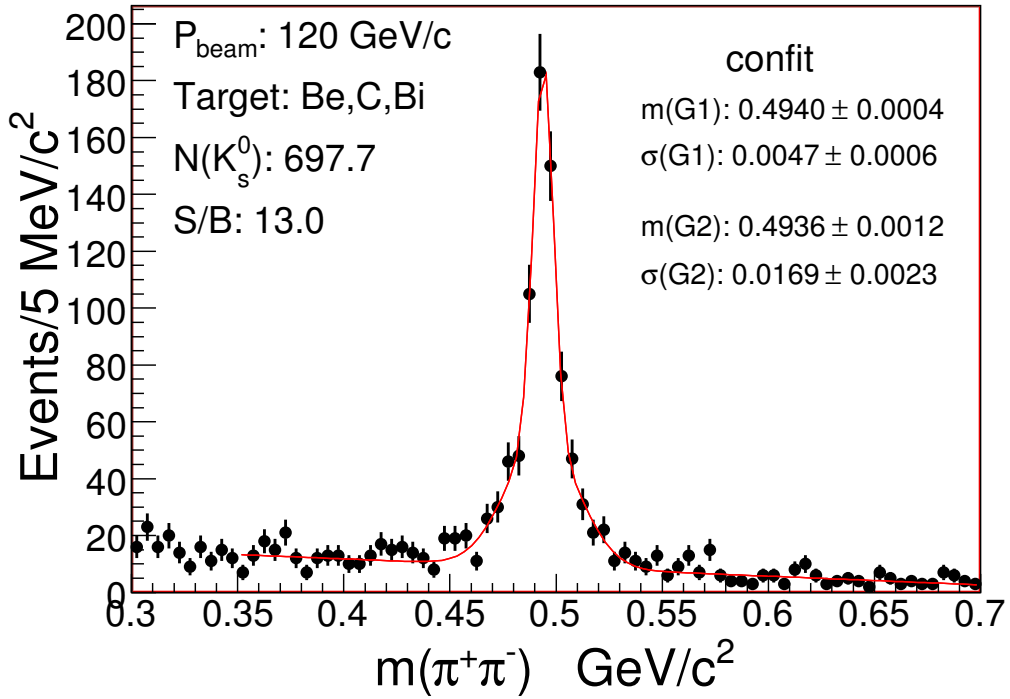
$K_s^o \rightarrow \pi^+\pi^-$ reco update



Mass distribution of $\pi^+\pi^-$ pairs from K_s^o decays.

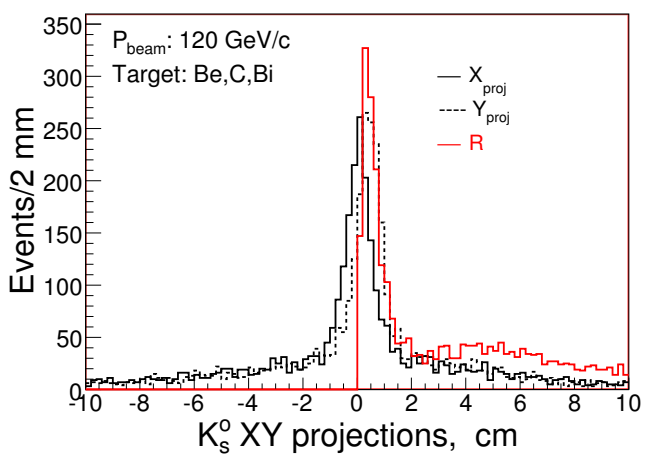
CUTS:

- beam trk selection: no cuts
- primary vertex: not considered
- secondary (K_s^o) vtx:
  - two track vertex
  - $q_1 \times q_2$ = -1
  - TPC hits $\geq$ 15
  - GOF $\geq$ 0.001
  - $p_T(K_s^o)$ >0.01 GeV/c
  - $ptot(K_s^o)$ >0.8 GeV/c
  - K_s^o projection pointing to tgt NEW

