

Analysis Update  
Brad Cannon  
Florida State University

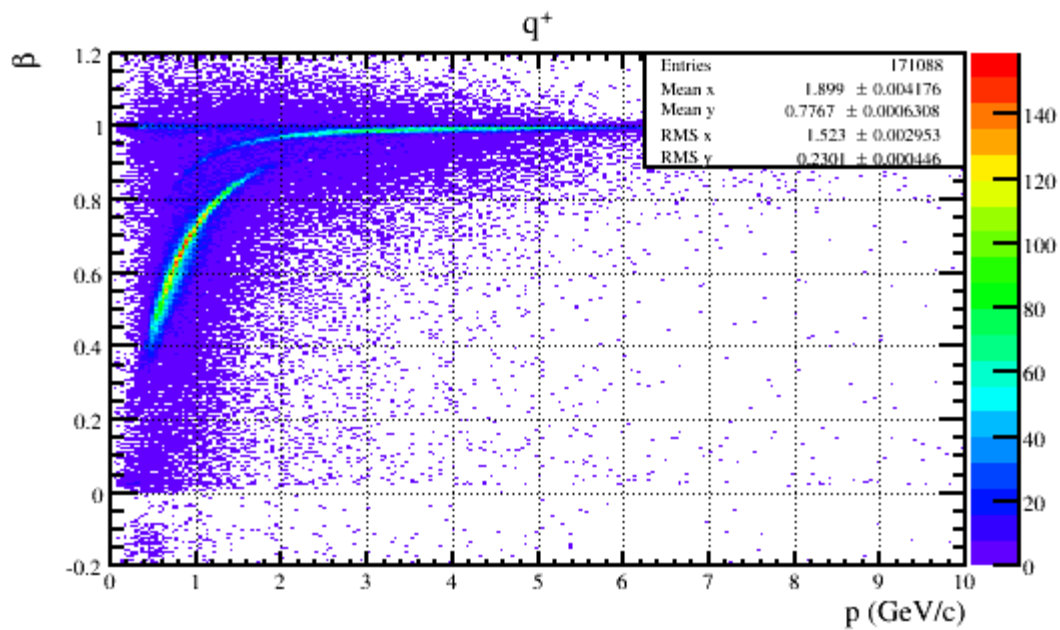
My Reaction:

$$\gamma p \rightarrow p K^+ K^- \eta$$

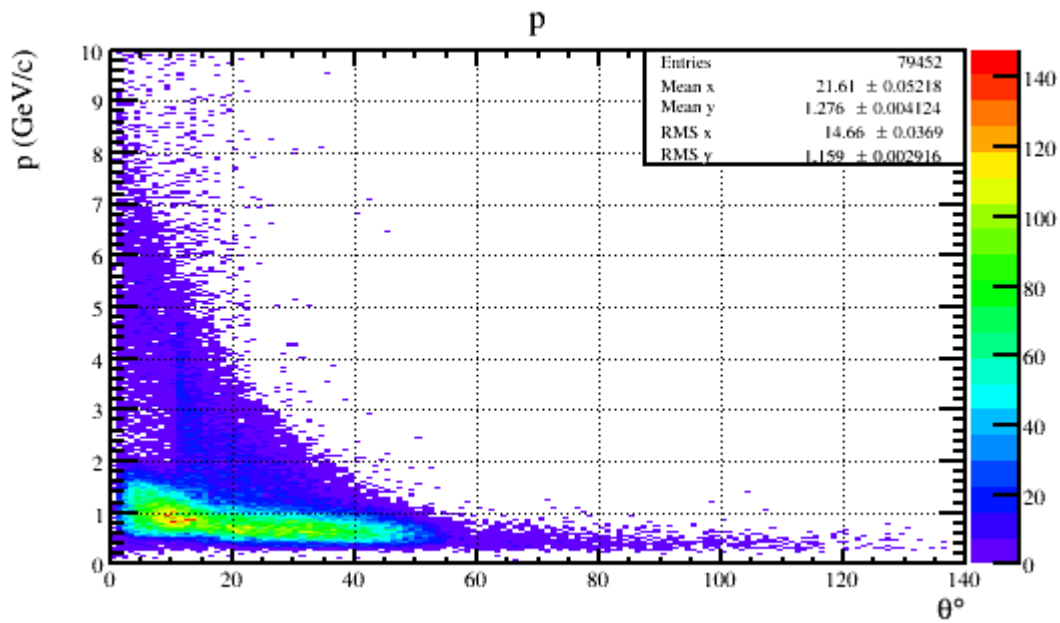
- \* The purpose of studying this reaction is to investigate excited  $s\bar{s}$  states.
- \* For this analysis, I have generated 100k Monte Carlo events, then followed the steps from the “GlueX Analysis Workshop” to produce accepted Monte Carlo.
- \* After I complete this analysis, I plan to do another analysis on the reaction:  
$$\gamma p \rightarrow p \varphi \eta$$

