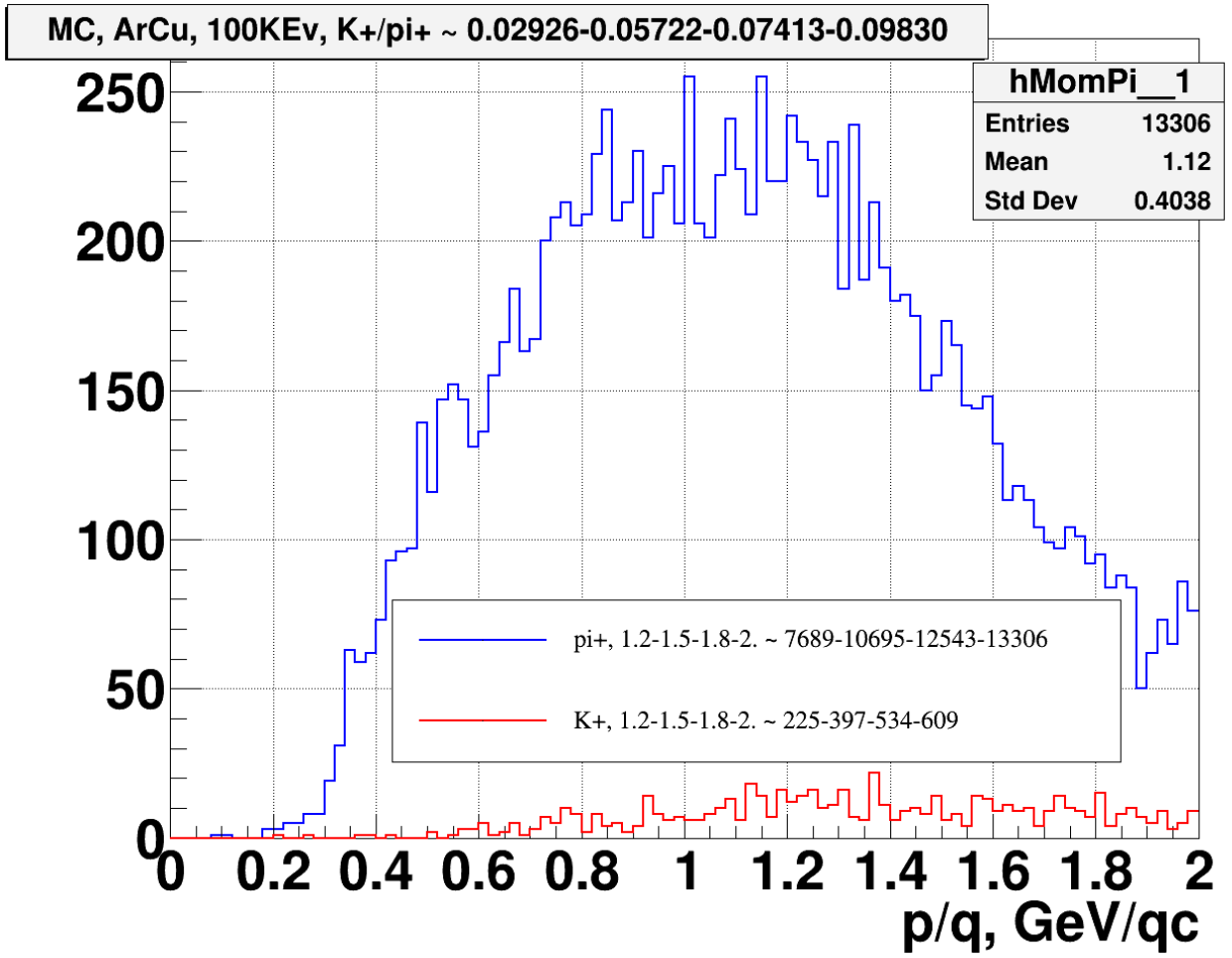
K^+/π^+(pq) argon, MC

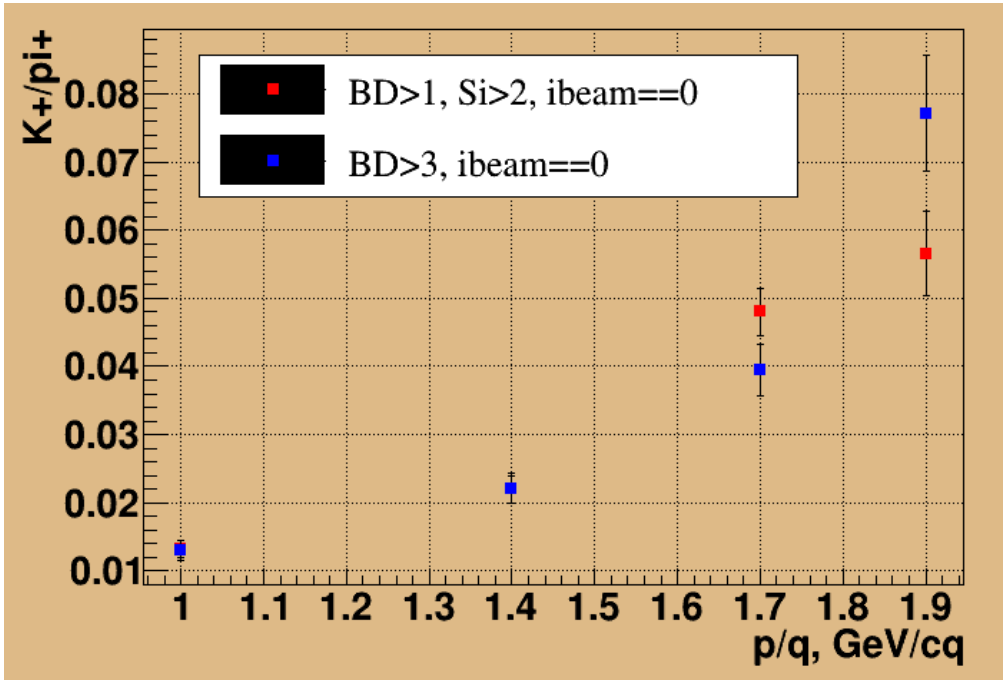
Vasilii Plotnikov 11.04.2019

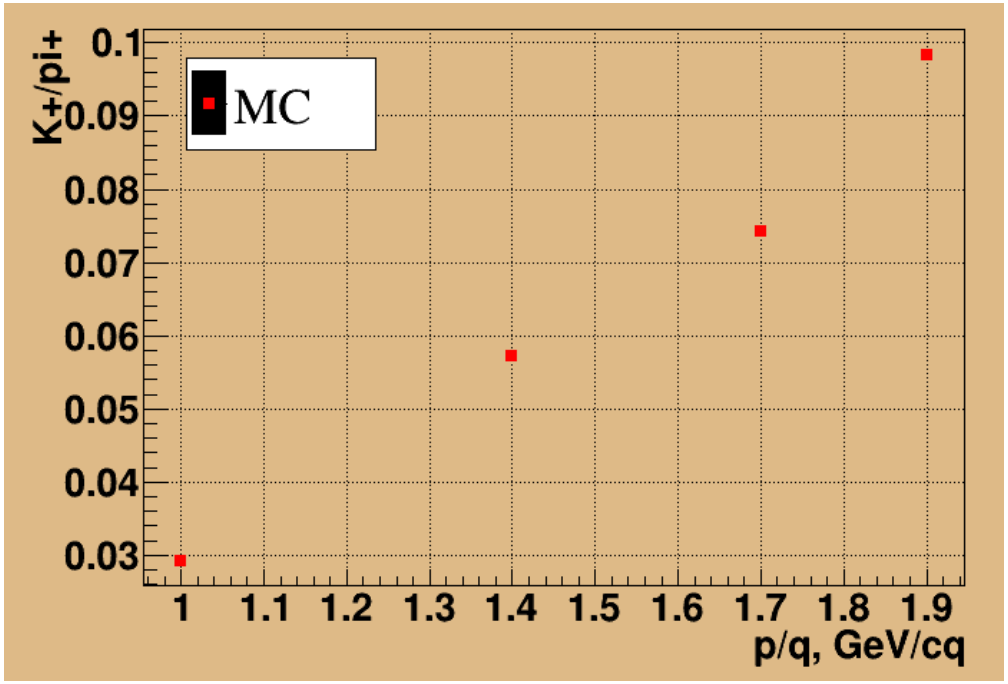
