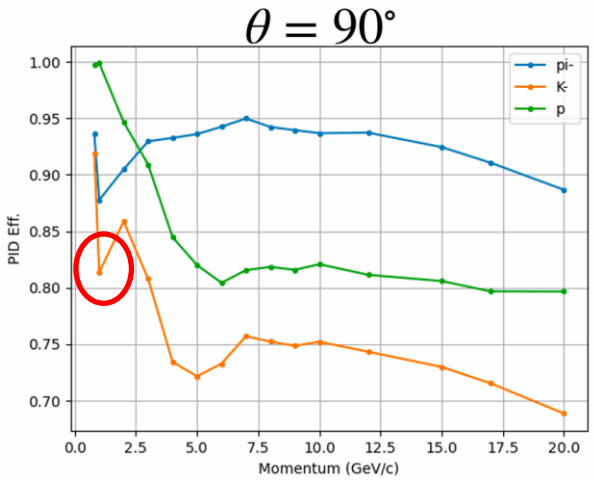
PID efficiency study

- K/π eff fall rapidly around 1 GeV
- K/p eff dip around 5 GeV
- Abnormal effs at $\boldsymbol{\theta = 45°}$
- Other distributions in backup

$$\chi^2(i) = \chi^2_{\mathrm{TOF}}(i) + \chi^2_{\mathrm{TPC}}(i), i = \pi/K/p$$

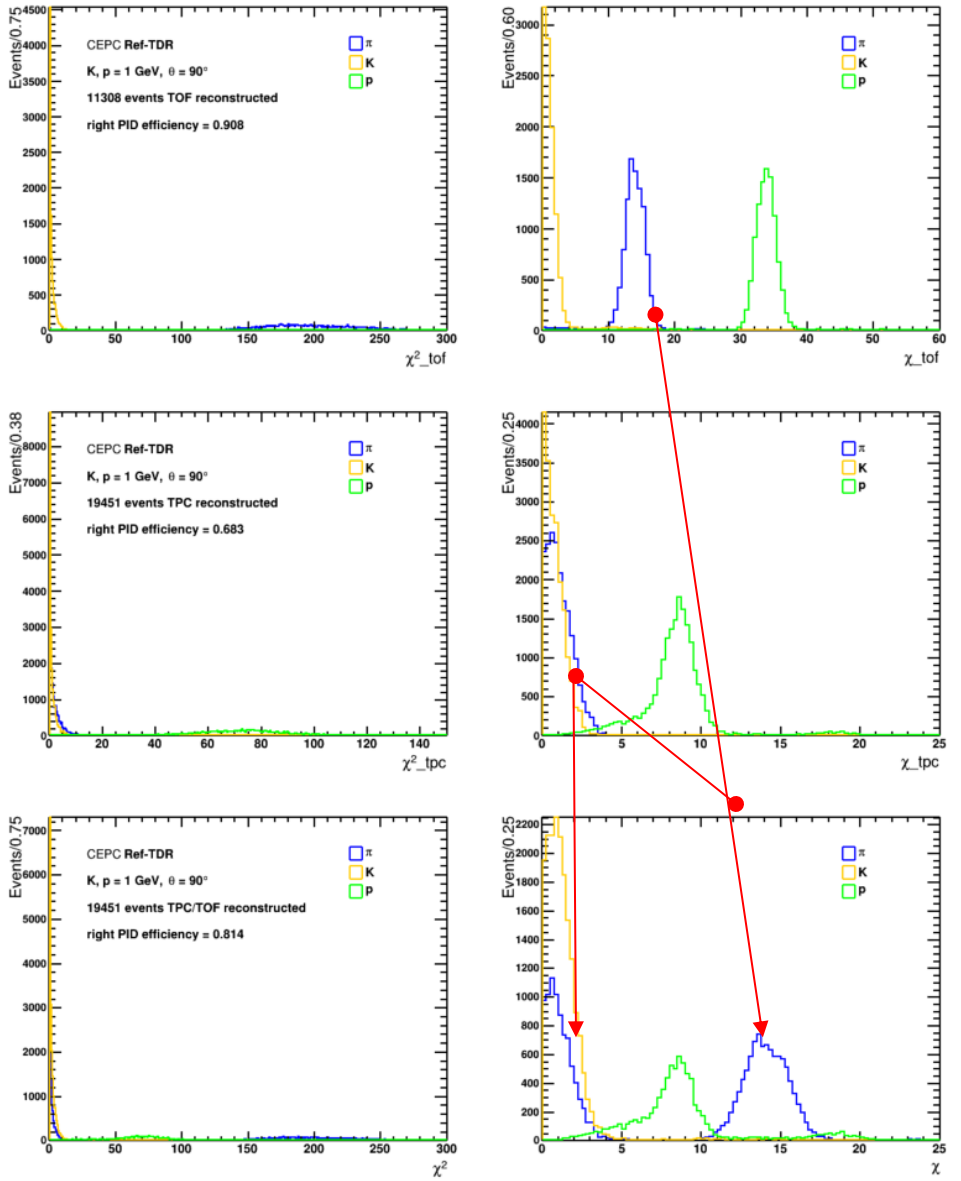
$$\mathrm{Efficiency}(i) = N^{reco}_{i\left(\chi^2(i)<\chi^2(j)\right)}/N^{reco}_i$$

