FT Corrections, Detector Topology Study, and *Λ*(1520) Fitting

Alan Gardner
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Background

- Skim 11 data set used:

  /cache/clas12/rg-a/production/recon/fall2018/torus-1/pass1/v0/dst/train/skim11/
- Trigger particle is an electron in the Forward Tagger

FT Electron Correction Factors

- Geraint's correction factor:

$$F(E) = \left(\frac{1}{E}\right) * (E - (.0004)E^4 + (.0071)E^3 - (.0432)E^2 + (.1356)E - .0257)$$

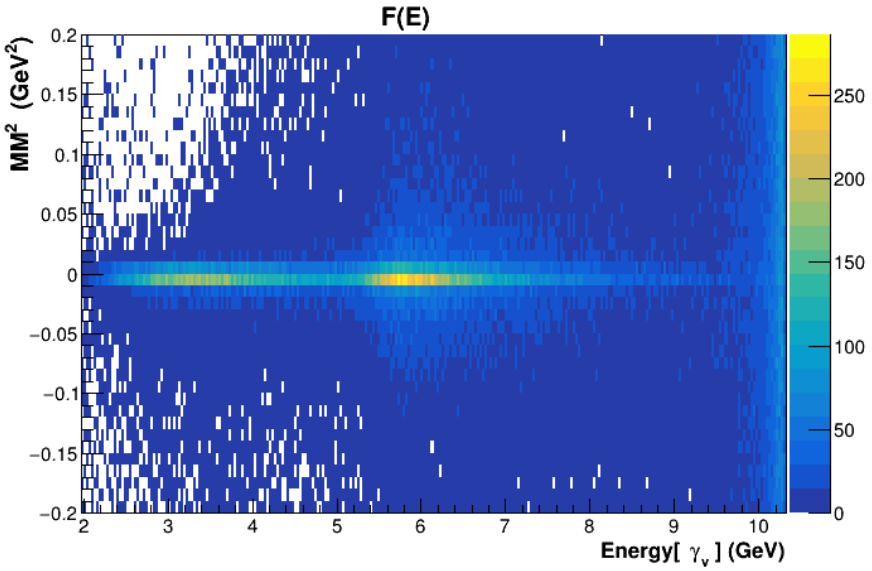
- Jose's correction factors:

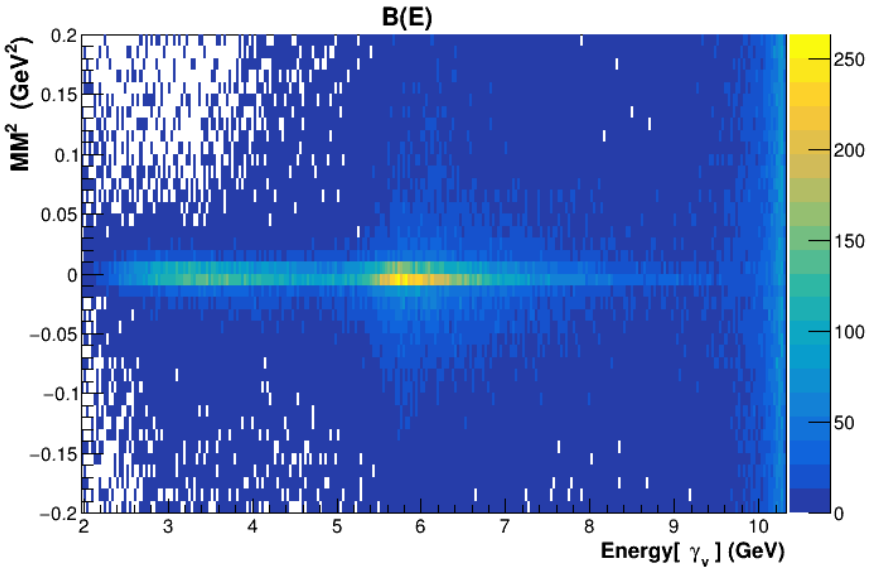
$$B(E) = 1.057 + .0256/(9.95 - E)^{.68}$$

