



# Kpi scattering study for KLF

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# Outline

- **Kpi study; CG coefficient for charge and neutral pion exchange**

$$K_L \pi^+ \rightarrow K_L \pi^+ : \frac{a^2}{3} + \frac{2b^2}{3}$$

$$K_L \pi^+ \rightarrow K_S \pi^+ : \frac{a^2}{3} - \frac{b^2}{3}$$

$$K_L \pi^+ \rightarrow K^+ \pi^0 : -\frac{a^2}{3} + \frac{b^2}{3}$$

$$K_L \pi^0 \rightarrow K_L \pi^0 : \frac{a^2}{3} + \frac{2b^2}{3}$$

$$K_L \pi^0 \rightarrow K^+ \pi^- : -\frac{a^2}{3} + \frac{b^2}{3}$$

$$K_L \pi^0 \rightarrow K^- \pi^+ : -\frac{a^2}{3} + \frac{b^2}{3}$$

$$K_L \pi^- \rightarrow K_L \pi^- : \frac{a^2}{3} + \frac{2b^2}{3}$$

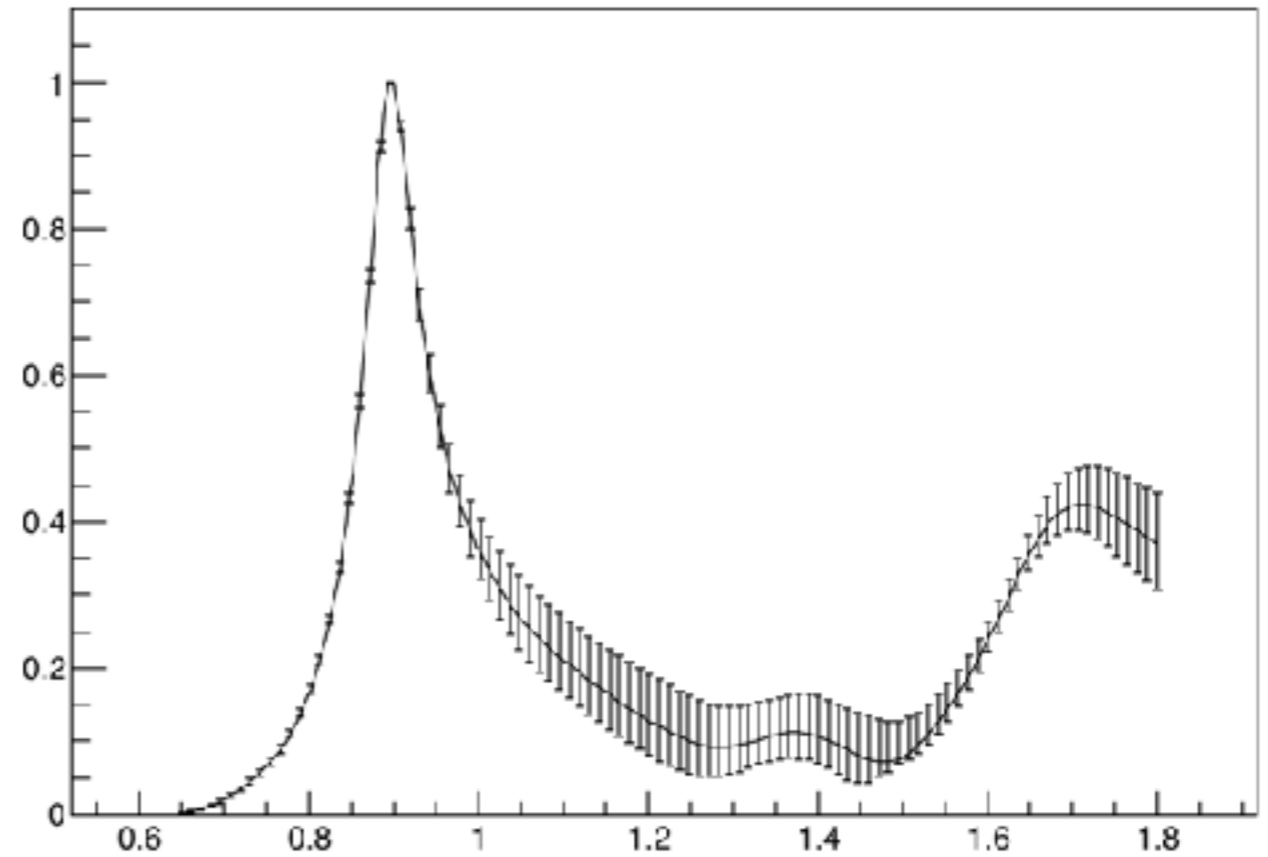
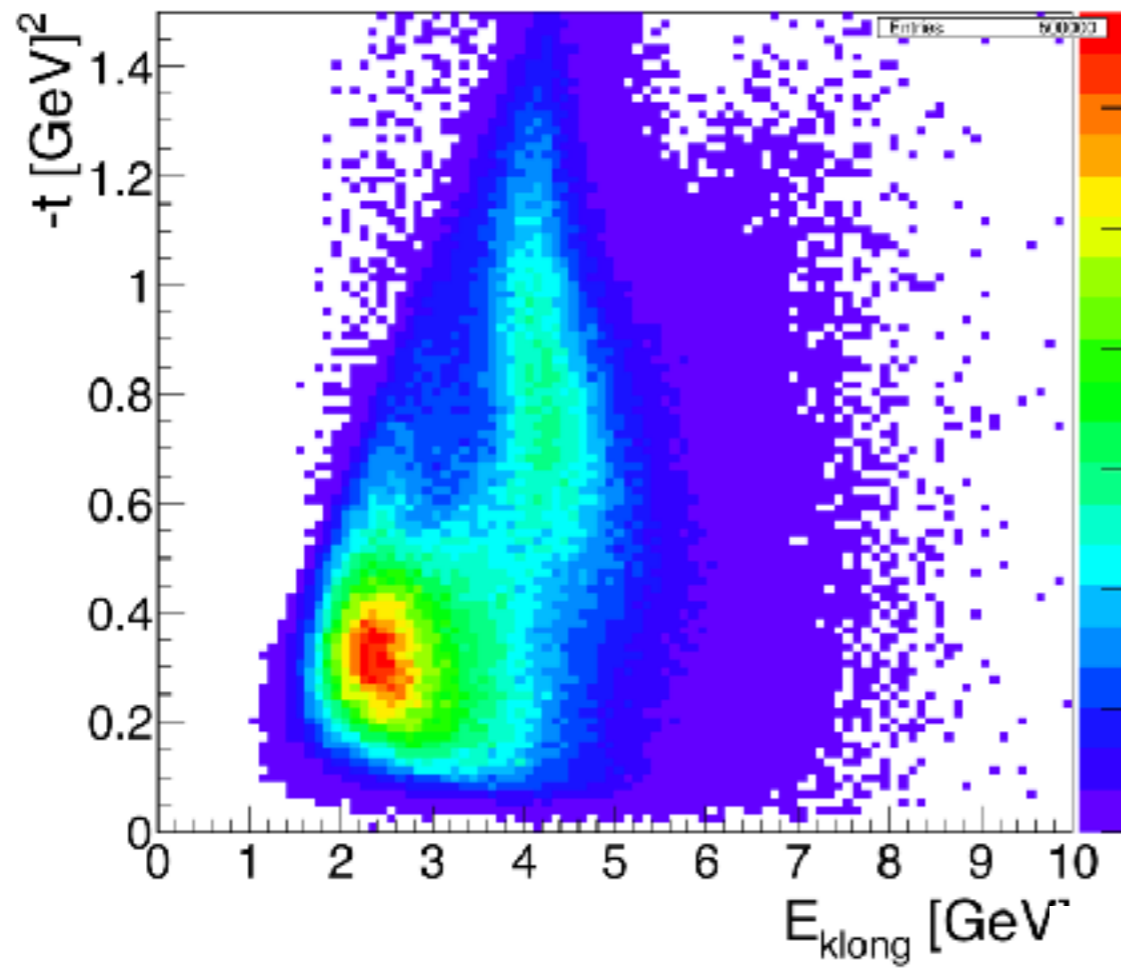
$$K_L \pi^- \rightarrow K_S \pi^- : -\frac{a^2}{3} + \frac{b^2}{3}$$

