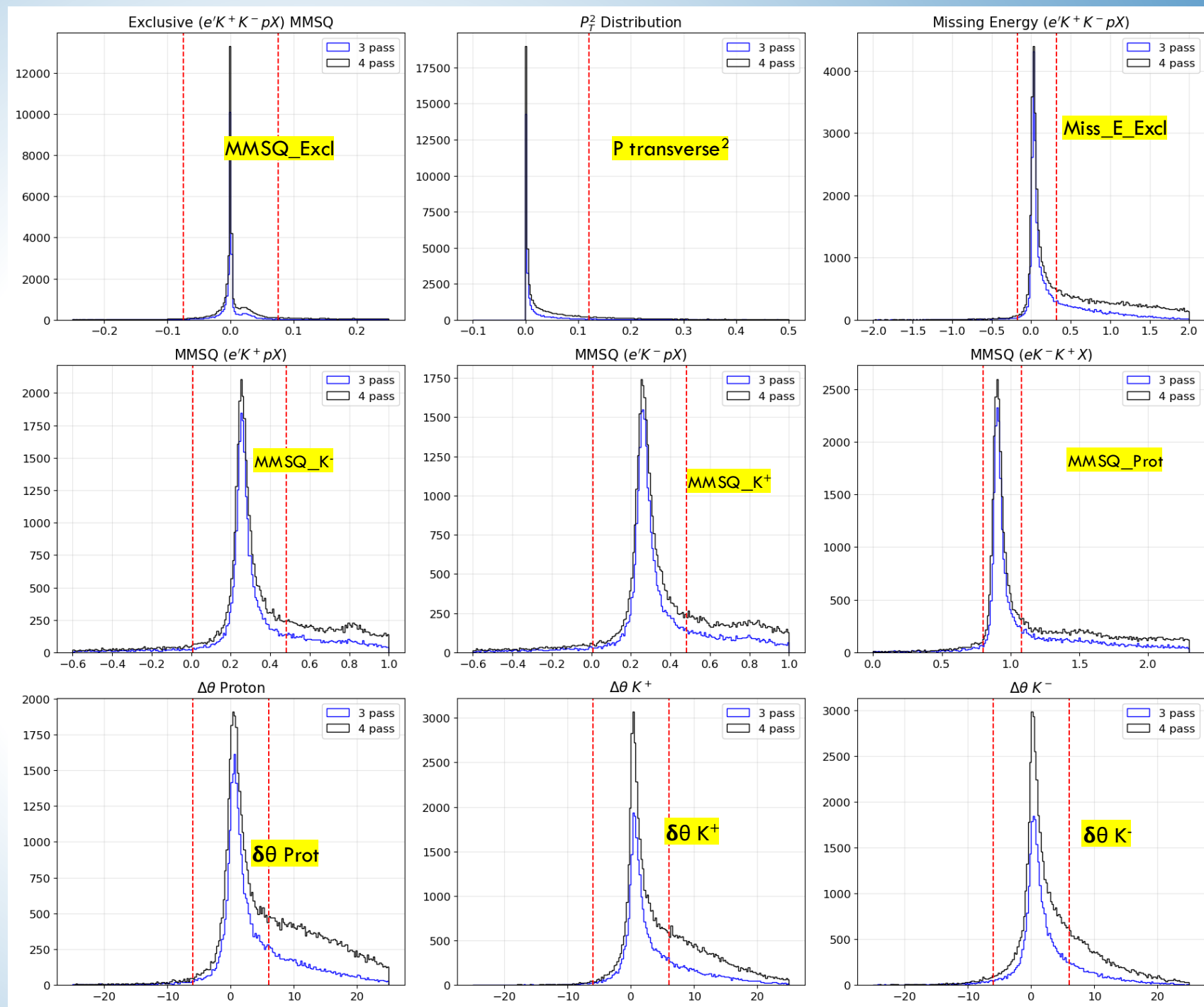
- RGK 3 and 4 pass data look great for double-pion channel analysis.
- Missing Mass peak resolution are much better than RGK Fall 2018 pass2 data.