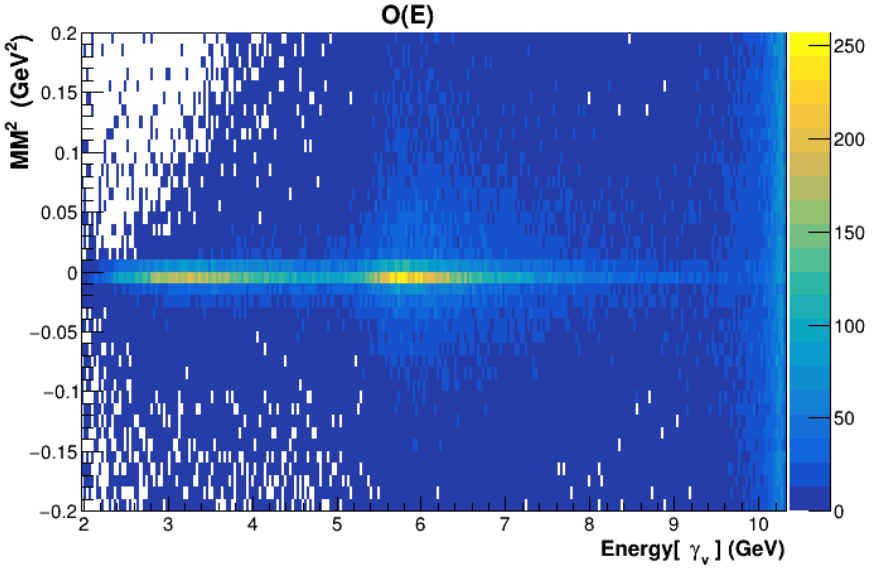
$$O(E) = 1.057 - (.0003)E^3 + (.0051)E^2 - (.0257)E$$

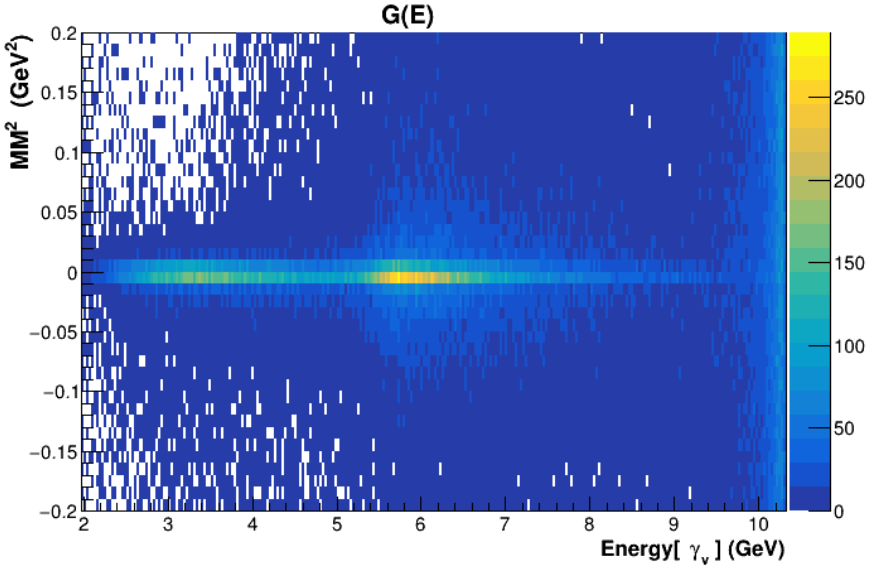
$$G(E) = 1.073 - (.00006)E^4 + (.0010)E^3 - (.0043)E^2 - (.0011)E$$