K_s^o vertex positions

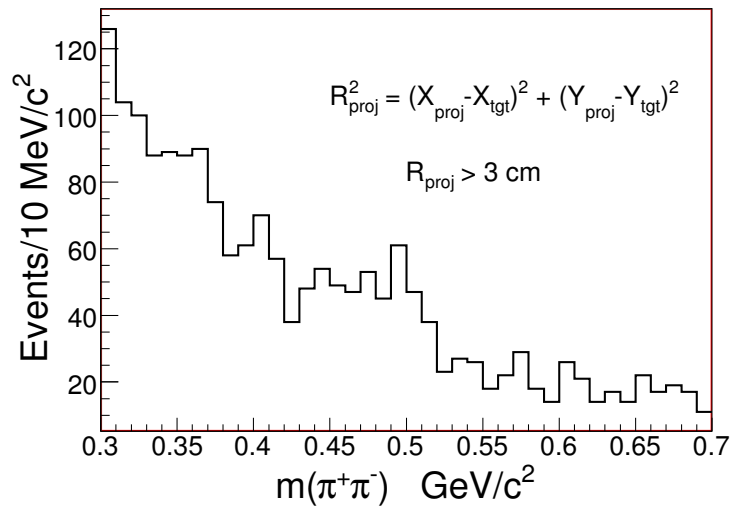
K_s^o projection pointing to tgt NEW:

- calculate P_x, P_y, P_z of K_s^o
- find slopeX = atan(P_x/P_z), slopeY = atan(P_y/P_z)
- make linear projection of K_s^o vector to Z_{tgt}
- R^2_{proj} = $(X_{proj} - X_{tgt})^2$ + $(Y_{proj} - Y_{tgt})^2$

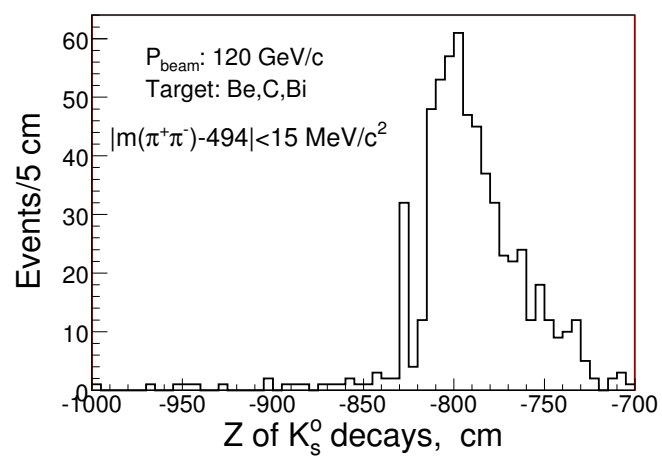


Projections of the K_s^o momentum vector to Z_{tgt}.

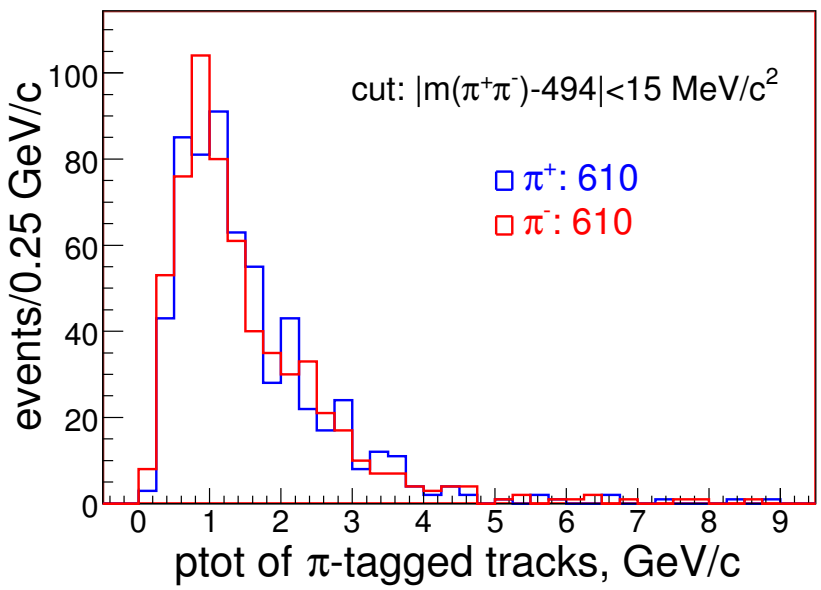
Cut: $R_{proj} < r_{tgt}$ (2.5 cm)