RGK ϕ -Analysis

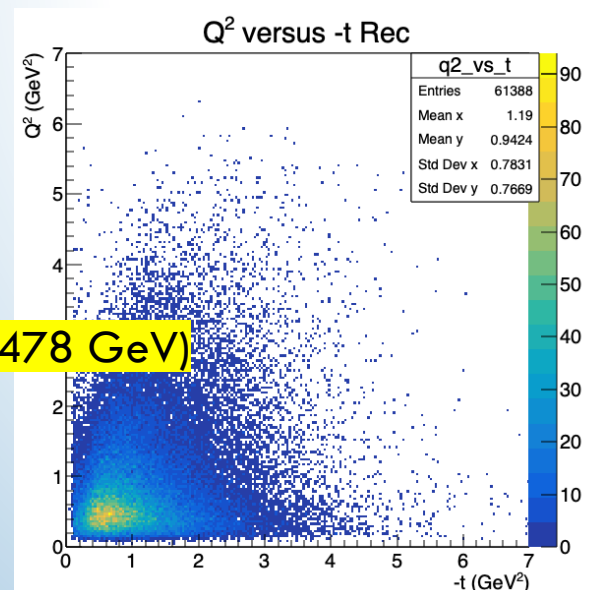
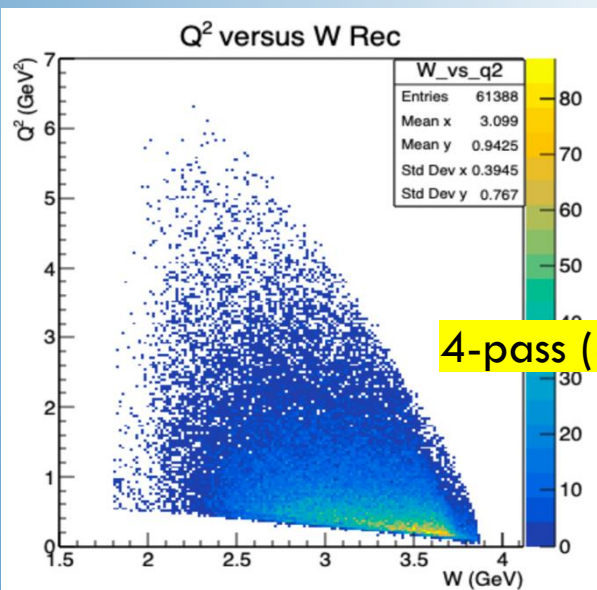
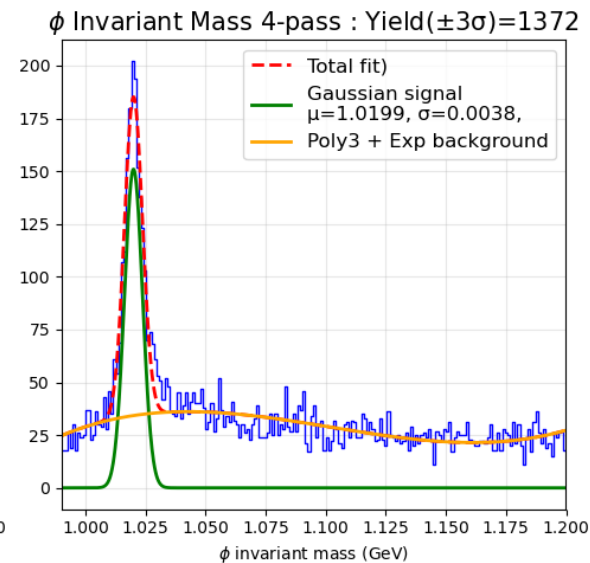
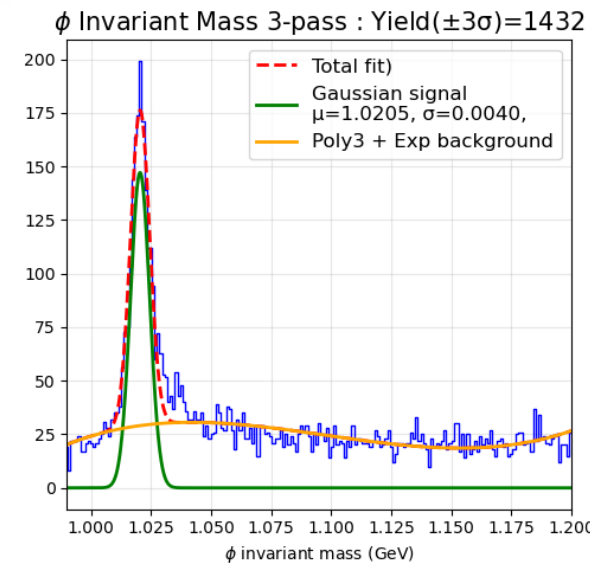
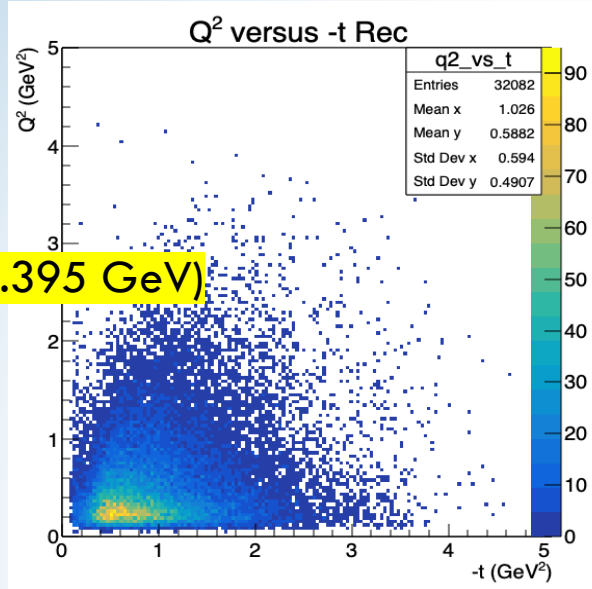
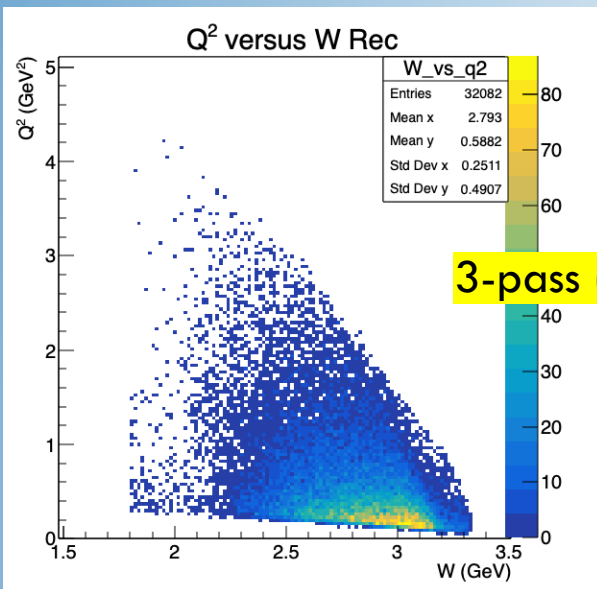
- 4 cooked runs from 3-pass and 4-pass are taken for this study
- Skim7, exclusive topology $ep \rightarrow e'p'k+k-X$ is used
- Both FD and CD protons are included
- Only FD electrons and Kaons are included