## Detected Particle Features: (from monitoring\_hists plugin)

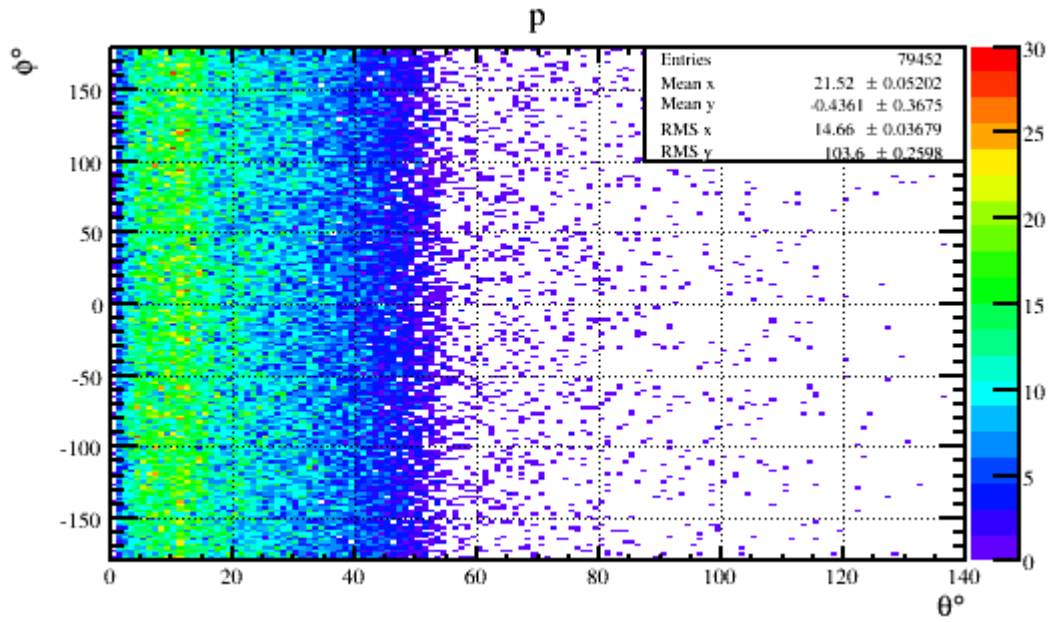
Beta vs P for all positively charged particles:



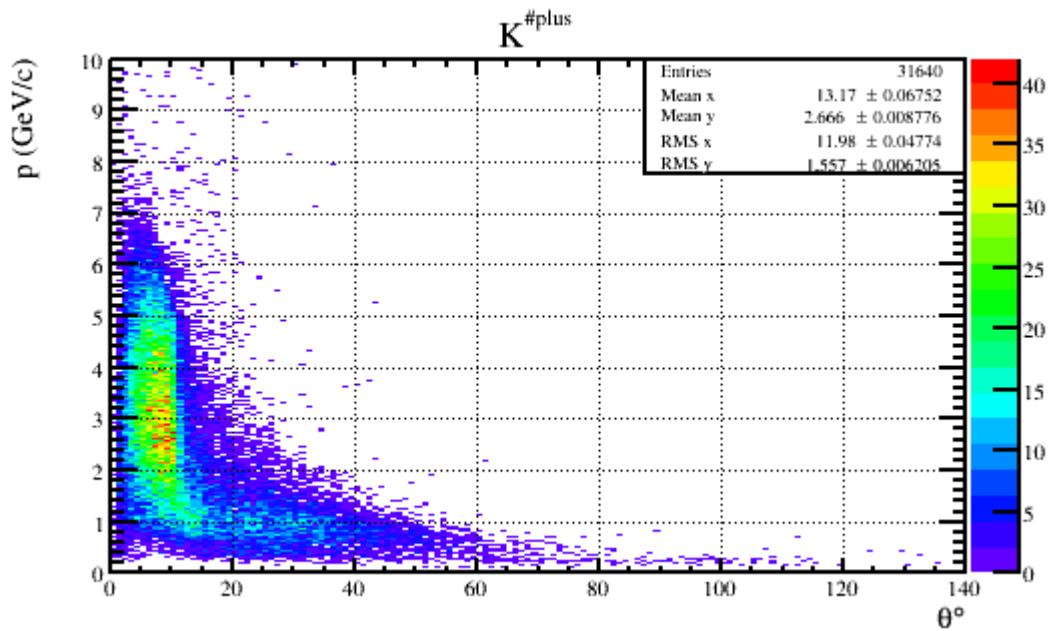
P vs Theta for Proton:



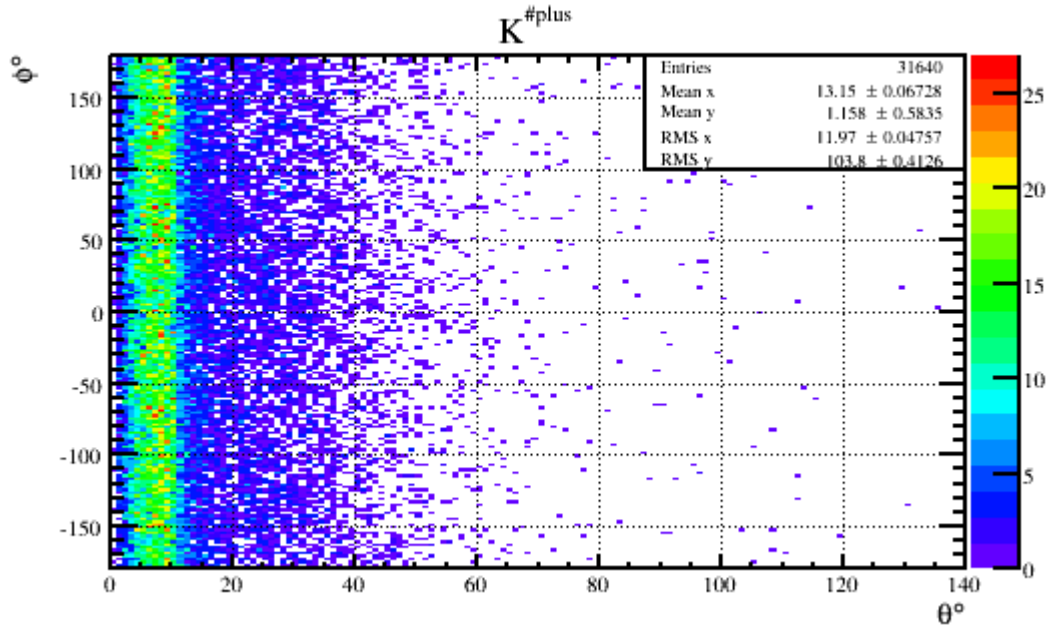
### Phi vs Theta for Proton:



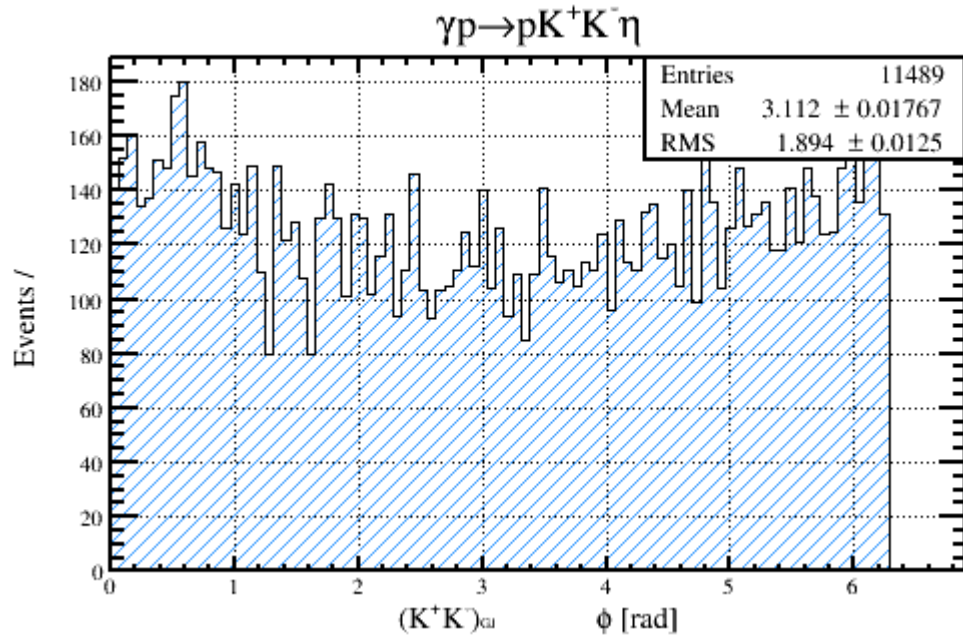
### P vs Theta for Kplus:



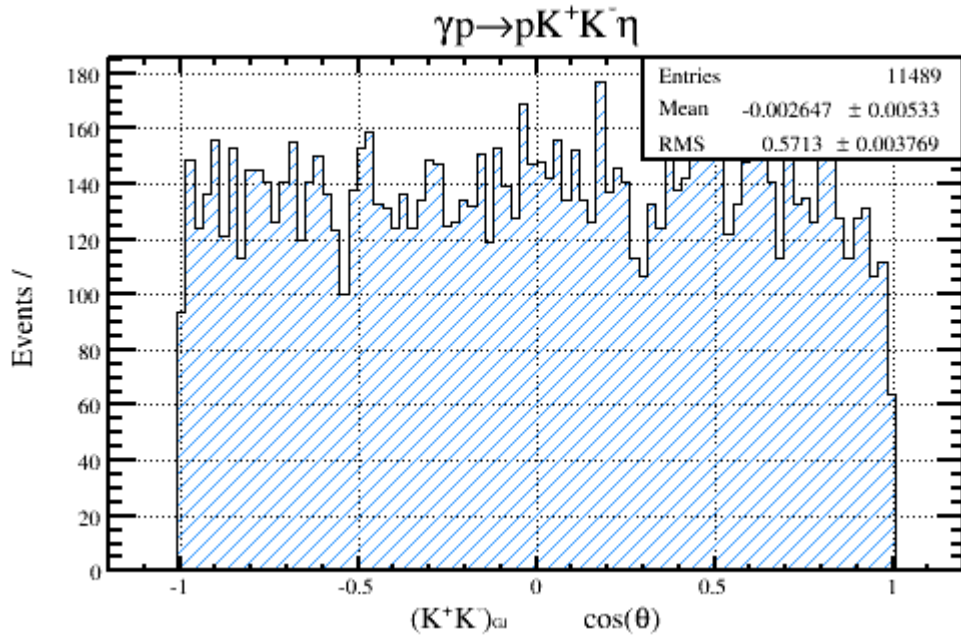
### Phi vs Theta for Kplus:



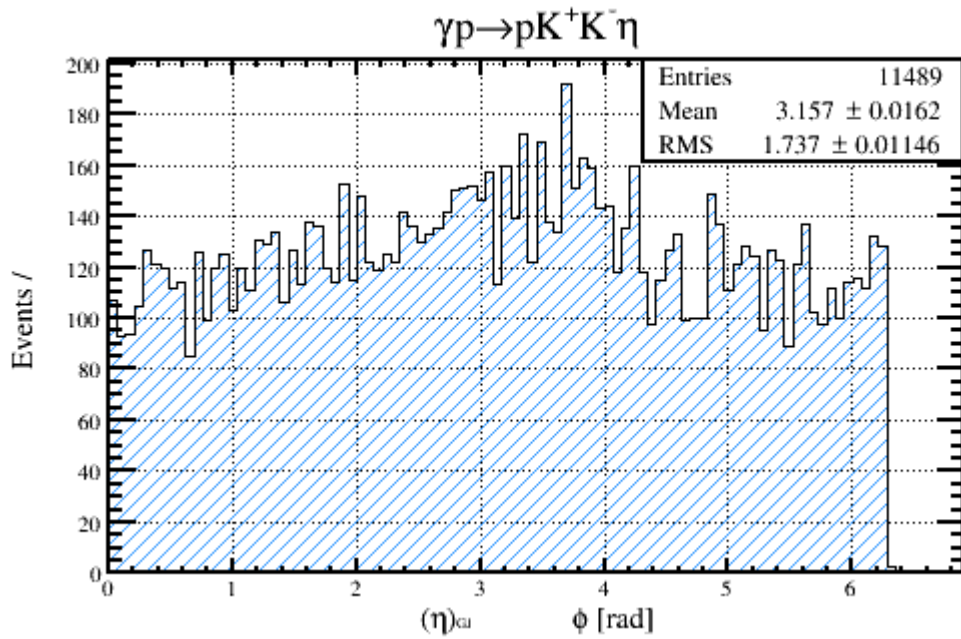
### Angular Distributions of Accepted Particles:(using my plugin) Phi Angle of $K^+ K^-$ in Gottfried-Jackson Frame:



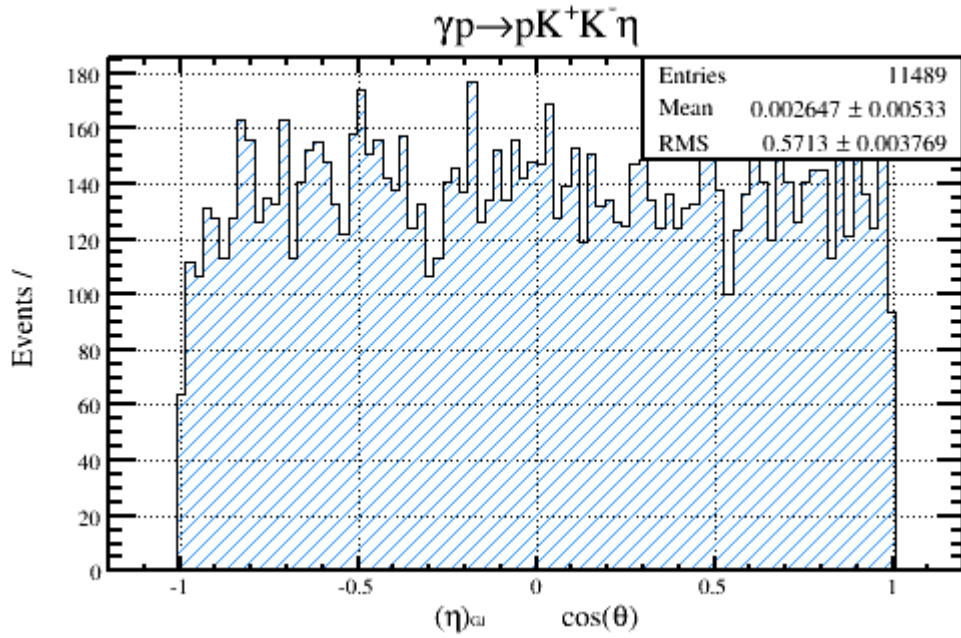
**Cos Theta of K+ K- in Gottfried-Jackson Frame:**