Photon Energy Dependence of MM^2 for $\gamma_v\, p \rightarrow p\, K^-\, K^+$

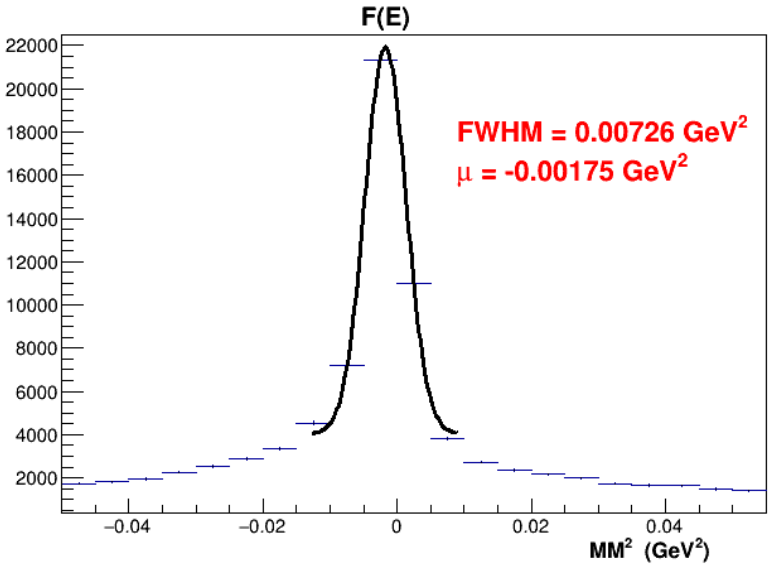


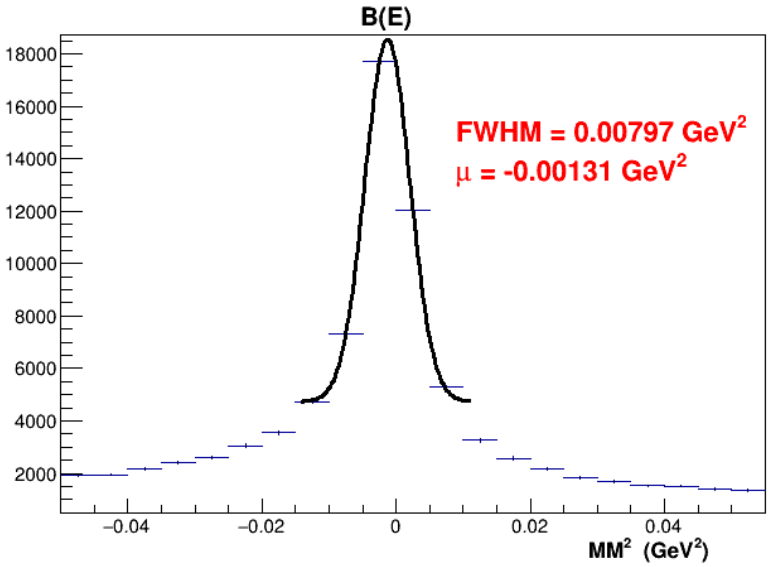


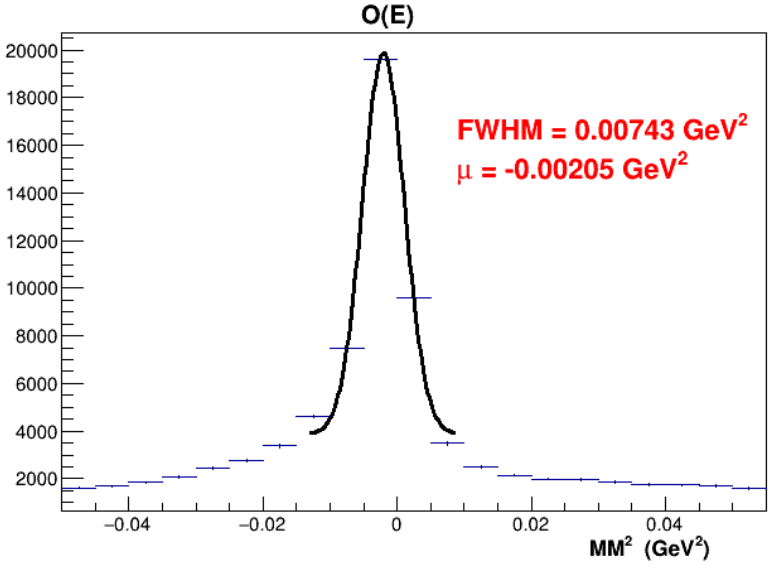


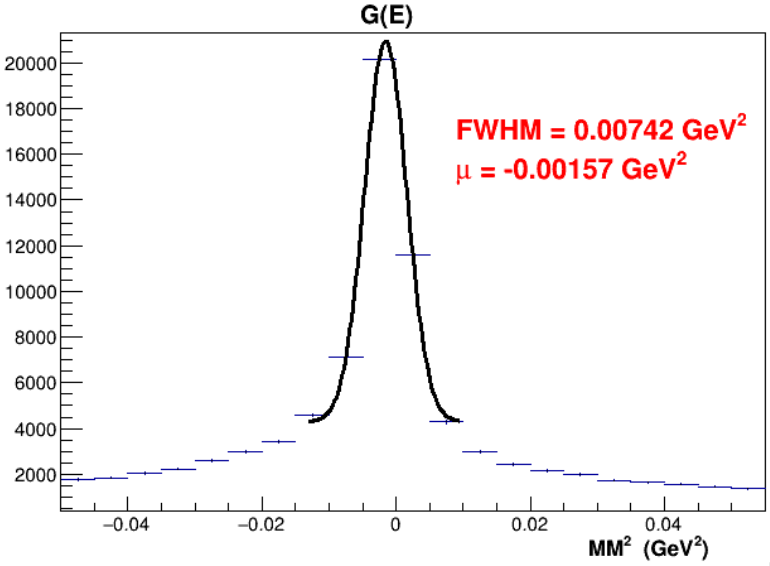