K eff falls rapidly around 1 GeV

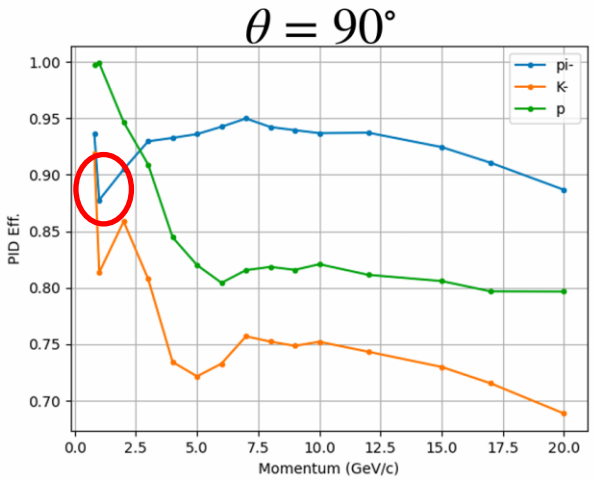


From Chenguang

- TOF reconstructed only 58% of TPC + TOF reconstructed events
- Information loss in TOF caused lower $\chi^2(\pi)$

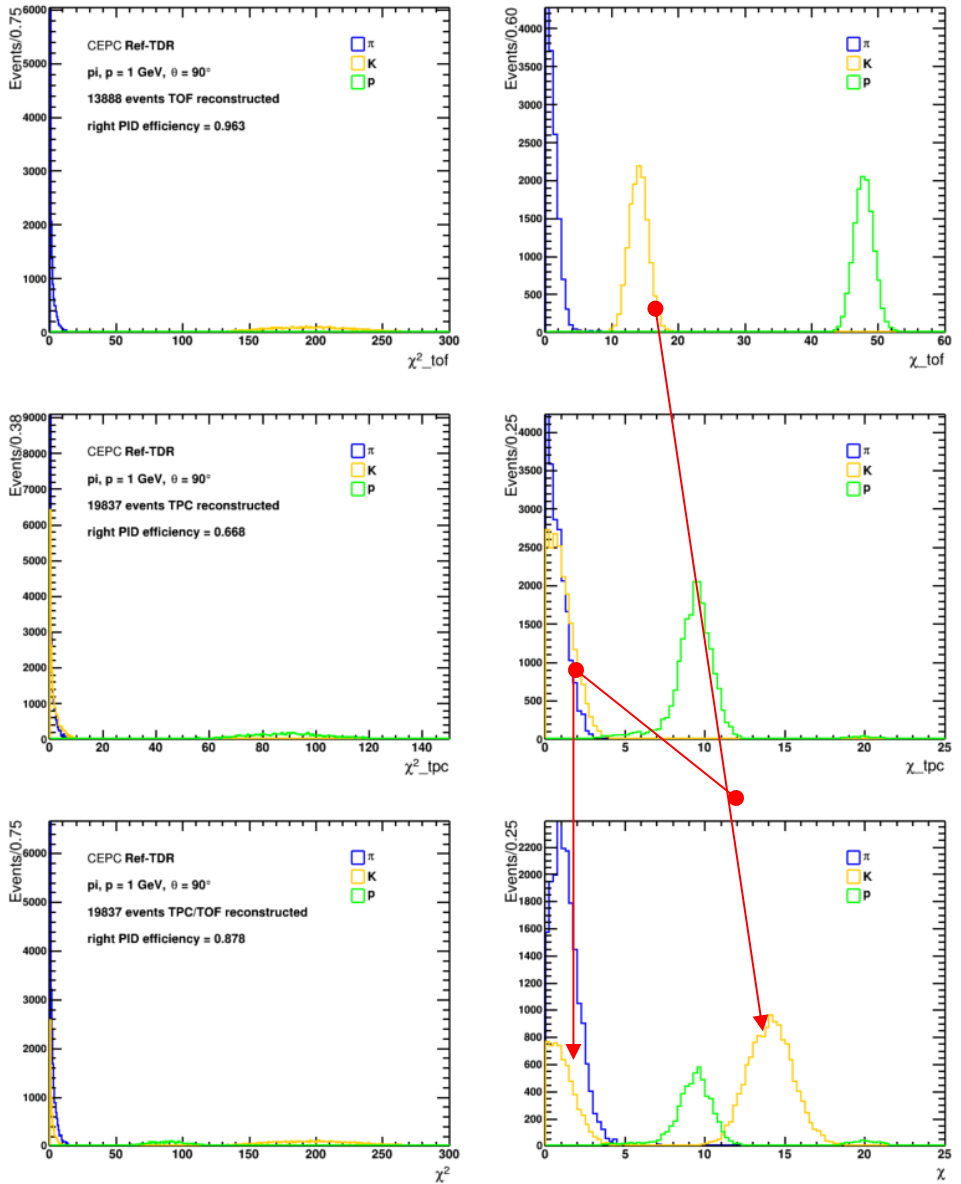


π eff falls rapidly around 1 GeV

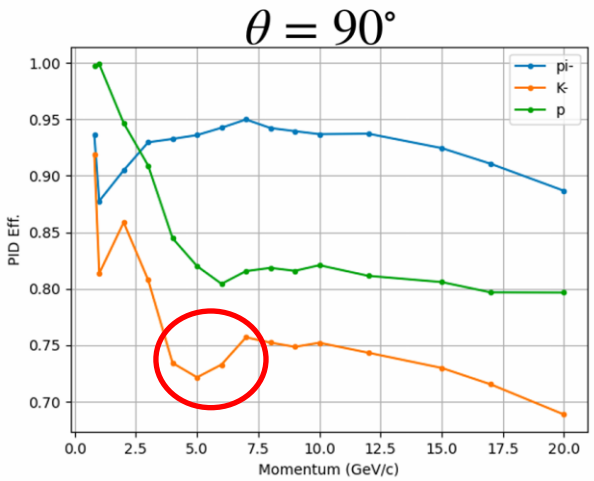


From Chenguang

- TOF reconstructed only 70% of TPC + TOF reconstructed events
- Information loss in TOF caused lower $\chi^2(K)$