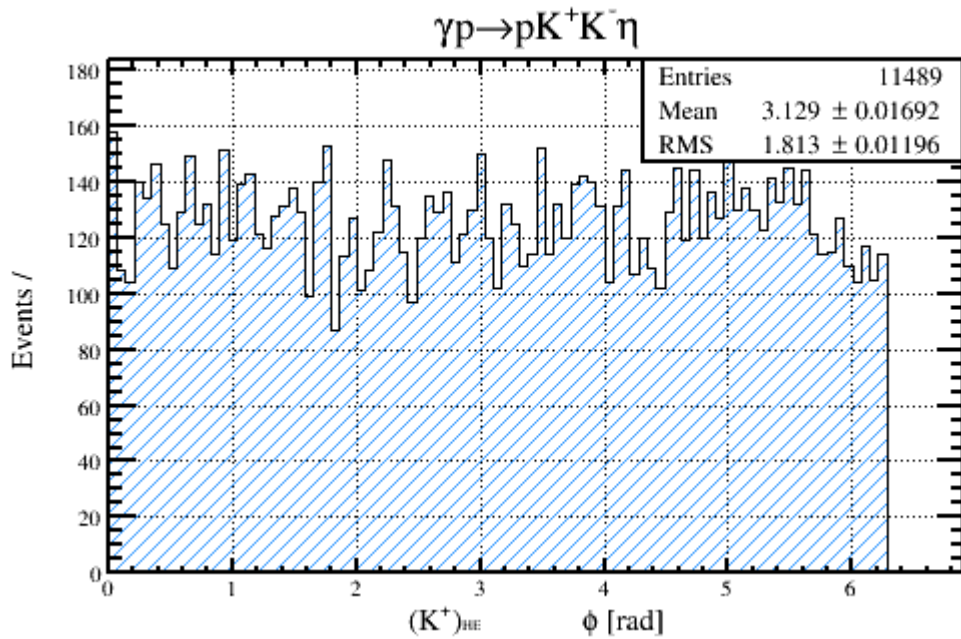
**Phi Angle of Eta in Gottfried-Jackson Frame:**



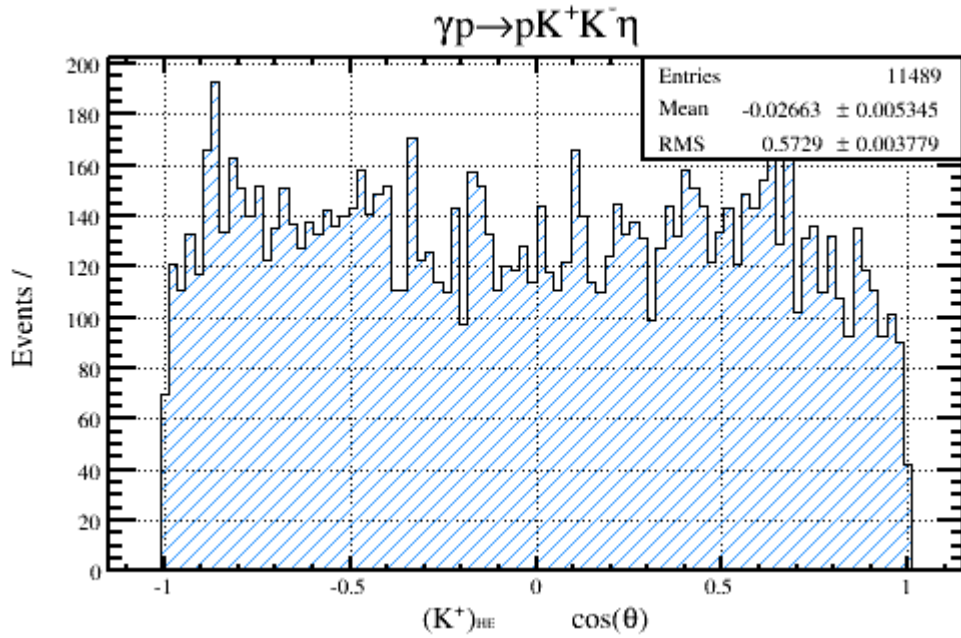
**Cos Theta of Etain Gottfried-Jackson Frame:**