MC ArCu



- Min 5 GEM + TOF400 hit + from Primary Vertex

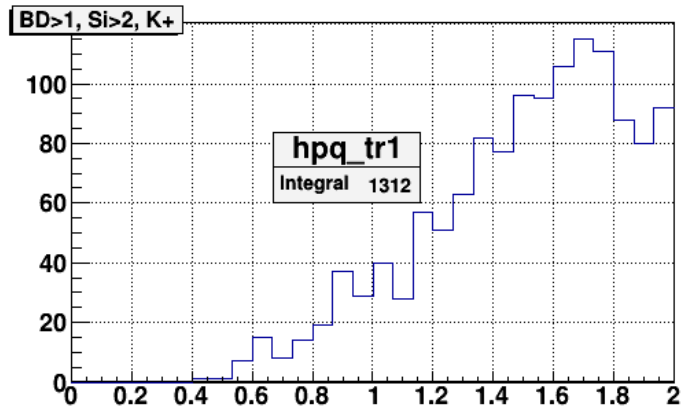
K^+/π^+(pq) Exp vs MC

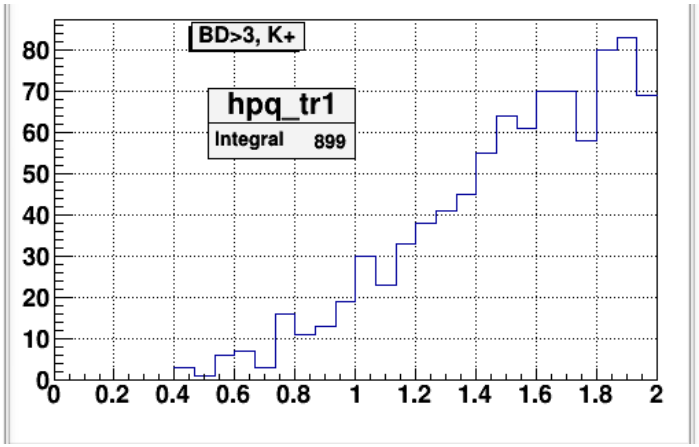