$$K_L \pi^- \rightarrow K^- \pi^0 : -\frac{a^2}{3} + \frac{b^2}{3}$$

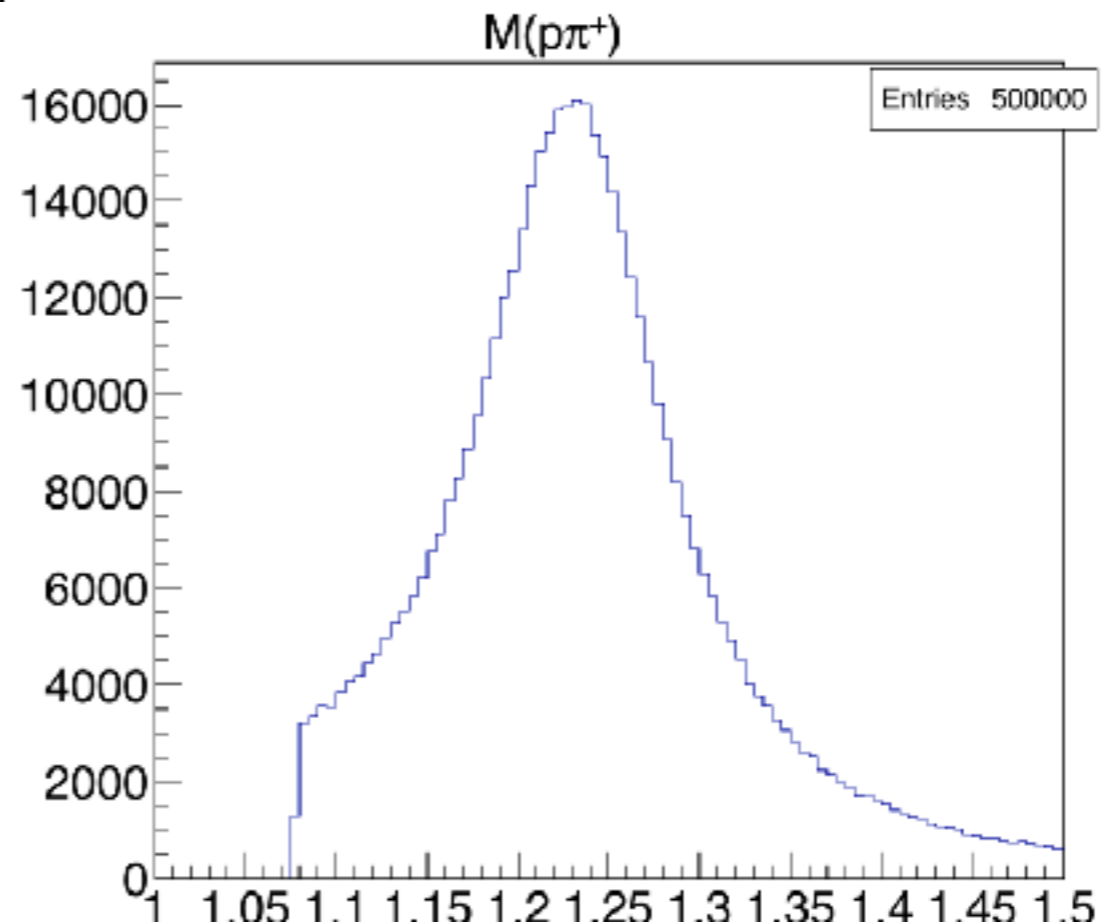
$$K_L p \rightarrow K^- \pi^0 \Delta^{++} (p \pi^+)$$