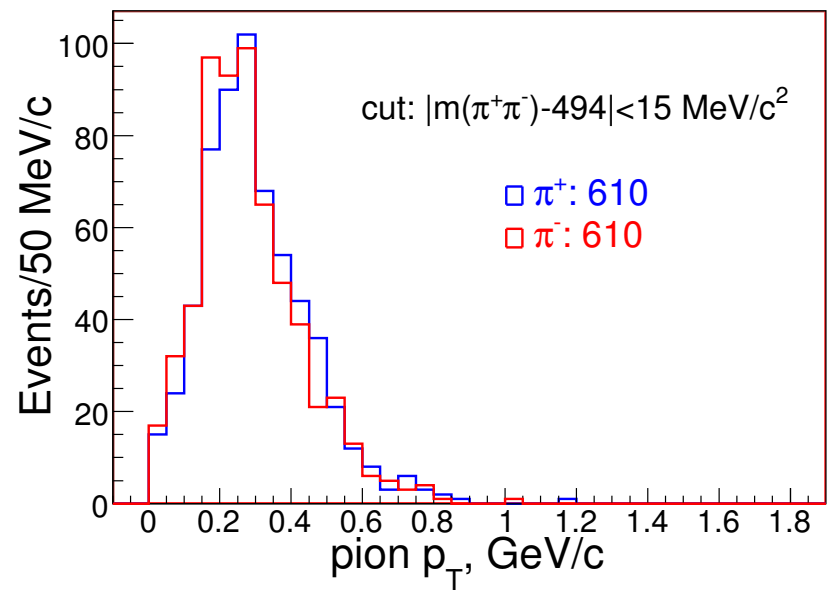


m($\pi^+\pi^-$) with $R_{proj} > 3.0$ cm cut



Vertex Z positions of $\pi^+\pi^-$ pairs from K_s^o decays.