MM^2 Width and Mean for $\gamma_v\, p \rightarrow p\, K^-\, K^+$





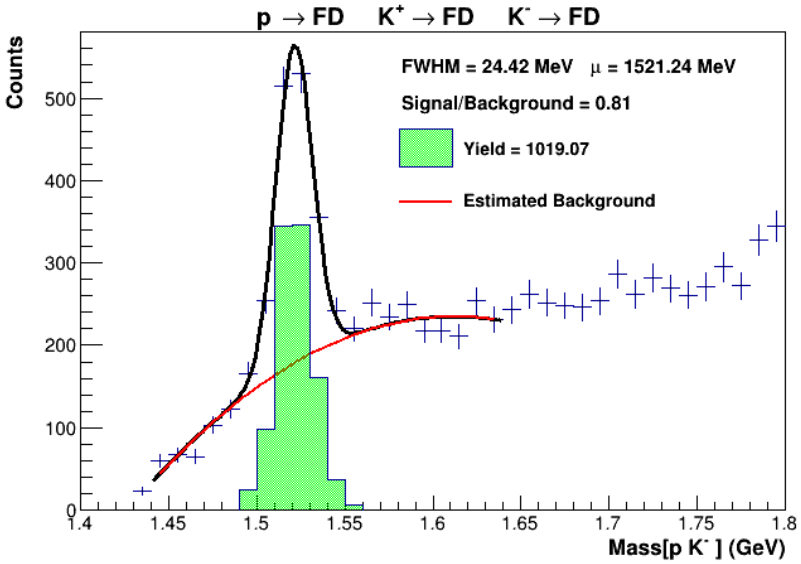


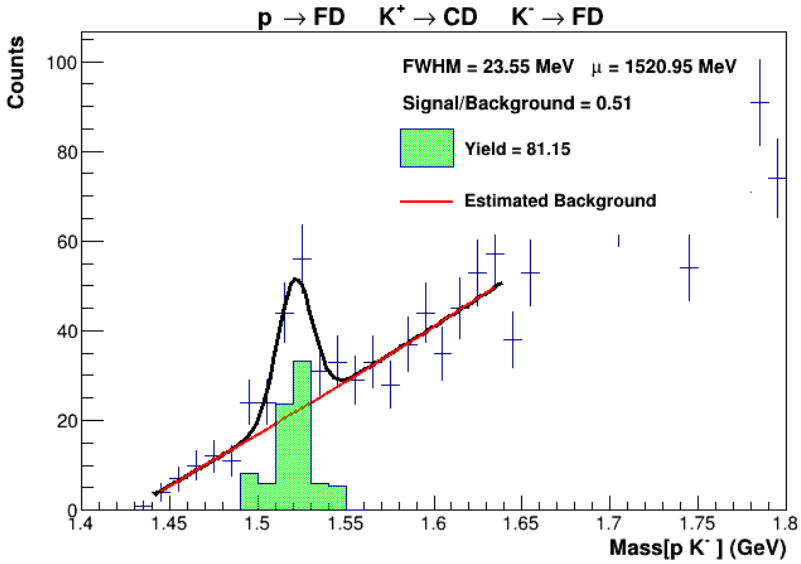


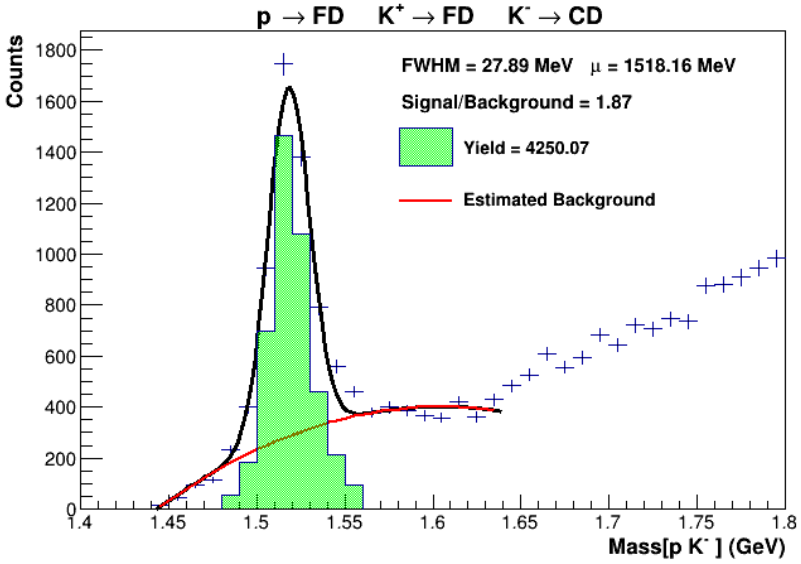
Detector Subsystem Study for $\gamma_v\, p \rightarrow p\, K^-\, K^+$