# Thrown Kinematics

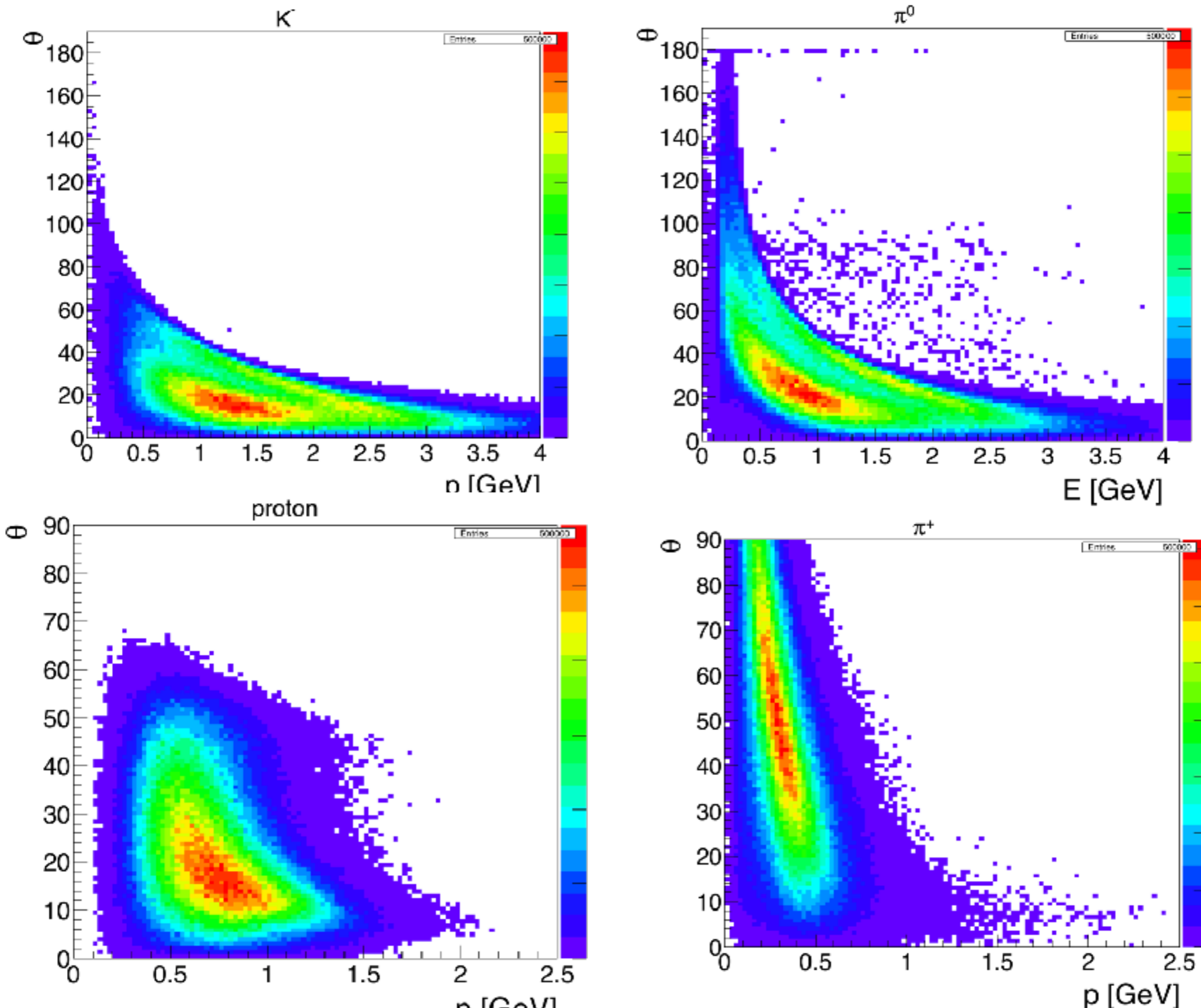
p wave



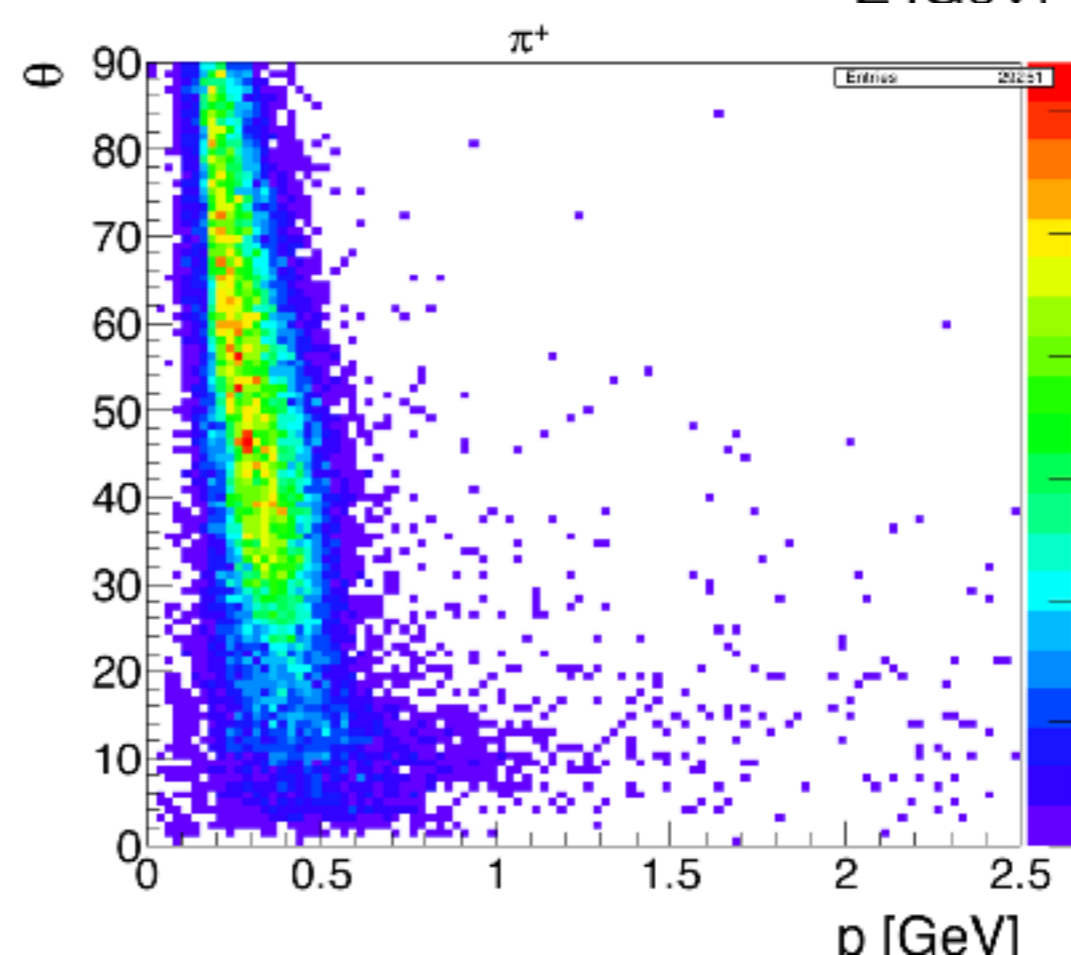
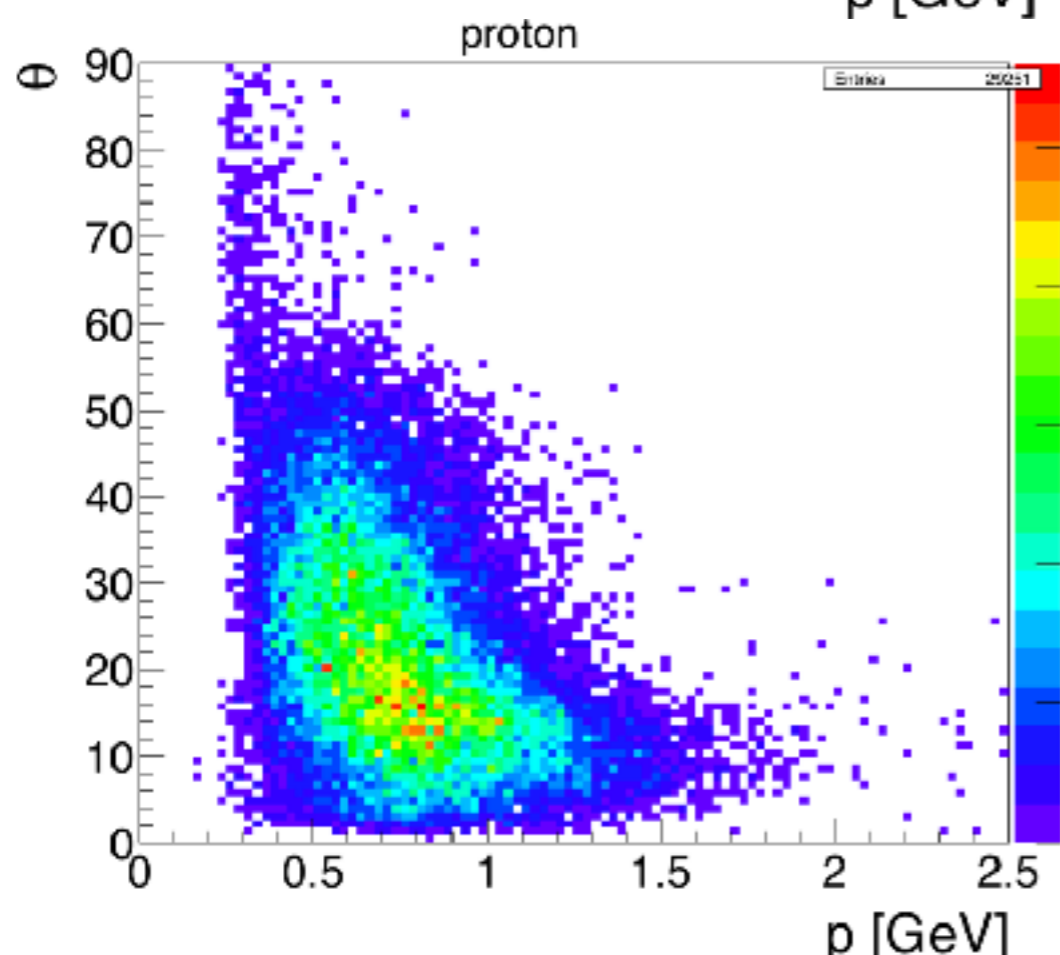