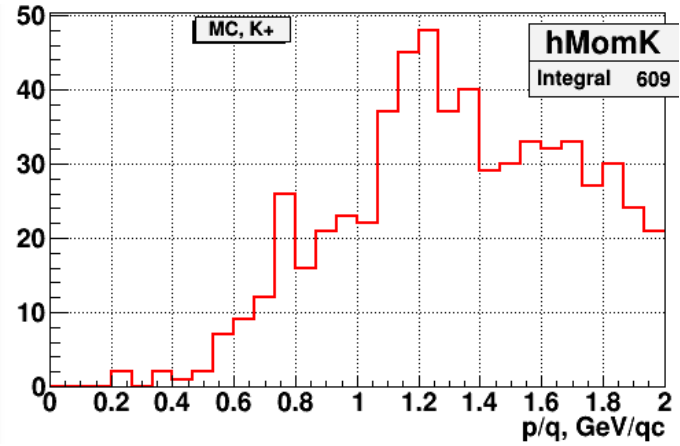


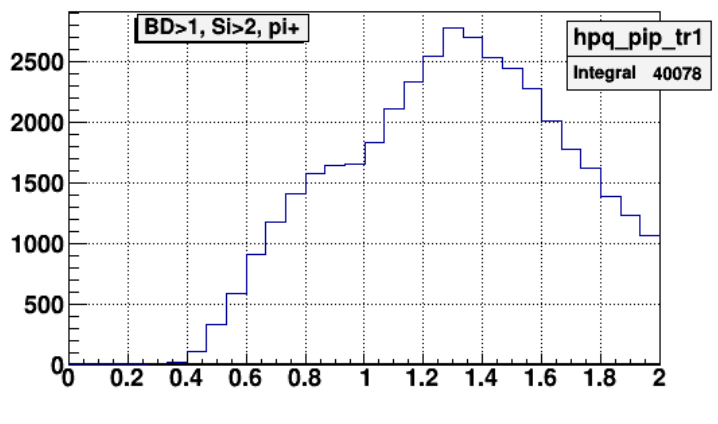
- K^+/π^+ for MC 1.2-2.5 times larger
- Difference are decreased with pq