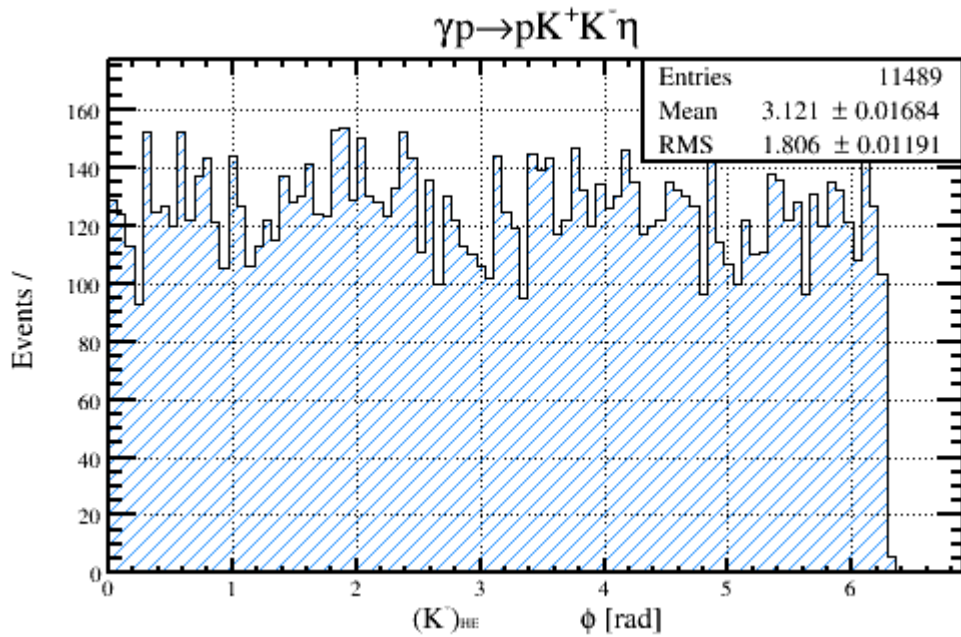
**Phi of K+ in Helicity Frame:**



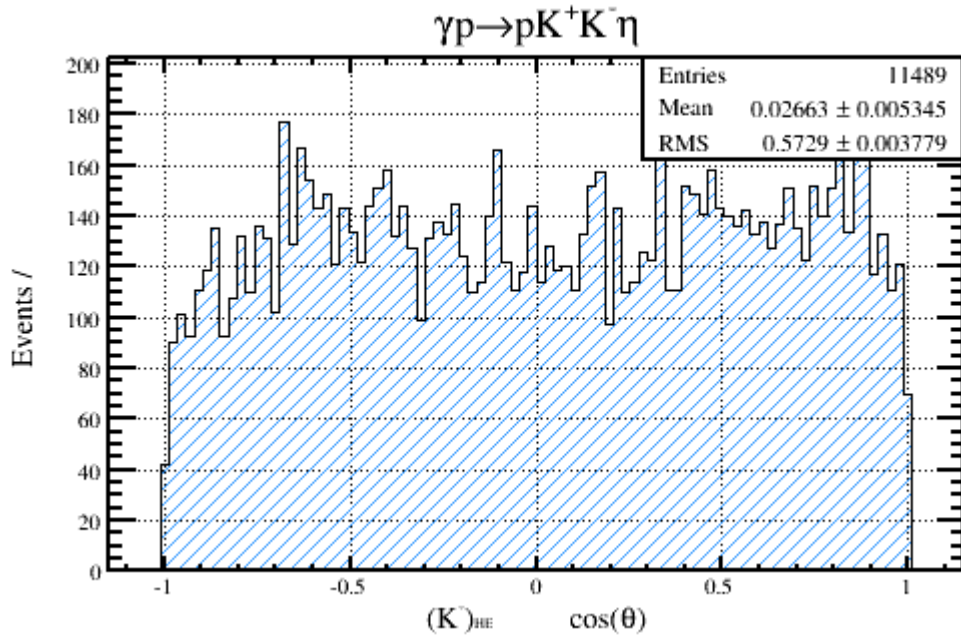
**Cos Theta of K+ in Helicity Frame:**



**Phi of K- in Helicity Frame:**