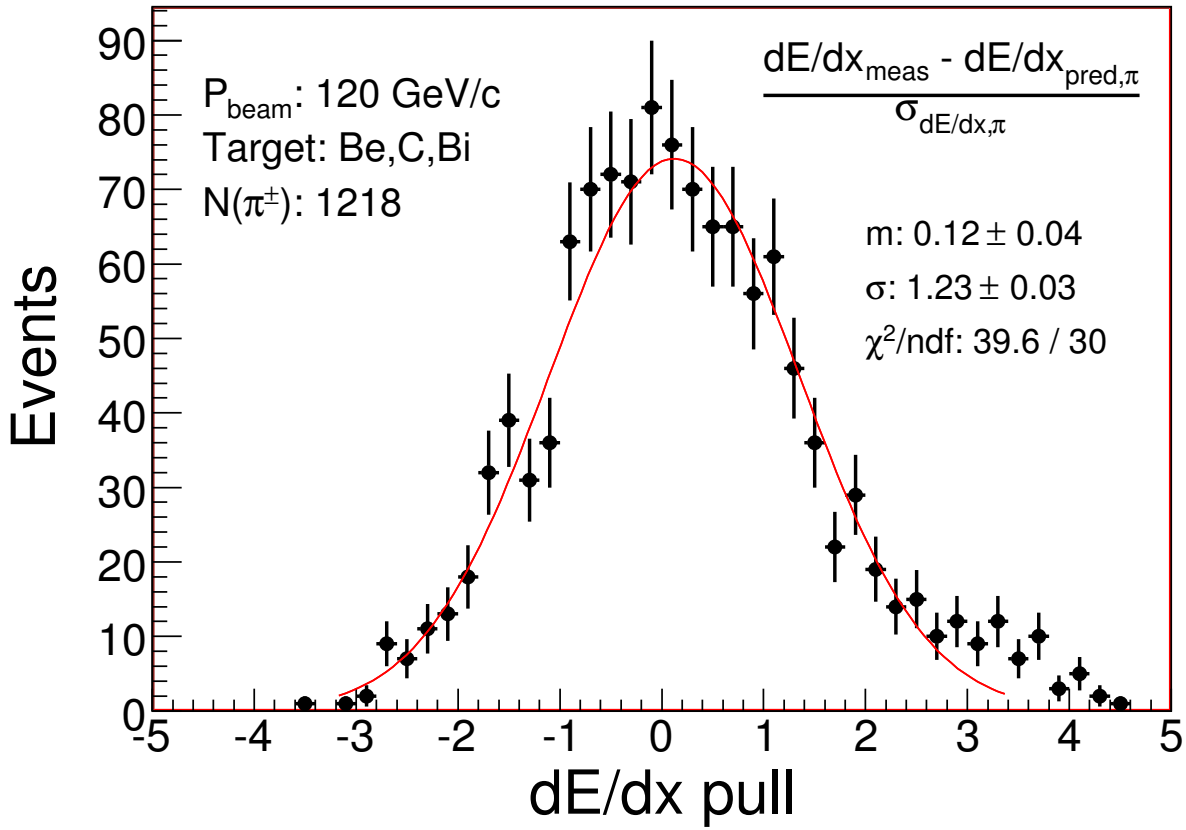


LEFT: ptot distributions of tagged pions from K_s^o decays.

RIGHT: p_T distributions of tagged pions.

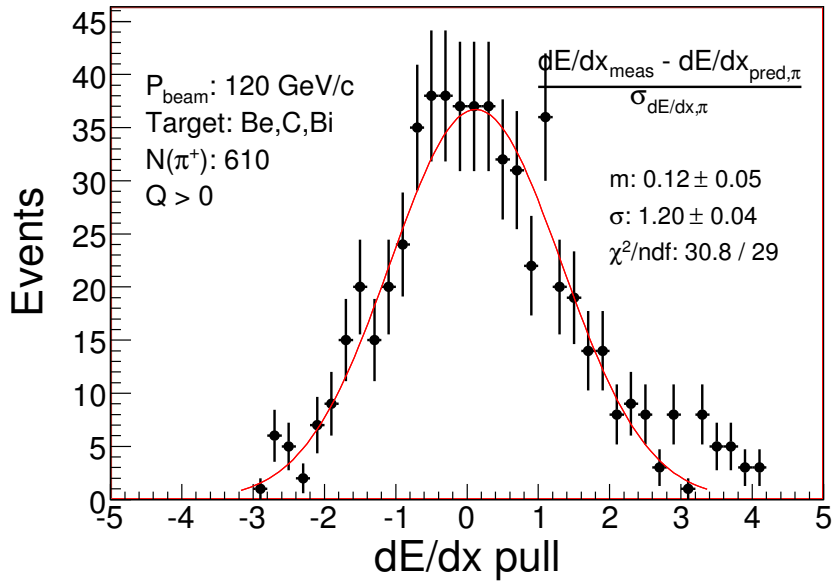
TPC dE/dx

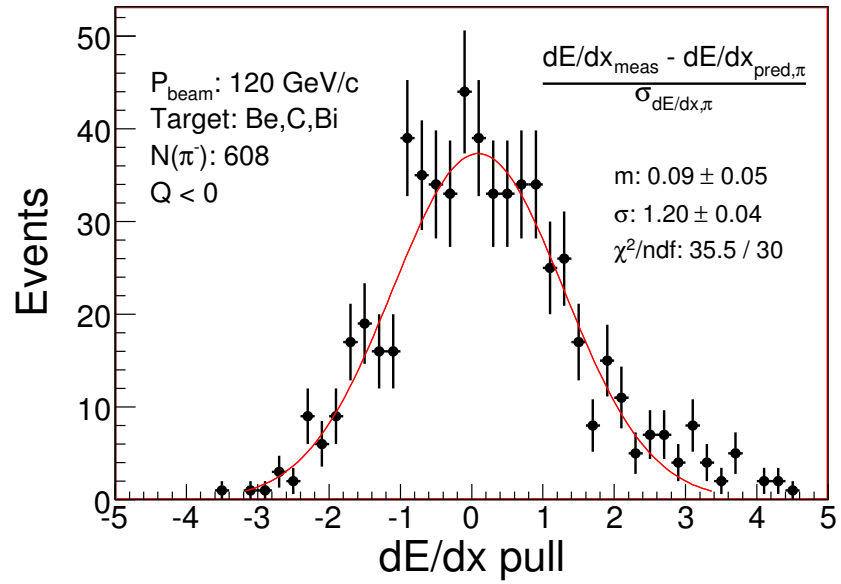
Test of TPC dE/dx with the tagged pions from K_s^o decays