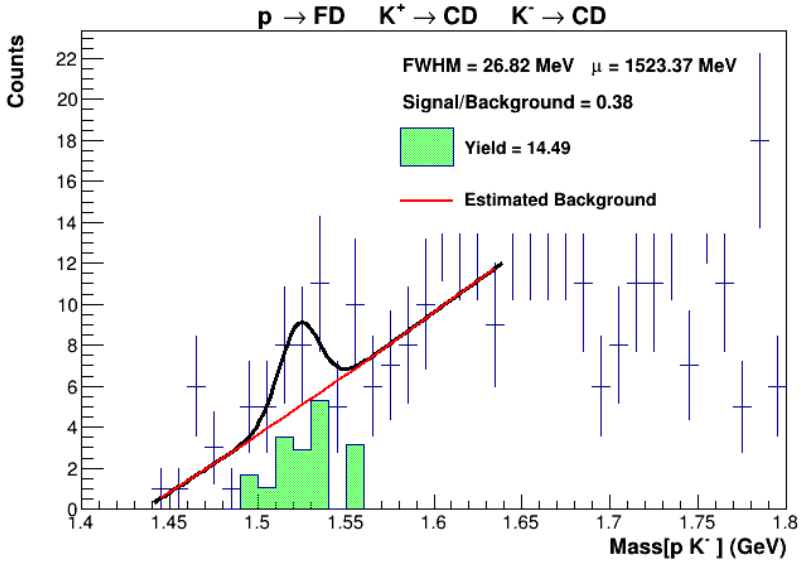
- Now using F(E) as FT energy correction (Geraint's correction)
- Events selected whose MM^2 fits within five standard deviations of mean
- Mass[$K^-\, K^+$] > 1.035 GeV