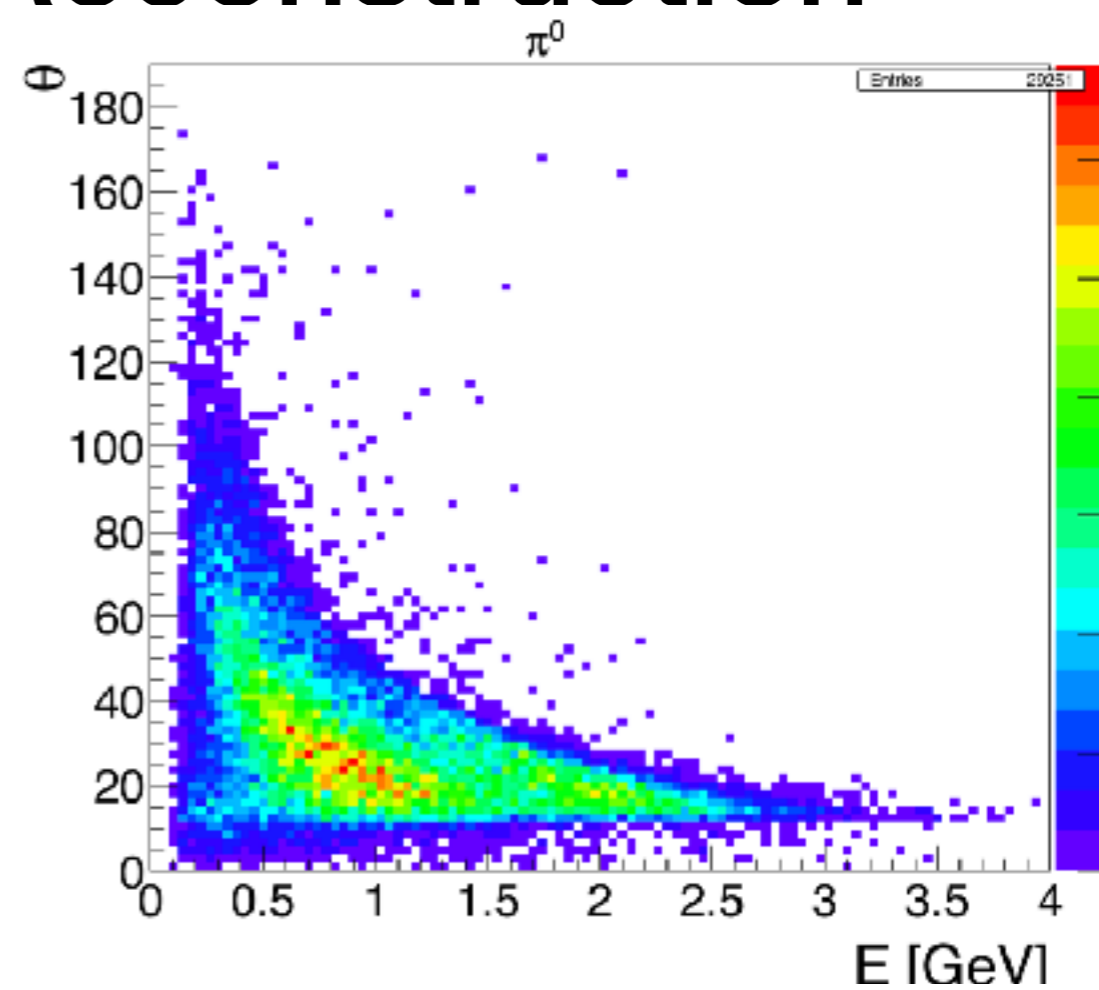
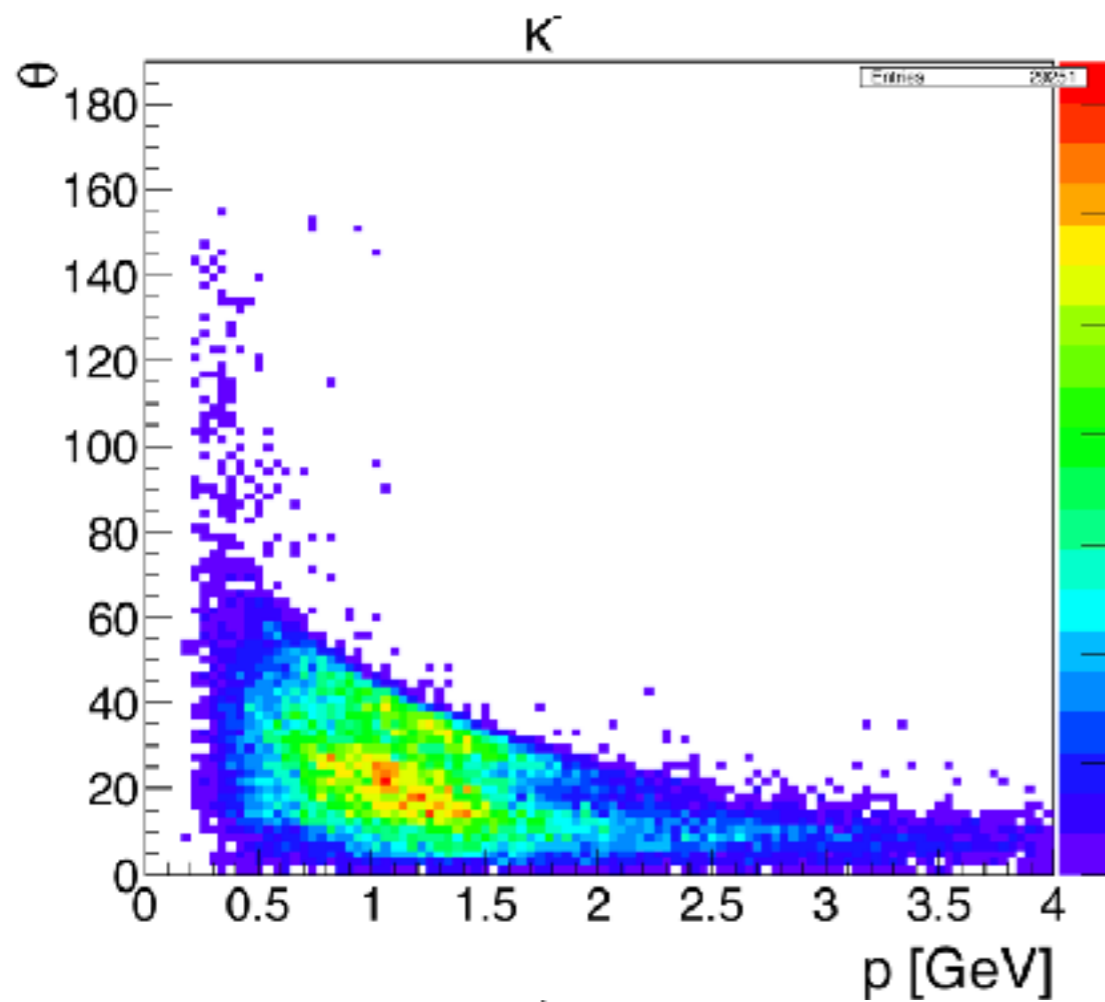
**Multidimensional phase-space;  $E$ ,  $-t$ ,  
 $M(\text{kpi})$ ,  $M(\text{Delta}++)$ , p-wave**