TPC dE/dx pull, $\frac{dE/dx_{meas} - dE/dx_{pred,\pi}}{\sigma_{dE/dx,\pi}}$, distribution calculated using the tagged pions from K_s^o decays. If calibration done properly, then the fit results expected to be as m=0 and σ=1

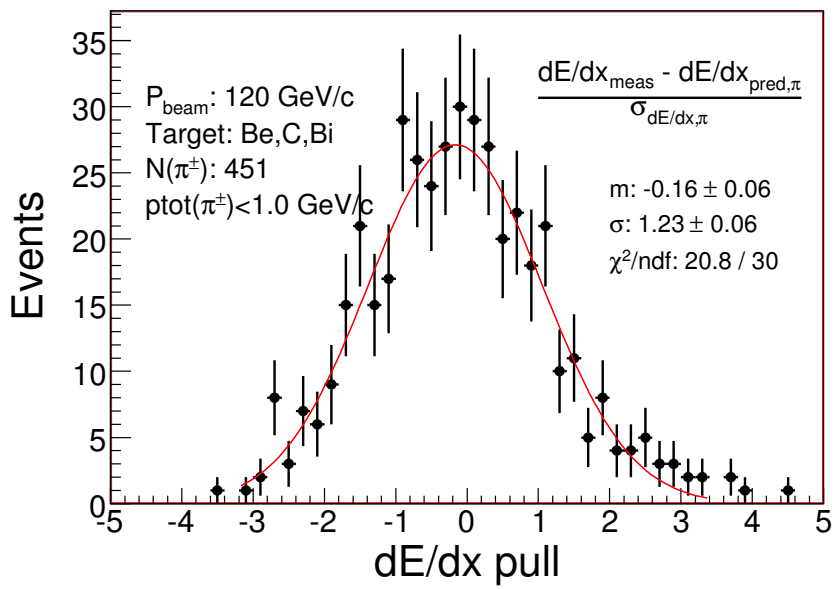
is any charge dependence?

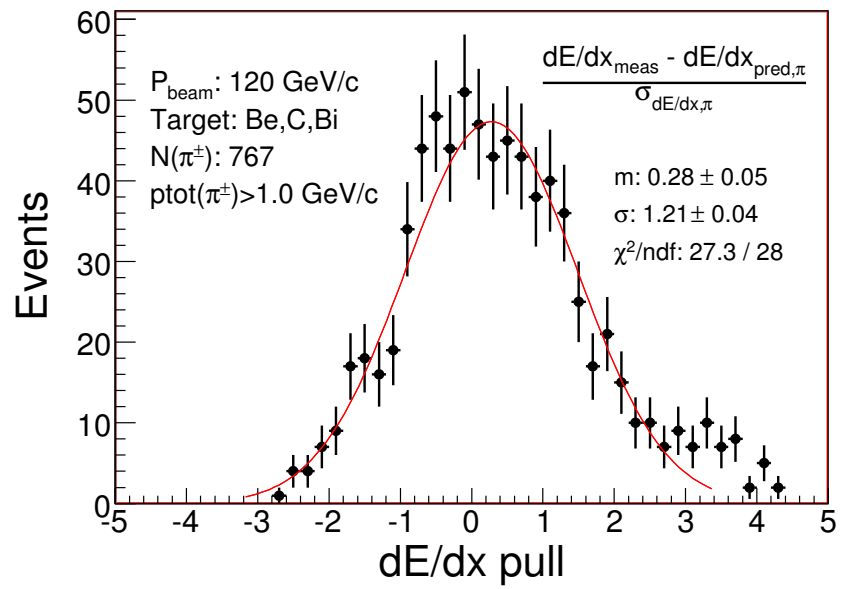




TPC dE/dx pull distributions for positive (LEFT) and negative (RIGHT) pions.