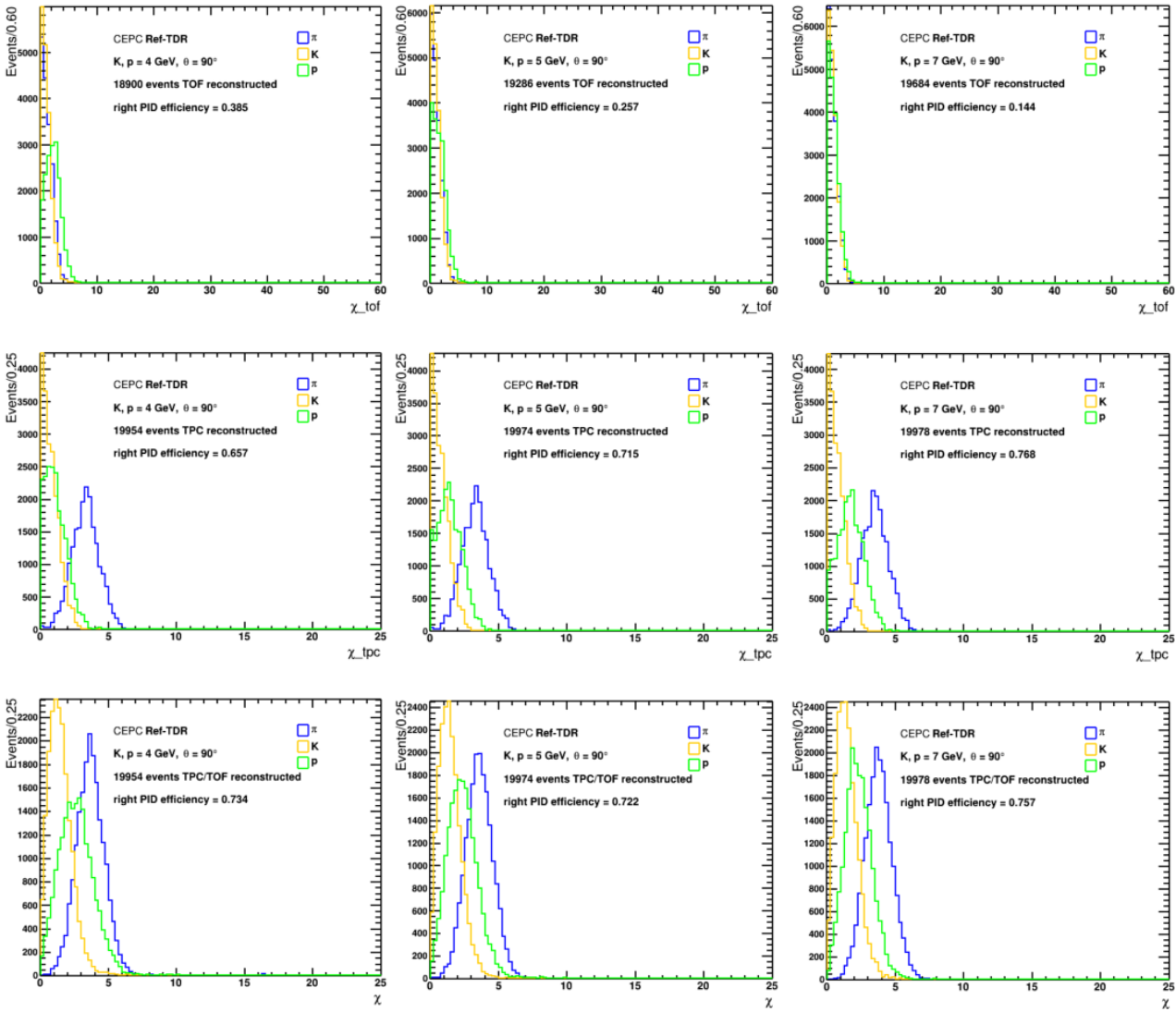


K eff dip around 5 GeV



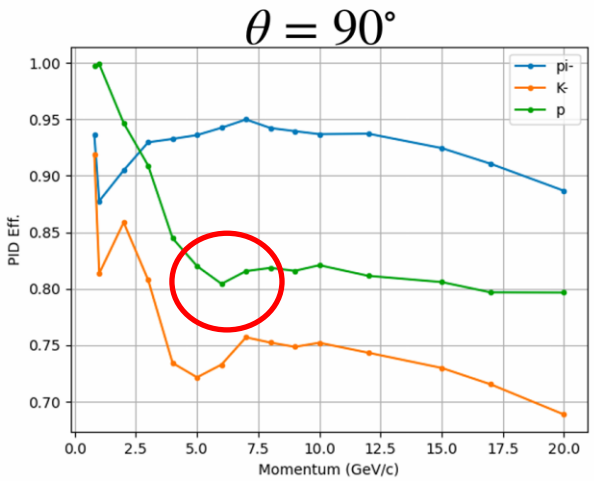
From Chenguang

- Haven't understood yet



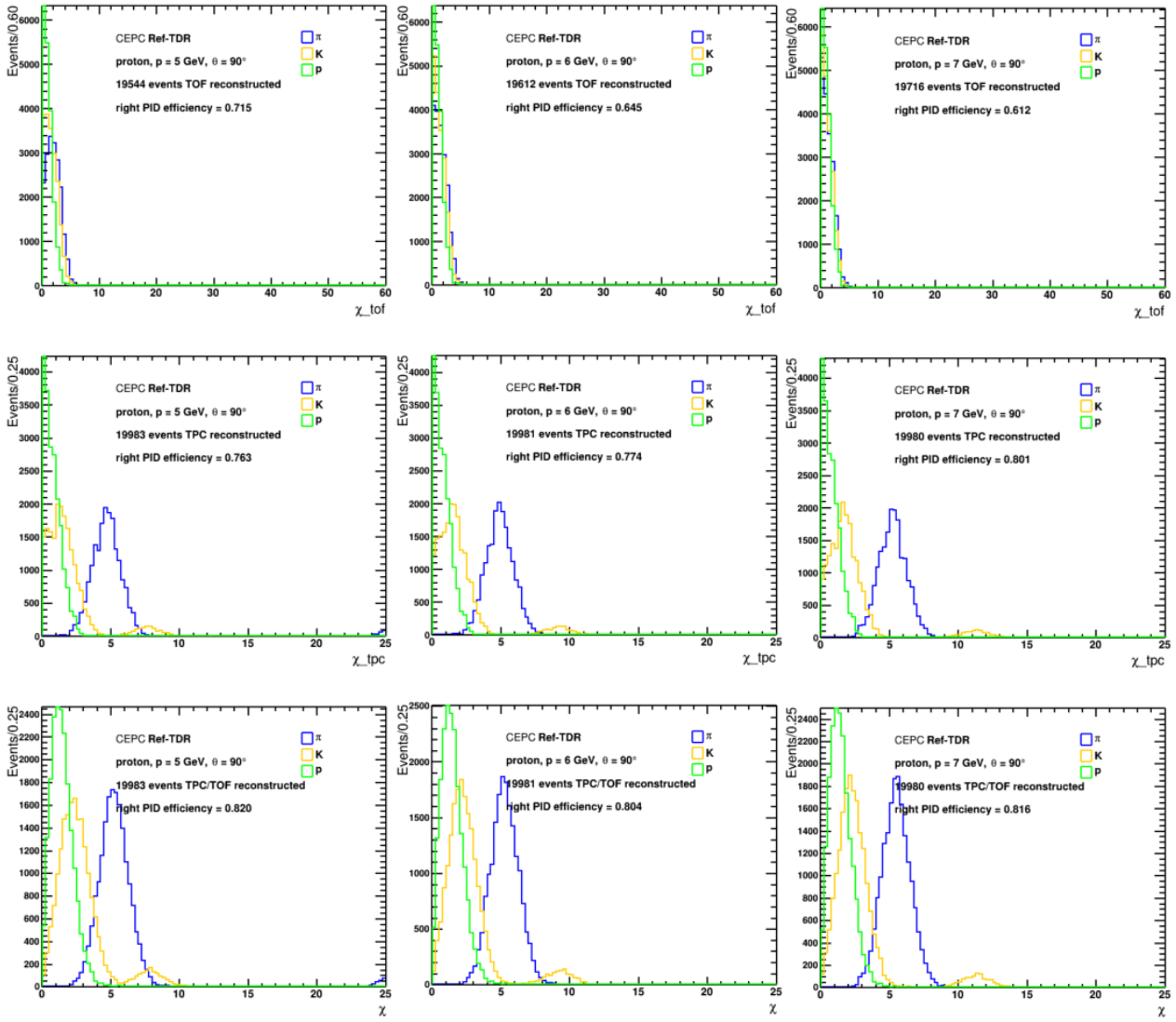
$p = 4$GeV $p = 5$GeV $p = 7$GeV

p eff dip around 5 GeV