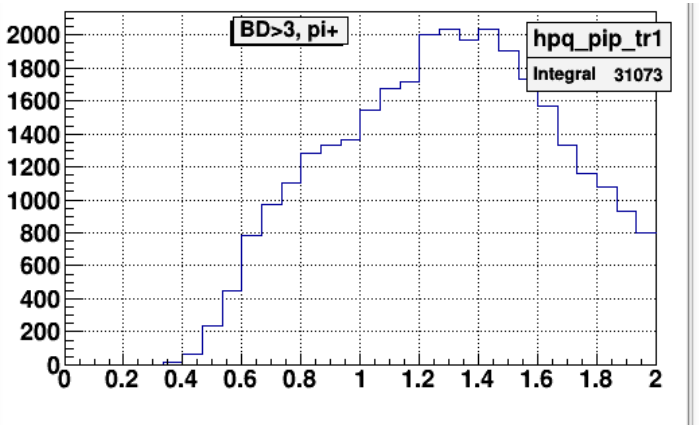
K^+, π^+ pq spectra, Exp vs MC

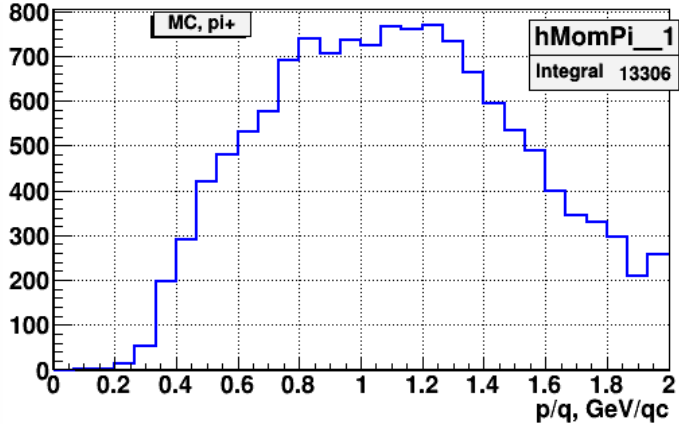






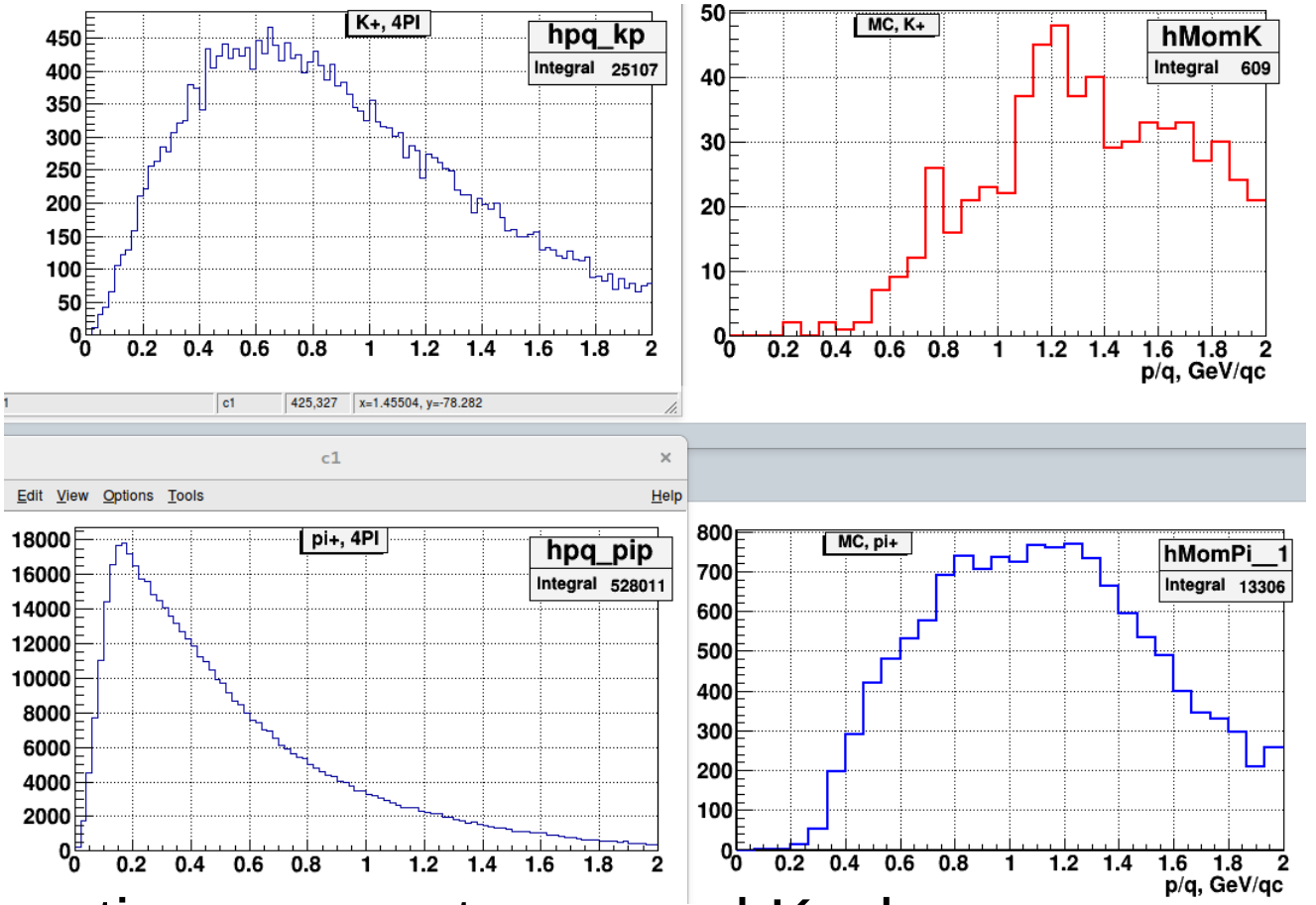






- Left – trigger1, middle – trigger2, right – MC
- K^+ spectra are more different

MC correction



- 2 corrections: acceptance and K^+ decay
- Low edge from Exp 0.5 GeV/qc
- Full K^+ and π^+ spectra are dropped monotonically after 0.5 GeV/qc

MC correction

Pq bin, GeV/cq	0.5<pq<1.2	1.2<pq<1.5	1.5<pq<1.8	1.8<pq<2.0
Coef	0.4287	0.4506	0.5098	0.6127

- Coef=K^+/π^+(TOF400)/$K^+/\pi^+(4\pi)$
- To correct K^+/π^+/Coef
- Difference lower with pq due to less K^+ decays

Efficiency of triggers in pq bins

- Triggers could select π^+ and K^+ differently (π^+ can appear in events with low multiplicity)
- Eff(Trig)=K+/pi+(Trig)/K+/pi+(Empty)
- Two basic sets of runs: Si>2+Si>3, Bd>2+Bd>3
- To get unshifted ratio