$p \rightarrow$ FD

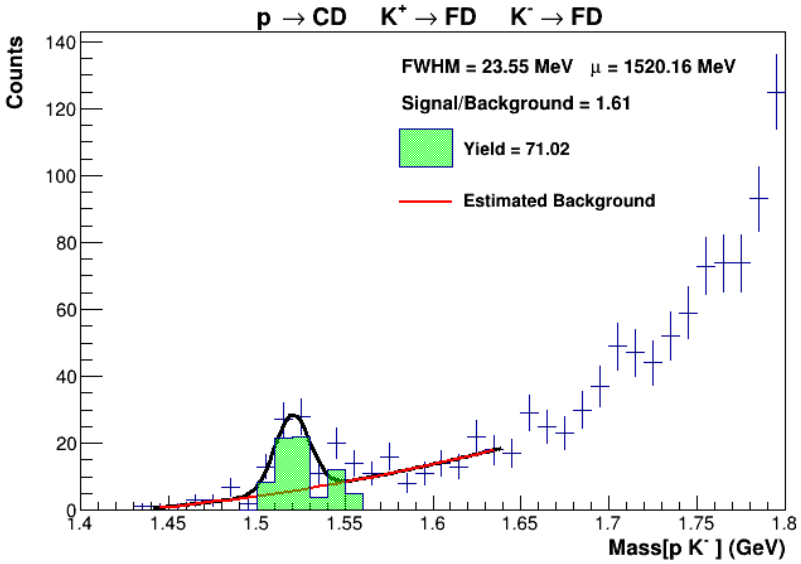


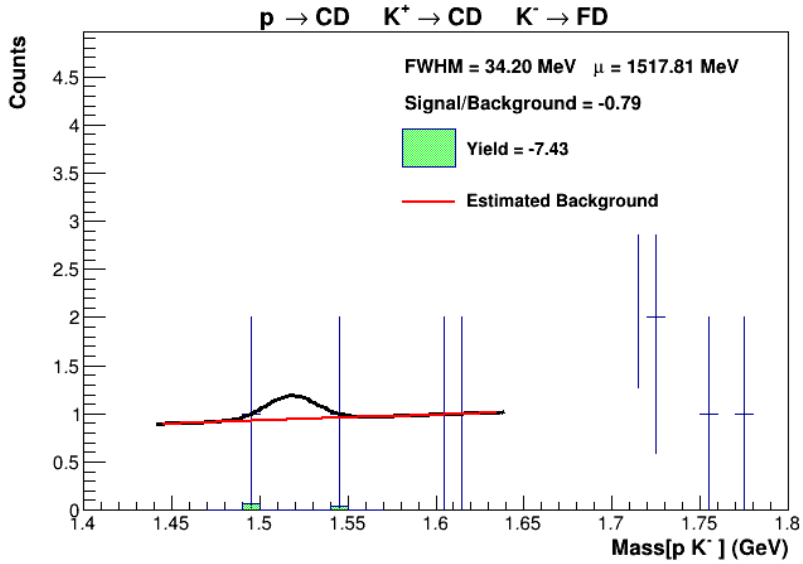


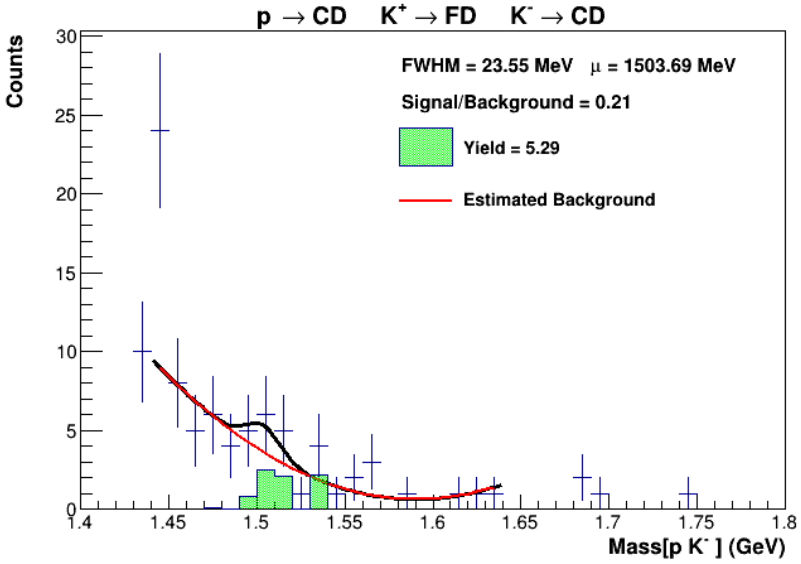


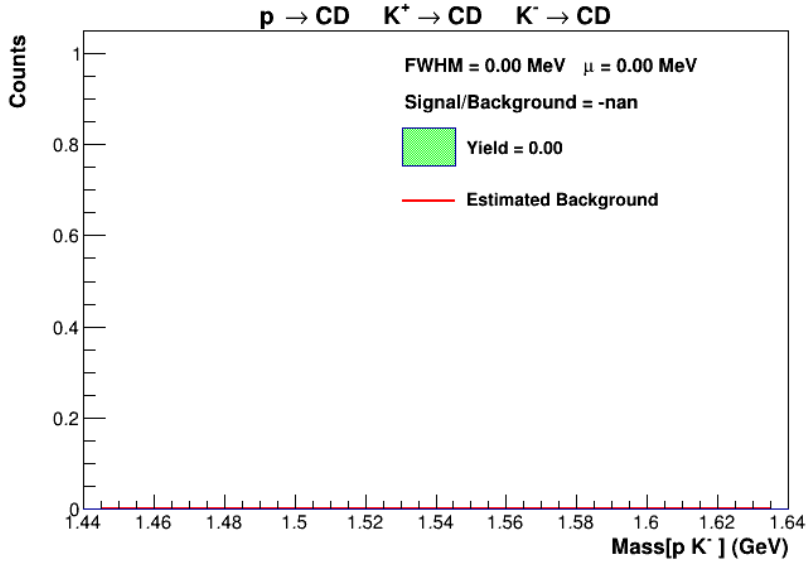


$p \rightarrow$ CD









$\Lambda(1520)$ Study Requirements

- Required that both $p \rightarrow$ FD and $K^+ \rightarrow$ FD
- |Missing z-momentum| < .5 GeV
- |Missing transverse momentum| <.15 GeV

$\Lambda(1520)$ Binning in Terms of t and $\sqrt{s}$