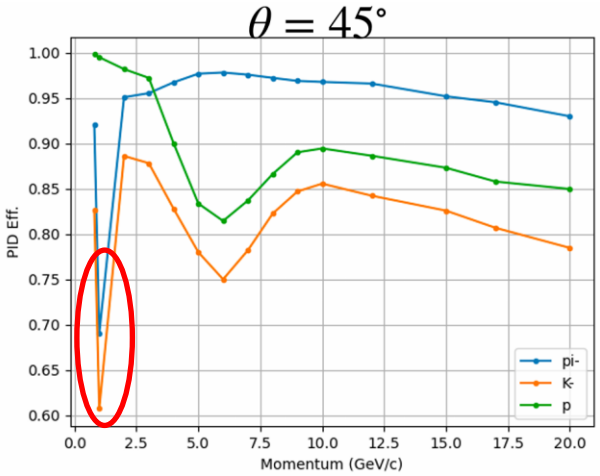
From Chenguang

- Haven't understood yet



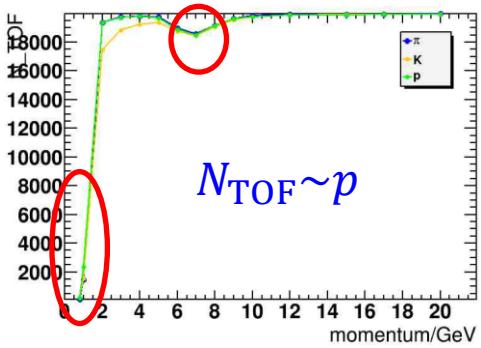
$p = 5$GeV $p = 6$GeV $p = 7$GeV

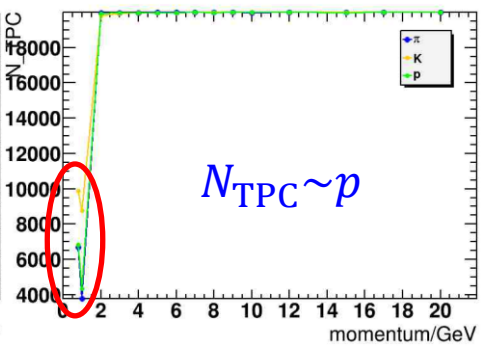
Abnormal effs at $\theta = 45°$

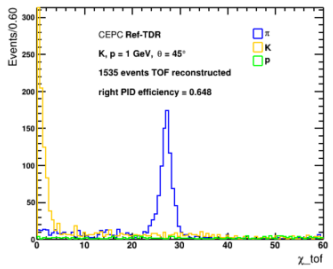


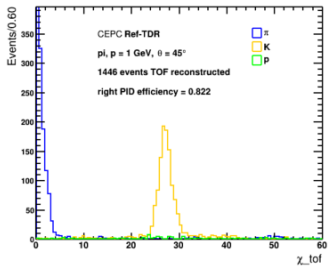
From Chenguang

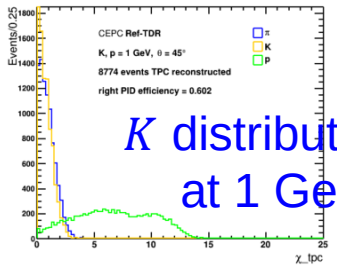
- Much lower π/K effs around 1 GeV
- Low TPC and TOF reconstructed Nevents of 0.8 GeV and 1 GeV
- Dip in TOF reconstructed Nevents around 7 GeV