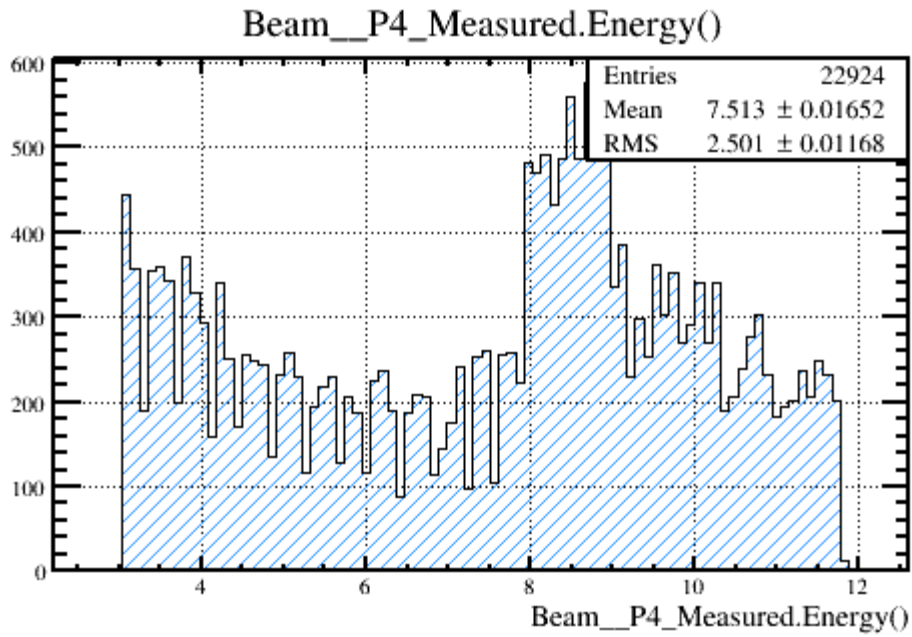


### Cos Theta of K- in Helicity Frame:



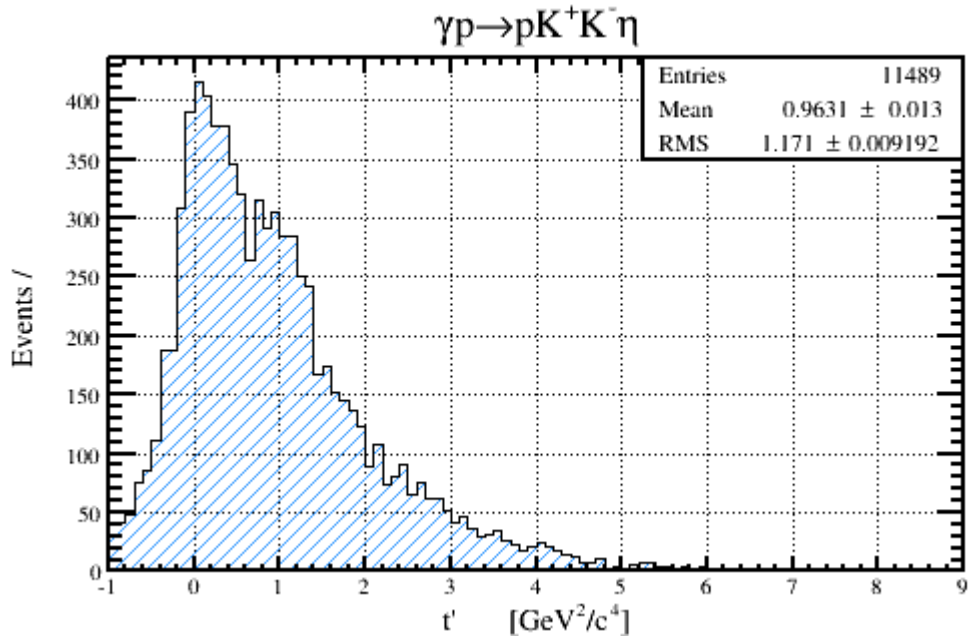
### Some things I am confused about...

Measured Beam momentum:

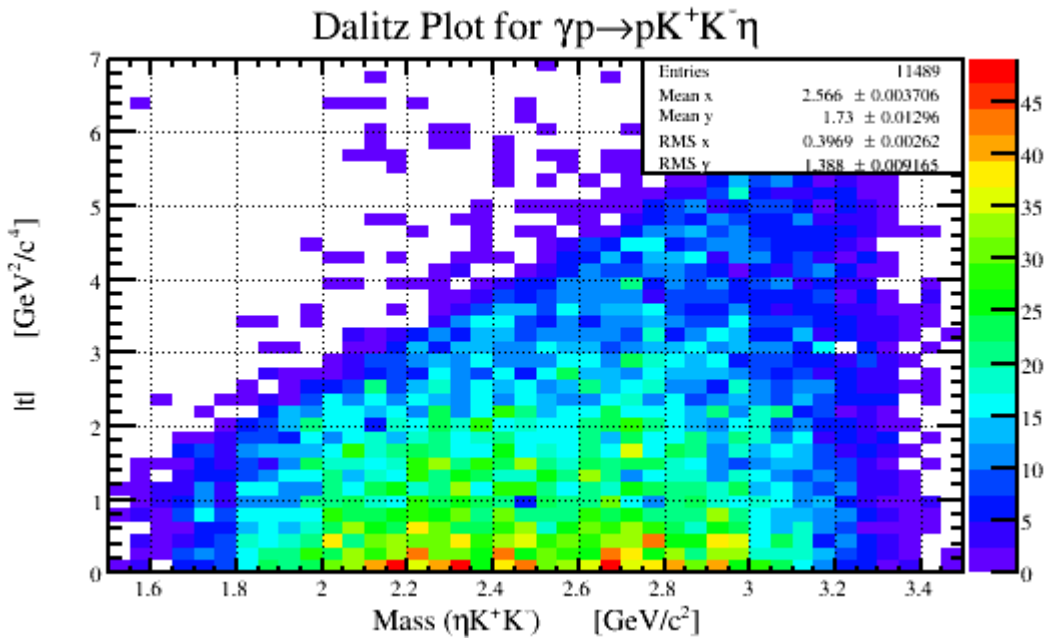




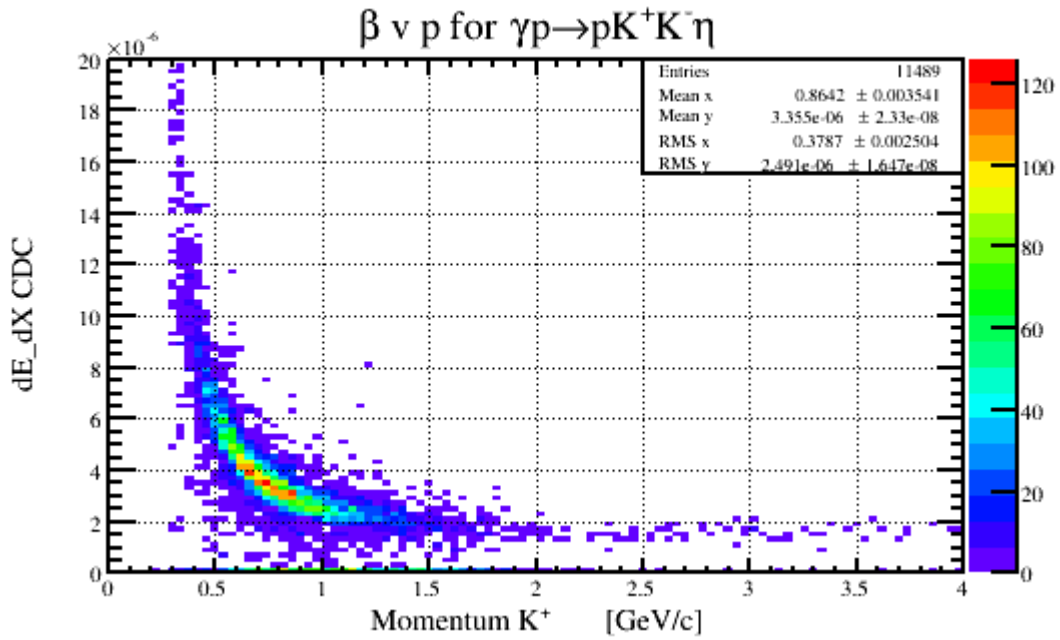
### Mandelstam $t'$ distribution



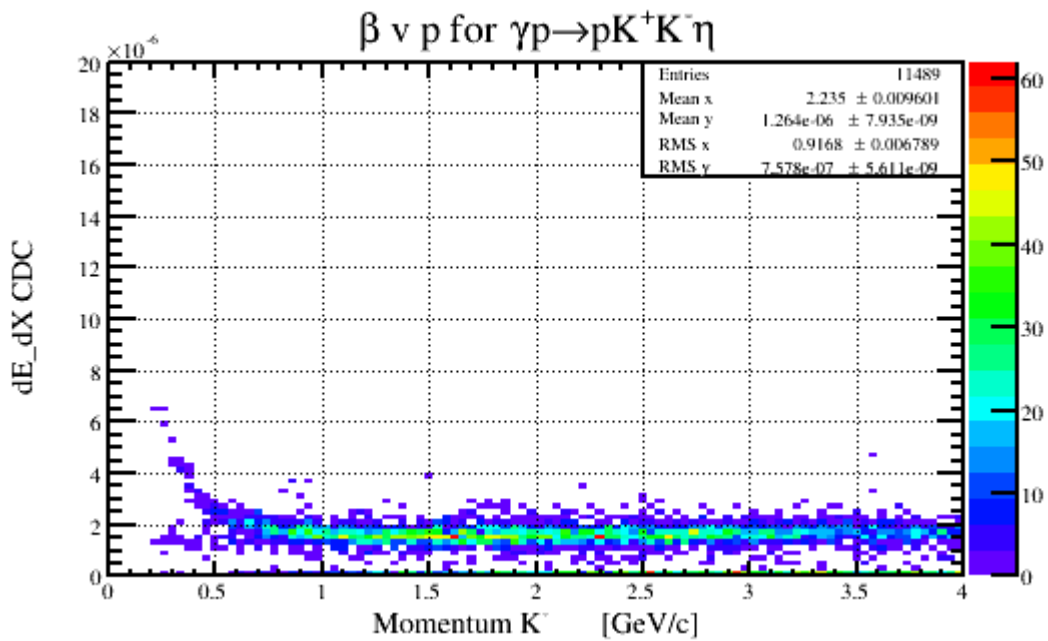
### abs(Mandelstam $t$ ) vs $K^+K^-$ Invariant mass:



### PROTON dEdX\_CDC:



### K- dEdX\_CDC:



### What needs to be done:

- \* Combinations need to be taken care of
- \* I need to do more PID cuts of k<sup>+</sup> and proton (dEdX\_CDC)
- \* Repeat analysis for phi eta