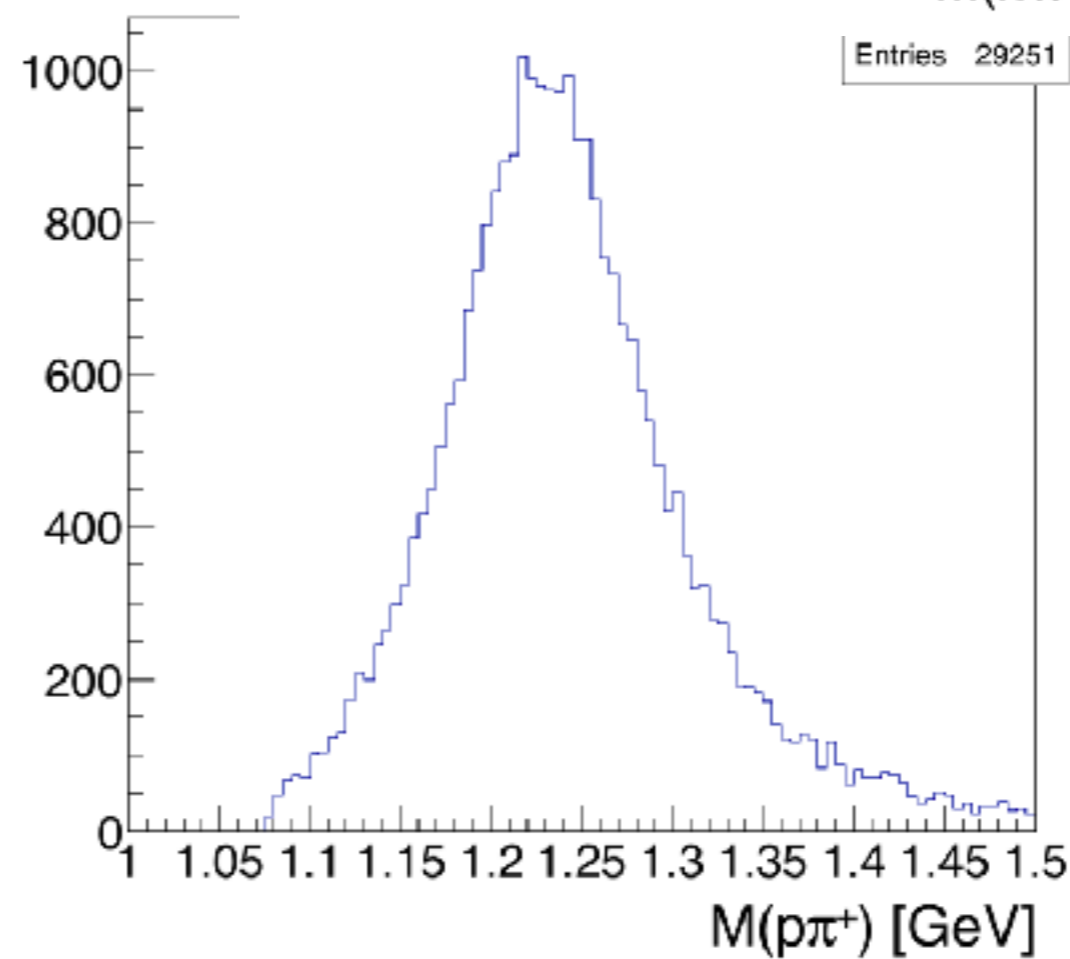
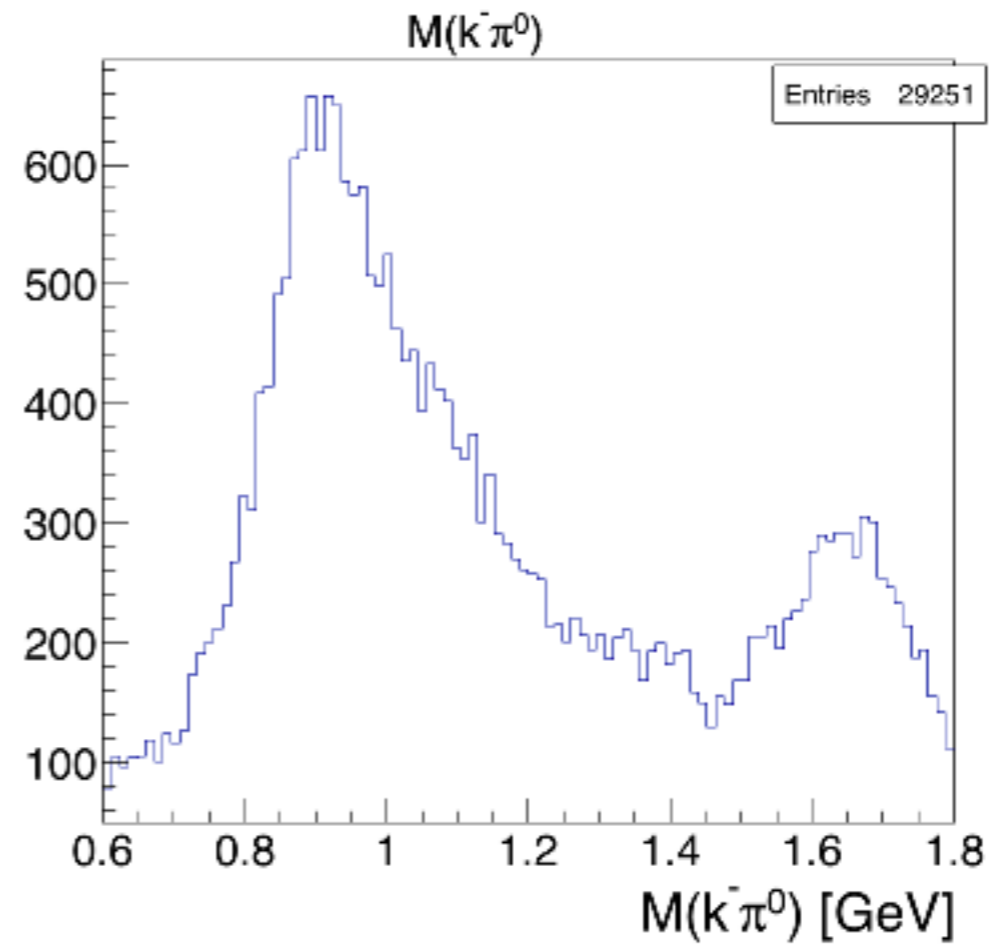
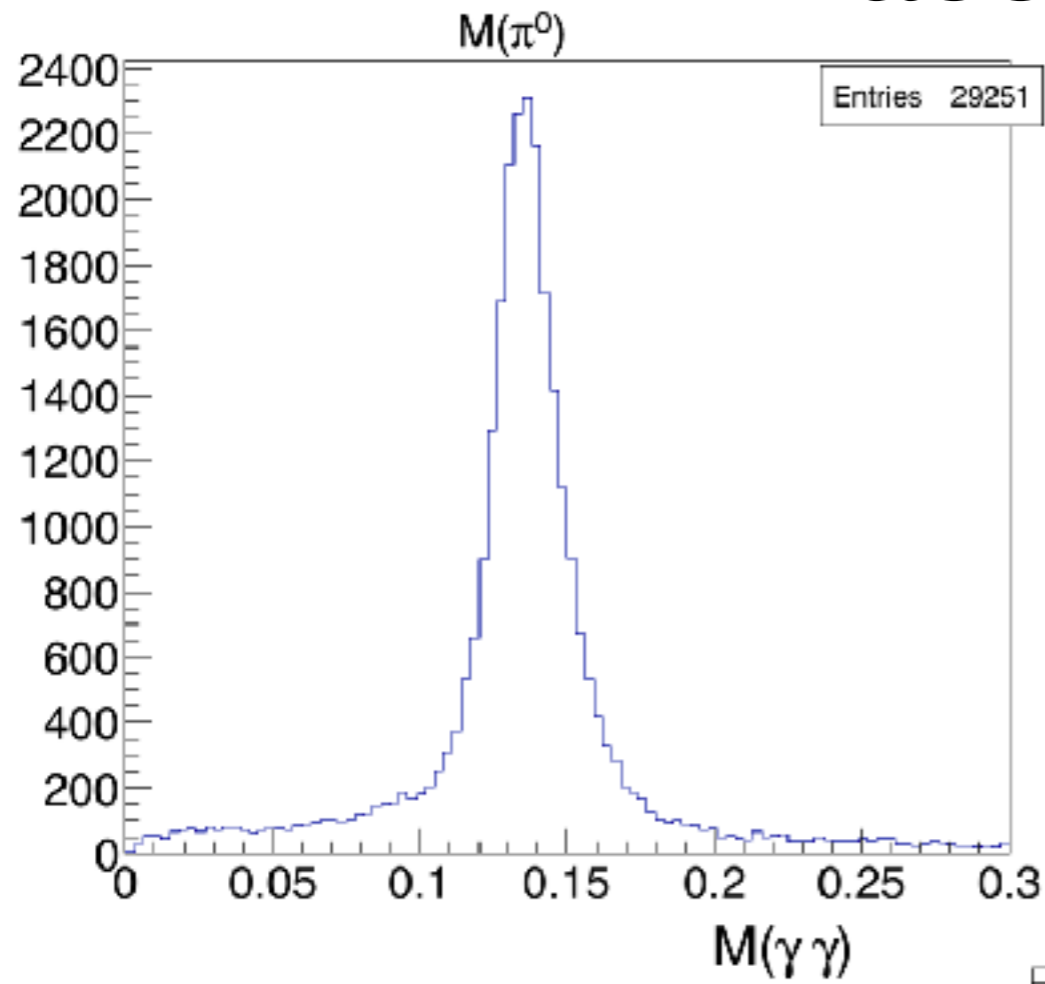
# Kinematics of Generation