Exclusivity cuts:

- $-0.075 < \text{MMSQ_Excl} < 0.075 \text{ GeV}^2$
- $P \text{ transverse}^2 > 0.12 \text{ GeV}^2$
- $-0.175 < \text{Miss_E_Excl} < 0.32 \text{ GeV}$
- $0.8 < \text{MMSQ_Prot} < 1.08 \text{ GeV}^2$
- $0.008 < \text{MMSQ_K}^+ < 0.48 \text{ GeV}^2$
- $0.008 < \text{MMSQ_K}^- < 0.48 \text{ GeV}^2$
- $-6 < \delta\theta \text{ Prot} < 6 \text{ (deg)}$
- $-6 < \delta\theta \text{ K}^+ < 6 \text{ (deg)}$
- $-6 < \delta\theta \text{ K}^- < 6 \text{ (deg)}$
- The Coplanarity angle between $(\gamma^*-\phi)$ plane and $(p-\phi)$ plane $< 15^\circ$



RGK ϕ -Analysis



Summary

- Data looks promising for ϕ -meson electroproduction.
- ϕ -peak is at the right position (1.019 GeV).
- 1432 possible phi-candidates with given 4 runs with 6.395 GeV beam energy.
- 1372 possible phi-candidates with given 4 runs with 8.478 GeV beam energy.
- RGK+RGA comparison will provide energy variation for studying ϕ -production across different beam energies.