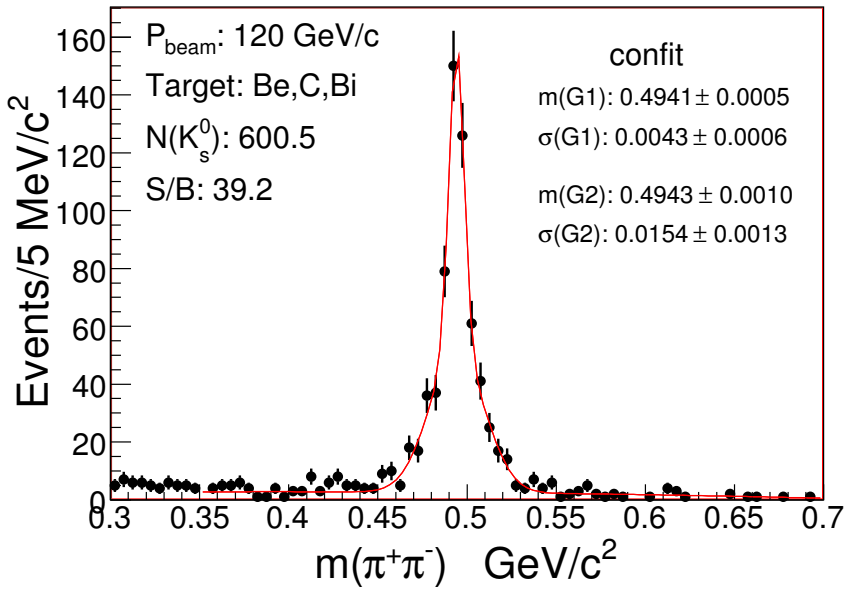
is any momentum dependence?

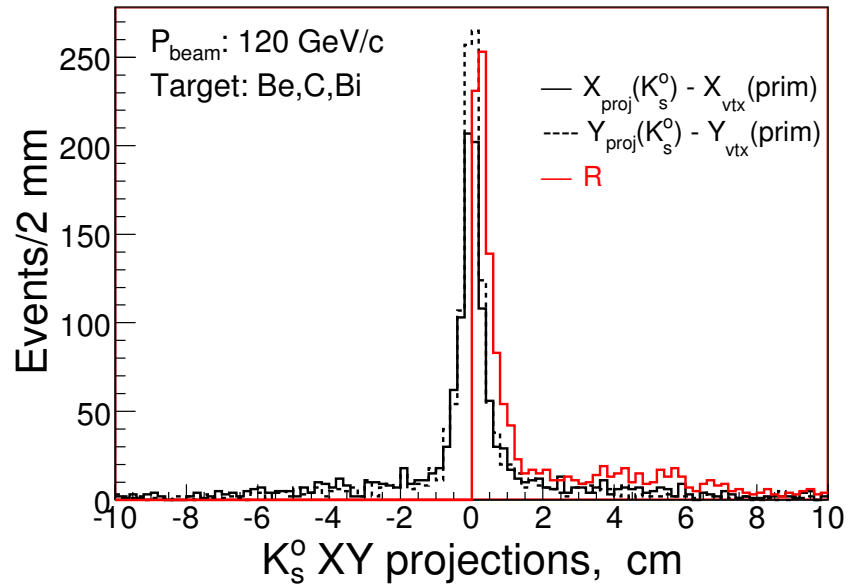




TPC dE/dx pull distributions for pion's $ptot$ <1.0 GeV/c (LEFT) and $ptot$ >1.0 GeV/c (RIGHT).

on-going efforts





Left: m($\pi^+\pi^-$) distribution with R$<$1.5 cm cut