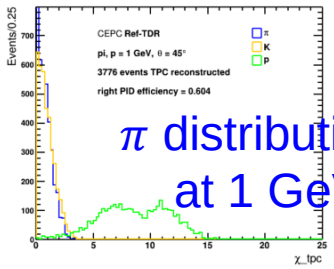




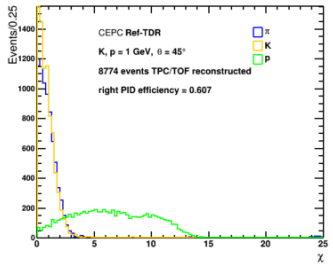


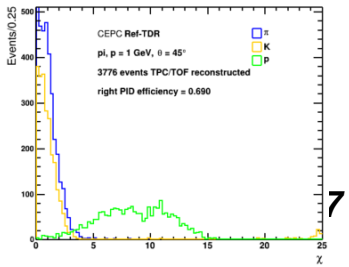


K distributions at 1 GeV



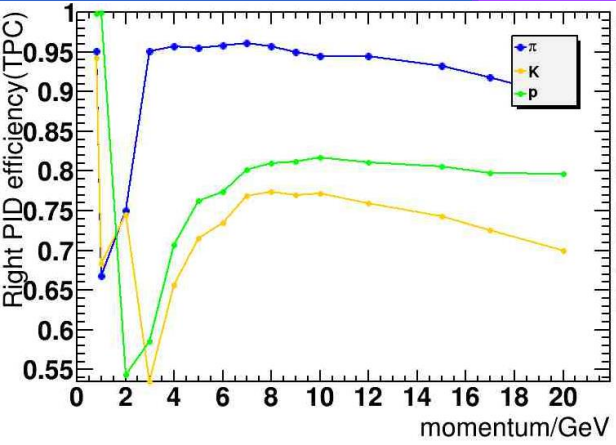
π distributions at 1 GeV

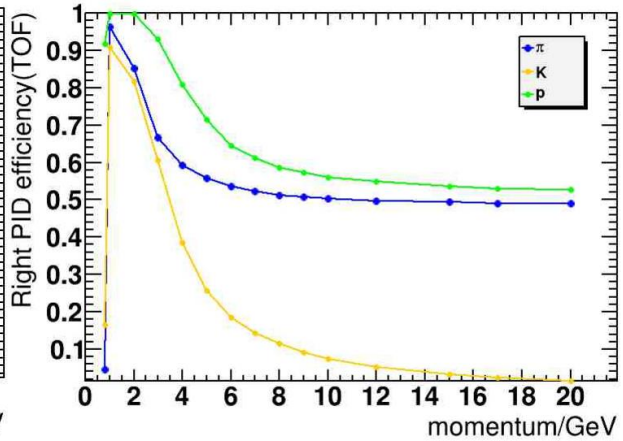


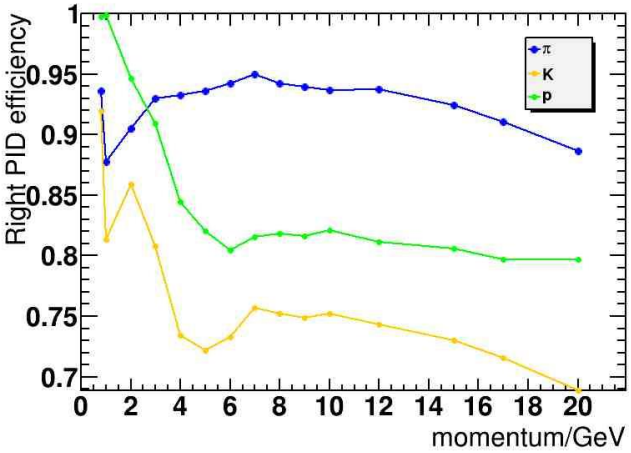


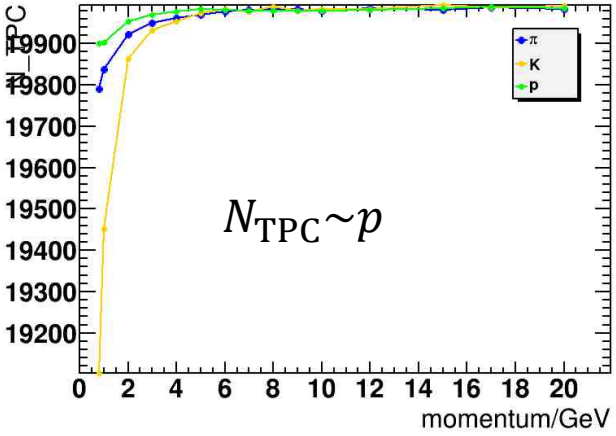
back up

Distributions at 90 degree