# Kinematics of Reconstruction

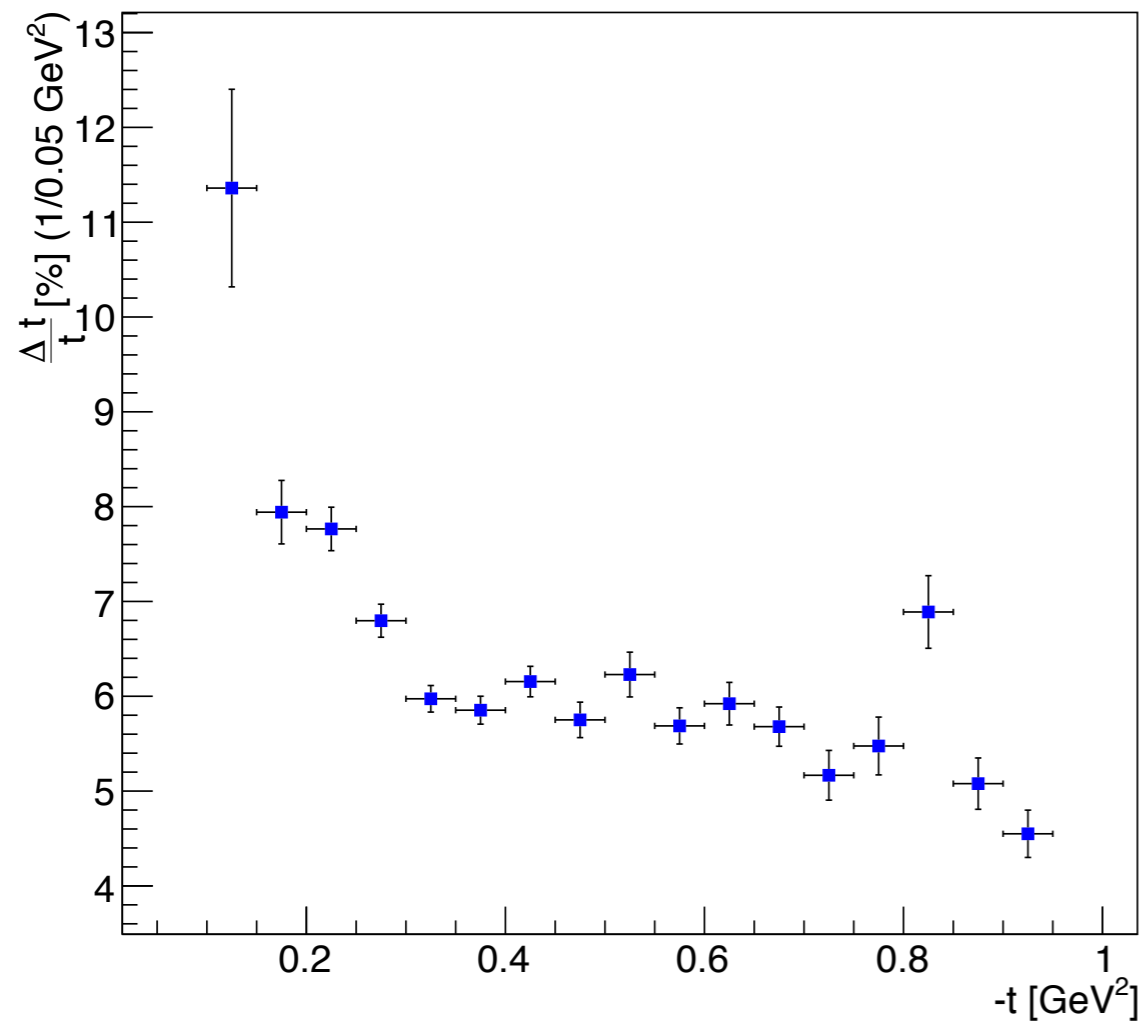


# Mass Reconstruction

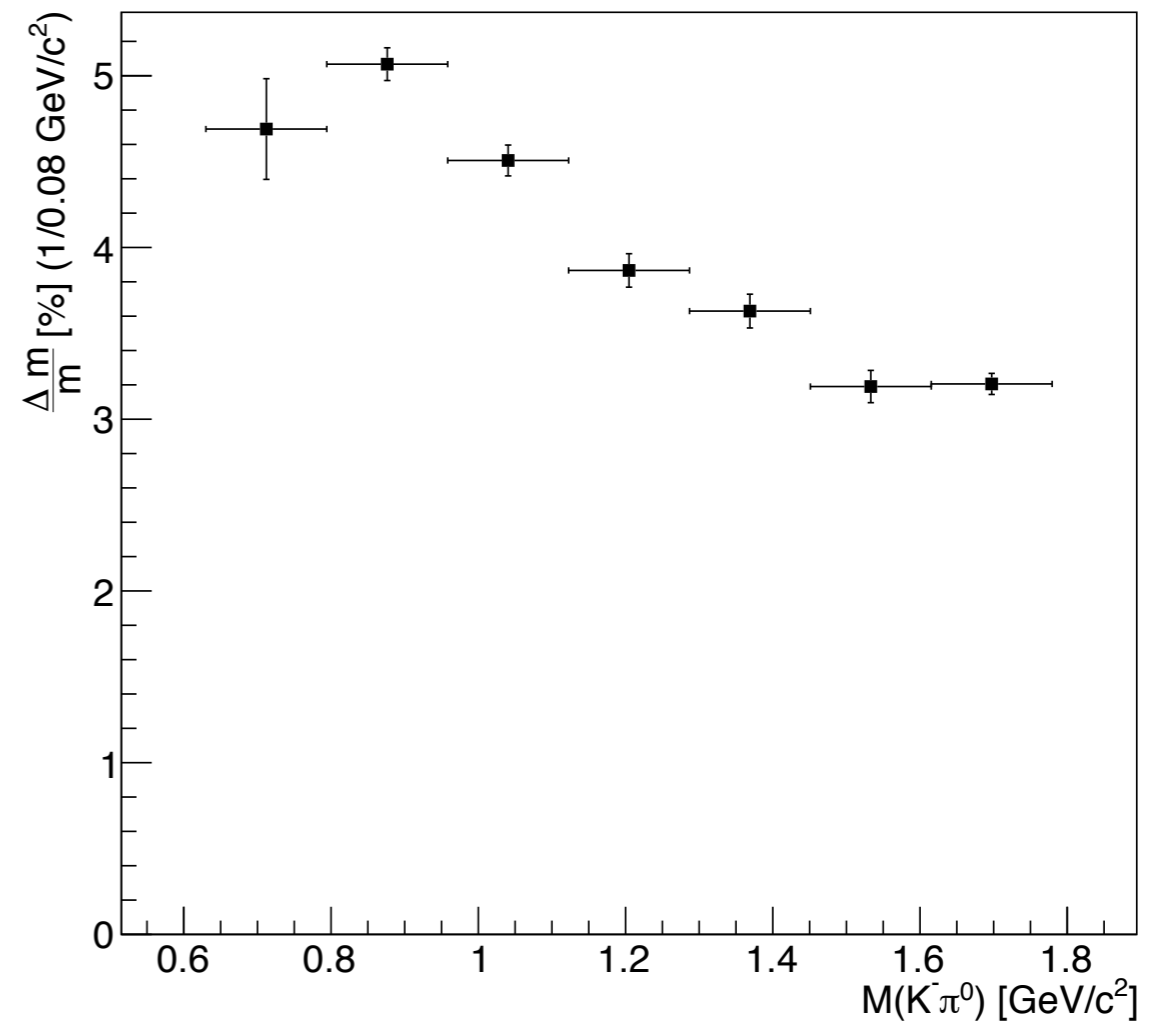


# Resolution

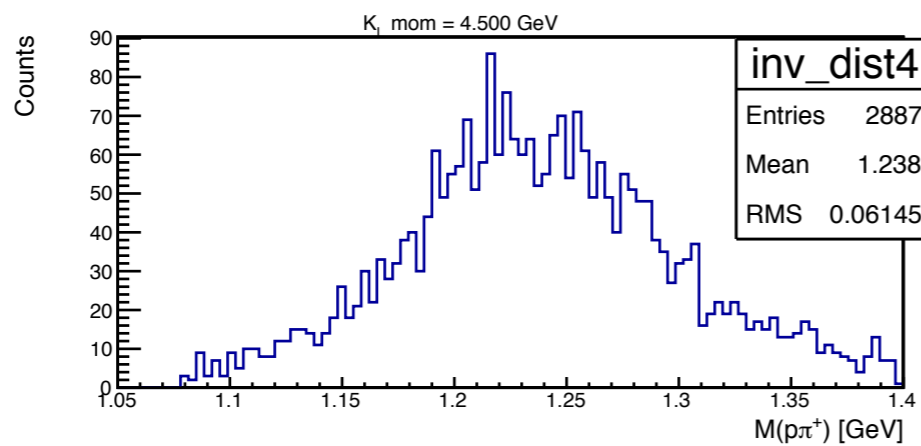
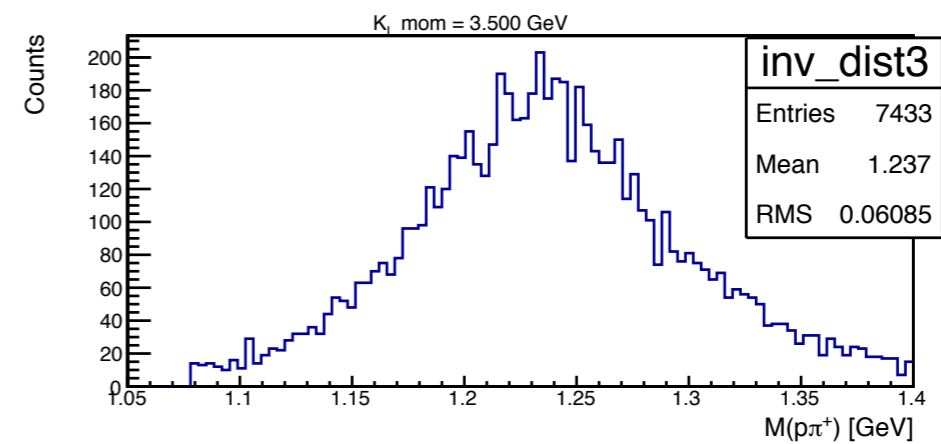
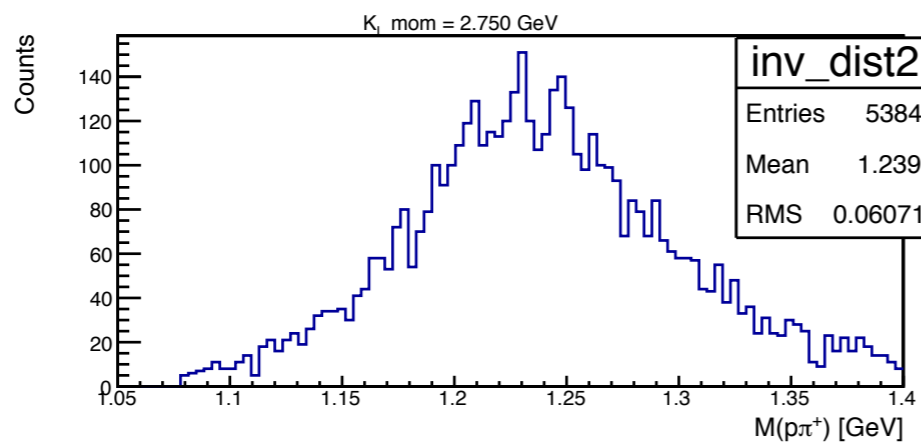
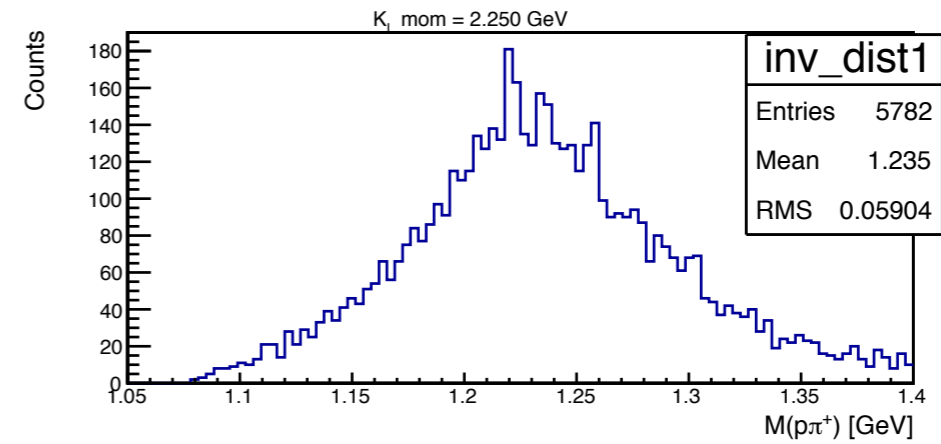
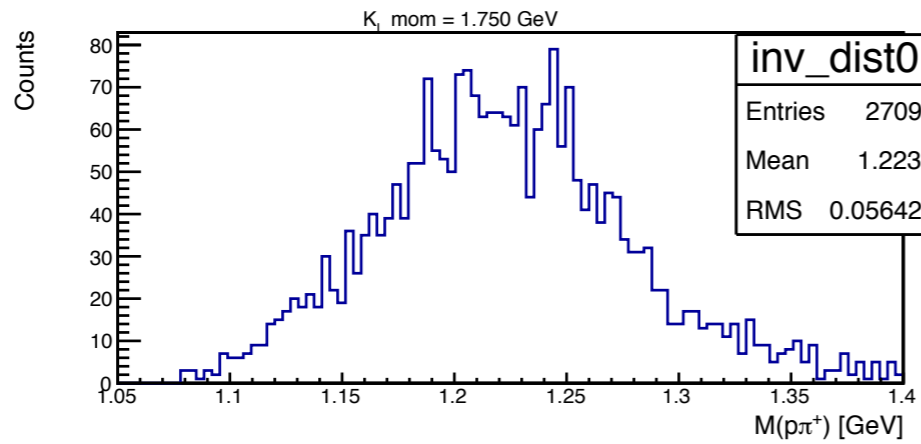
Four Momentum Resolution for  $K_L p \rightarrow K^- \pi^0 \Delta^{++}$