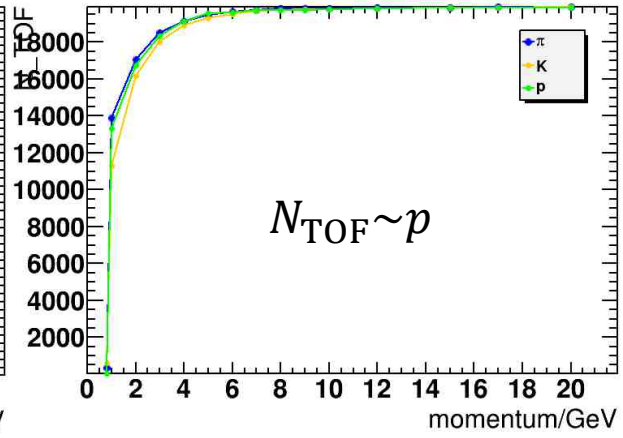




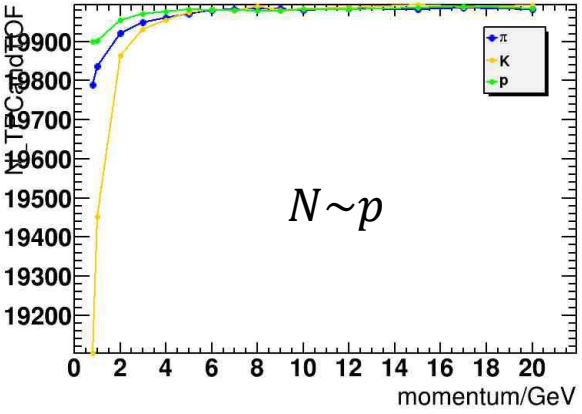




$N_{\mathrm{TPC}} \sim p$

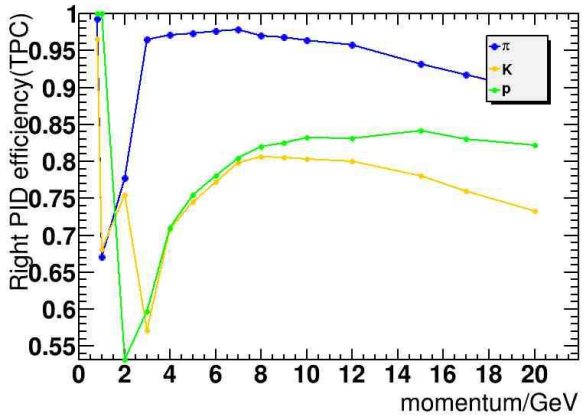


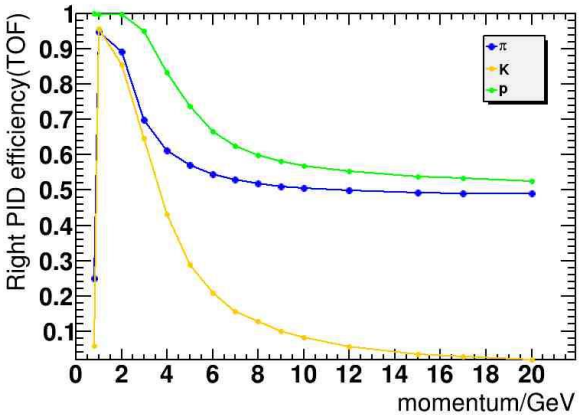
$N_{\mathrm{TOF}} \sim p$

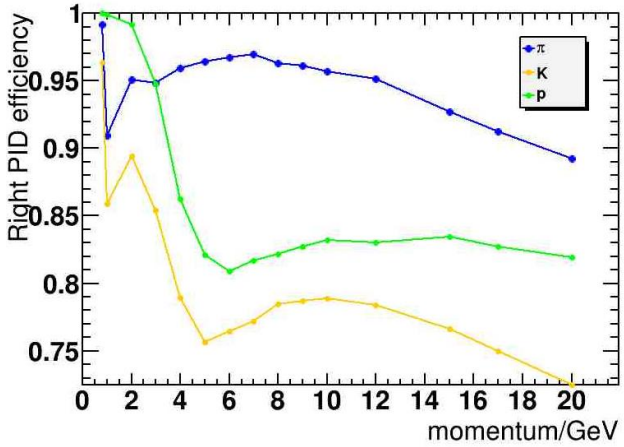


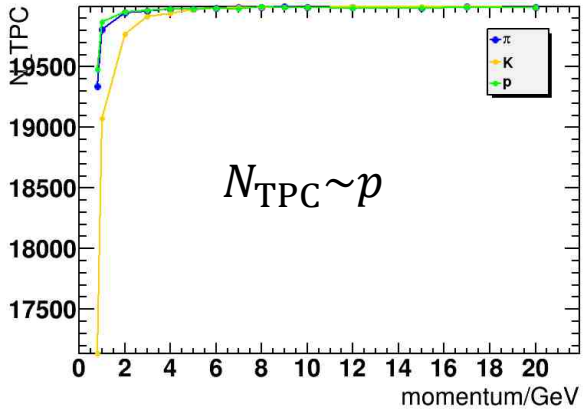
$N \sim p$

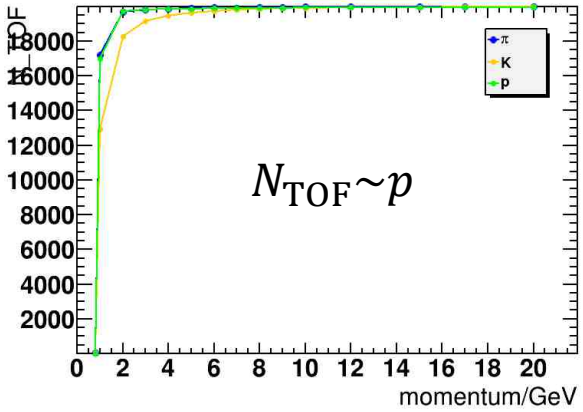
Distributions at 60 degree

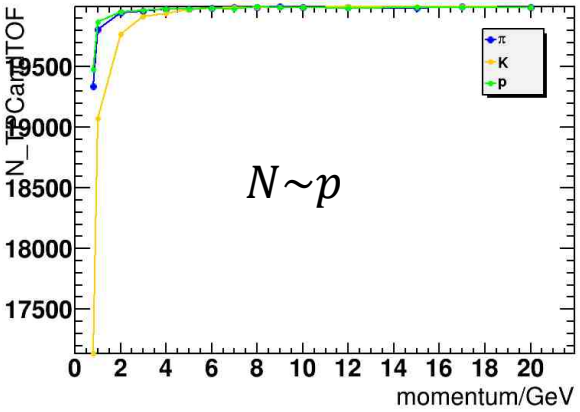




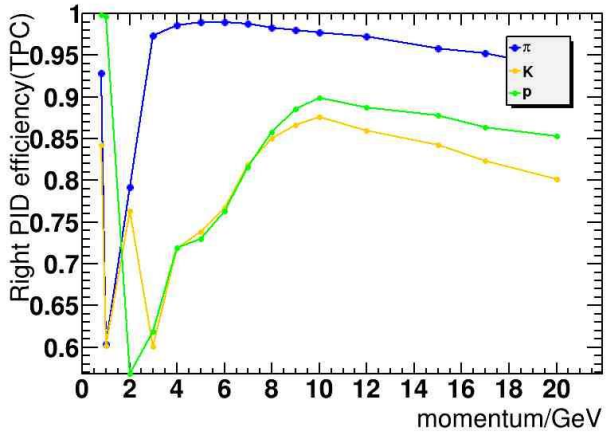


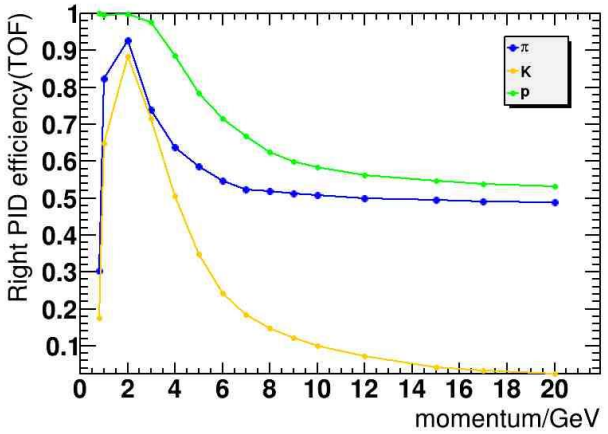


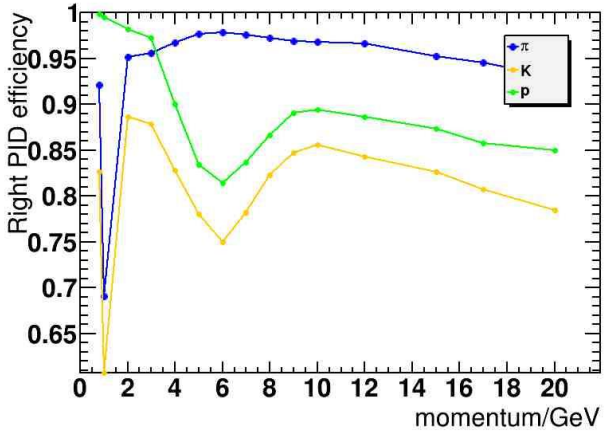


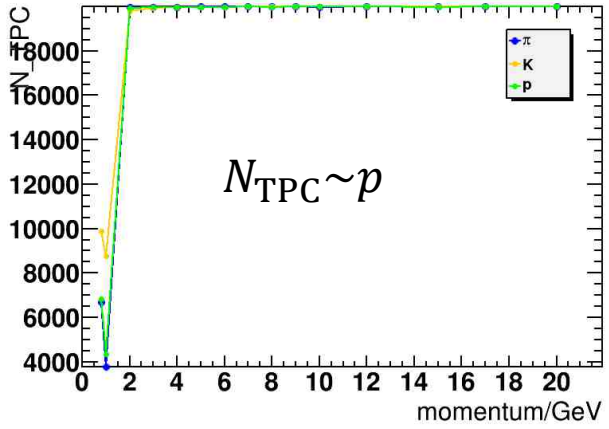


Distributions at 45 degree

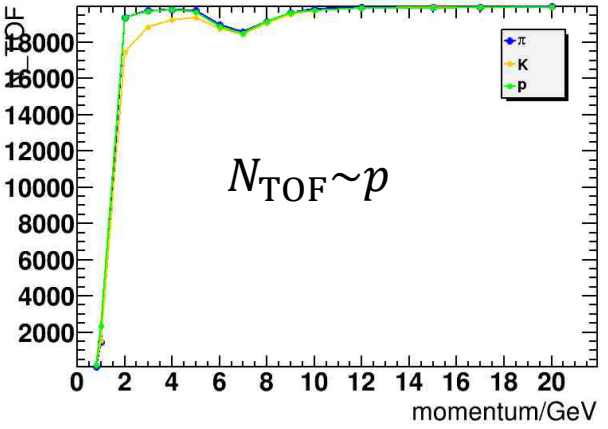




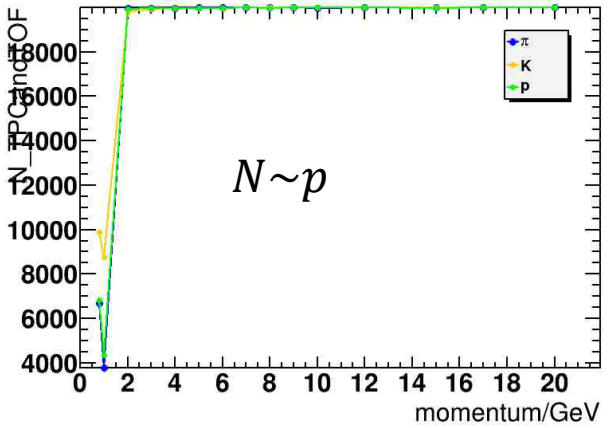




$N_{\mathrm{TPC}} \sim p$



$N_{\mathrm{TOF}} \sim p$



$N \sim p$

Distributions at 35 degree