$K^- \pi^0$  Invariant Mass Resolution for  $K_L p \rightarrow K^- \pi^0 \Delta^{++}$

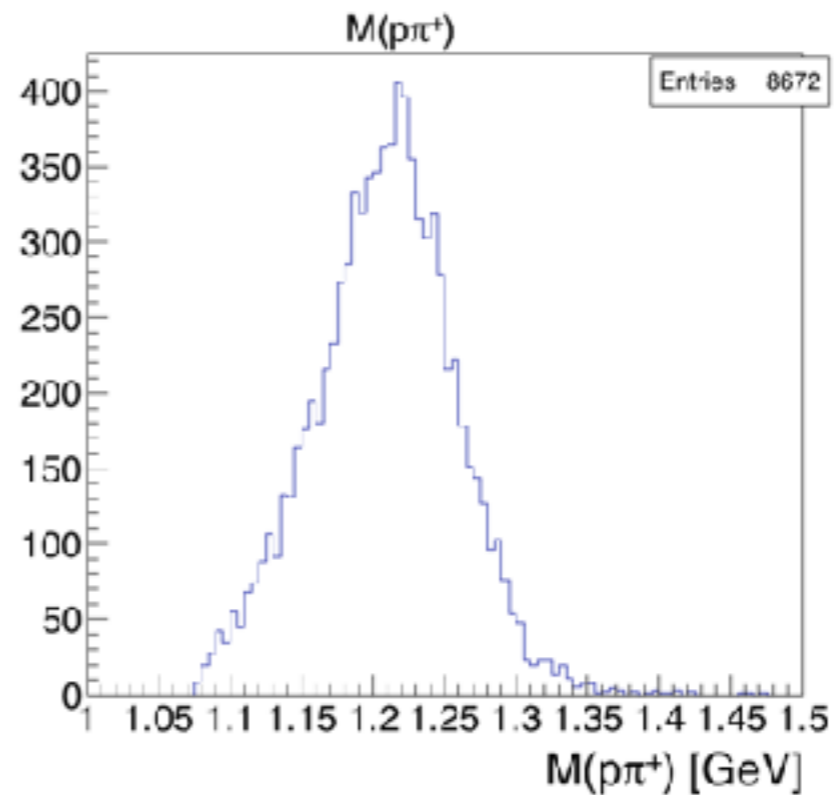
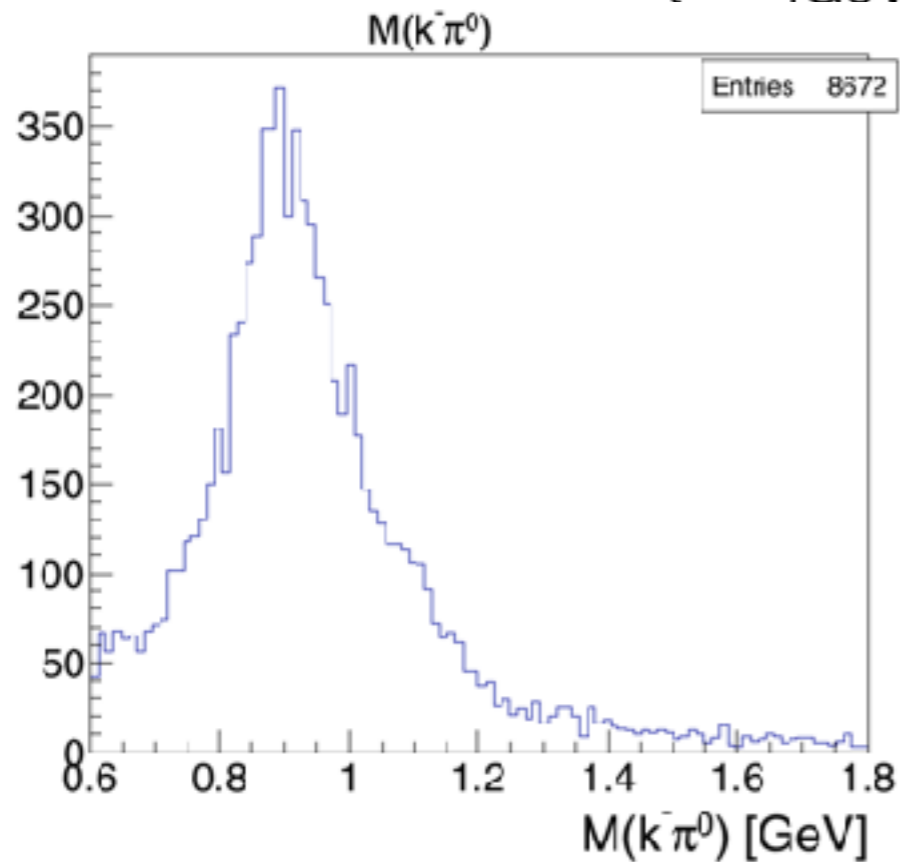
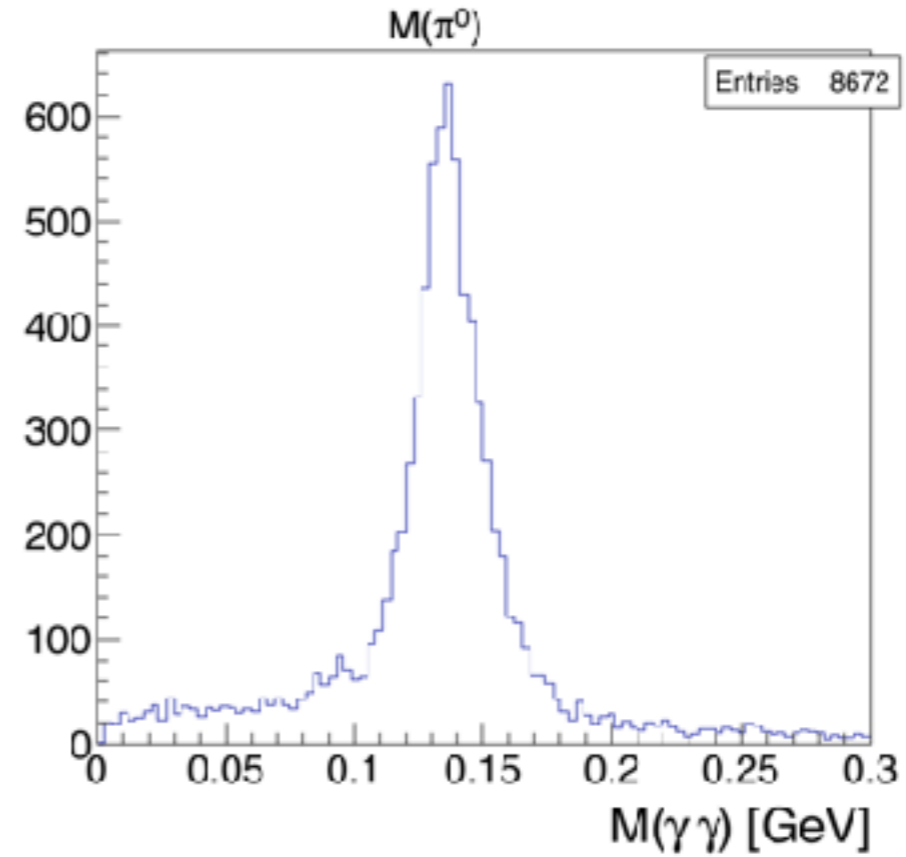
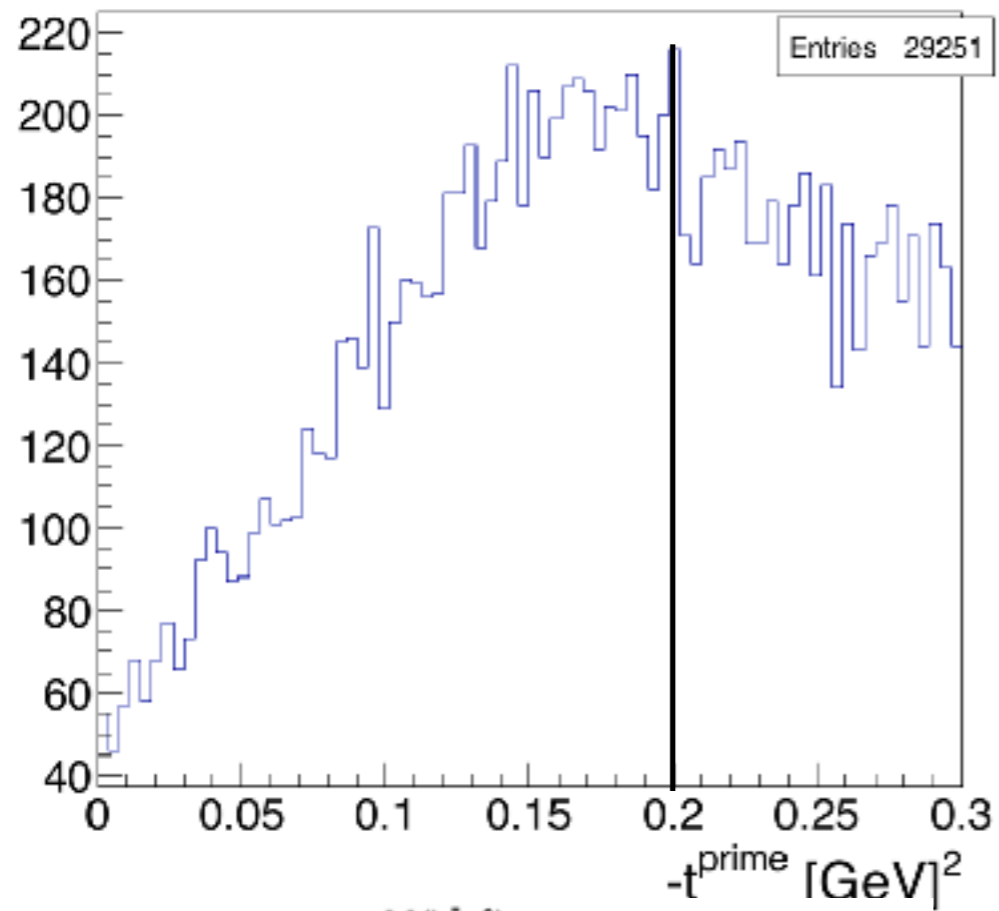


# Momentum dependent Delta Mass

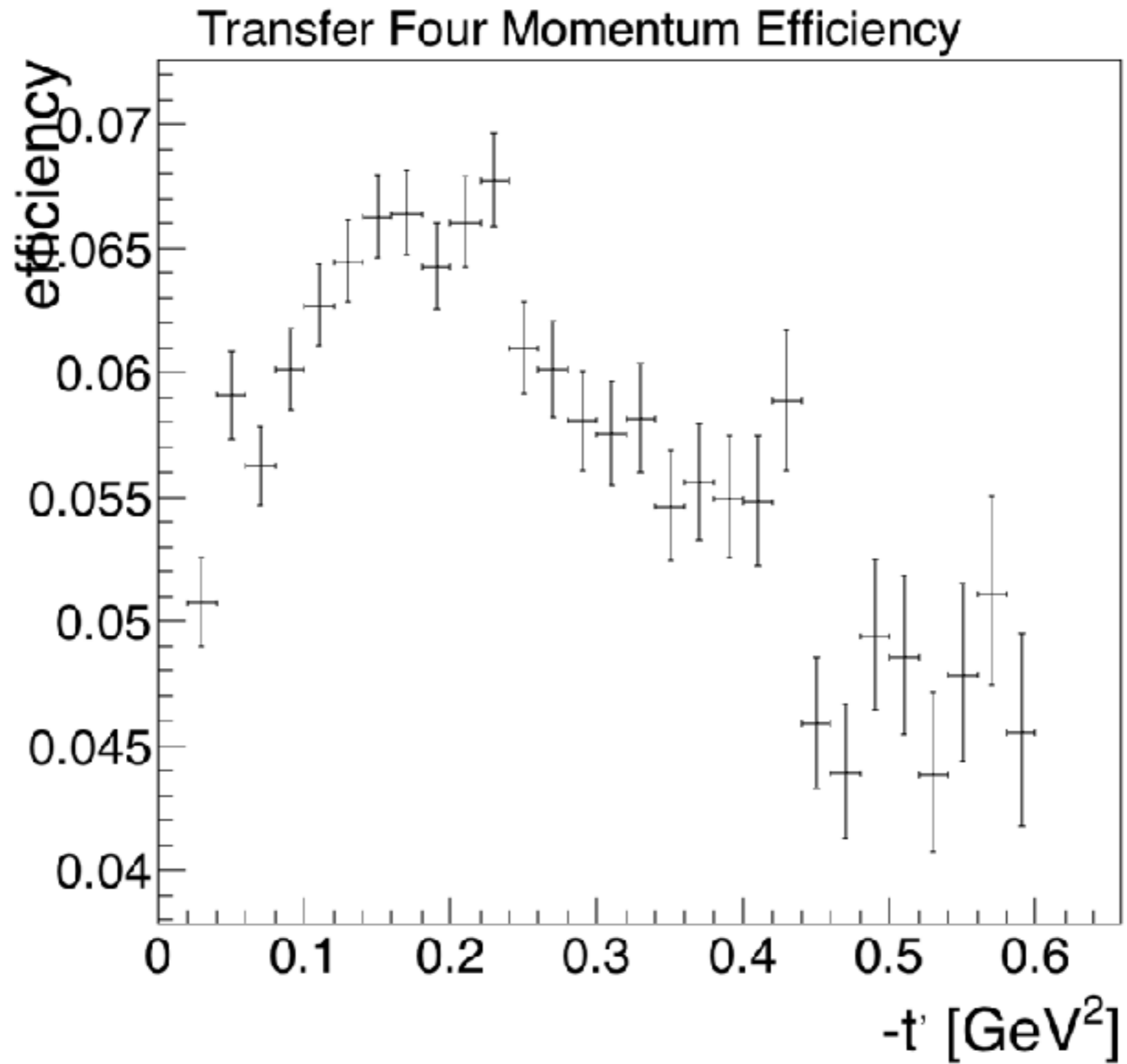




# Mass Reconstruction $-t' < 0.2$



# Efficiency



# Statistics for 100 days