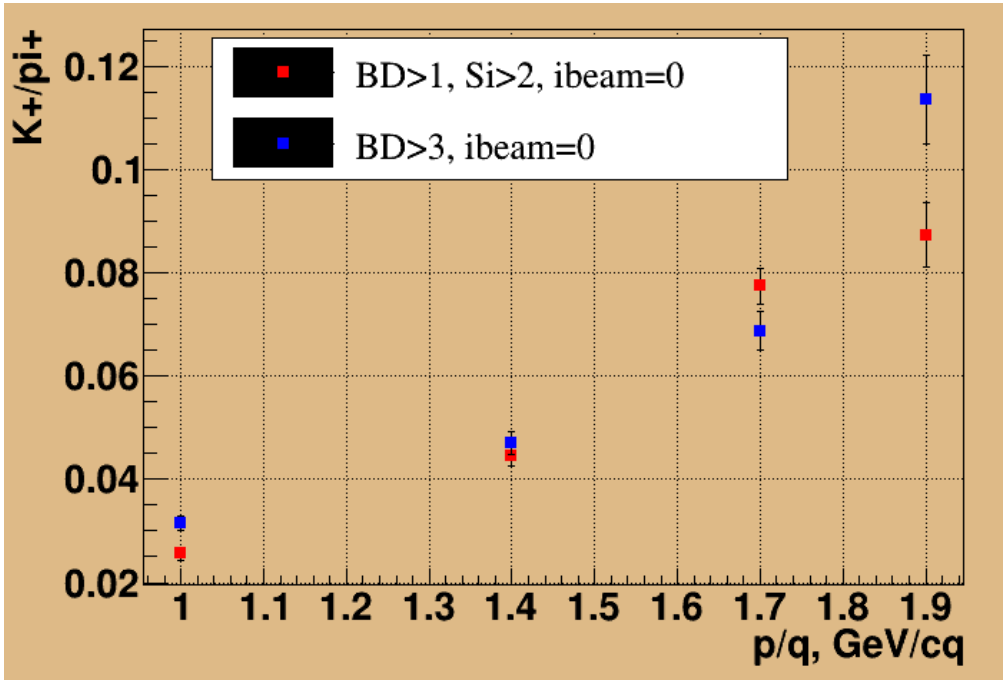
  K+/pi+=K+/pi+(Trig)/Eff(Trig)

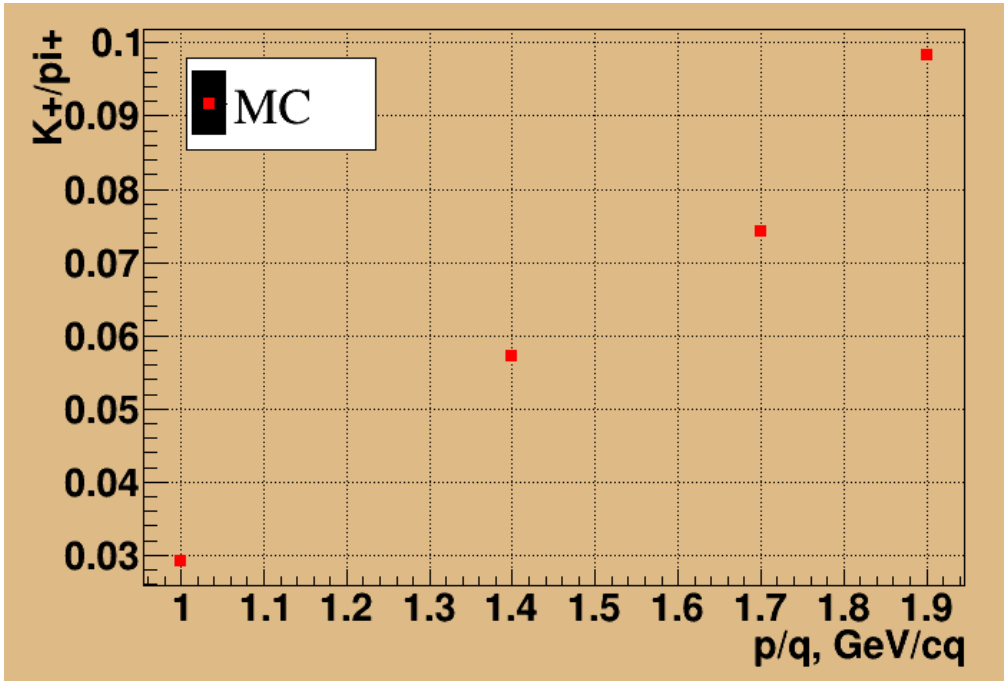
Efficiency of triggers in pq bins

Trigger Pq bin, GeV/cq	BD>1 (Si>2+Si>3)	Si>2 (Bd>2+Bd>3)	BD>1 && Si>2 (Eff(BD>1)*Eff(Si>2))	BD>3 (Si>2+Si>3)
0.5<pq<1.2	0.9937	1.2101	1.2025	0.9615
1.2<pq<1.5	0.9798	1.1160	1.0935	1.0454
1.5<pq<1.8	1.0510	1.1573	1.2164	1.1294
1.8<pq<2.0	1.0105	1.0455	1.0565	1.1084

- For full pq interval and BD>1 && Si>2 Eff~1.13
- For BD>3 Eff~1.04

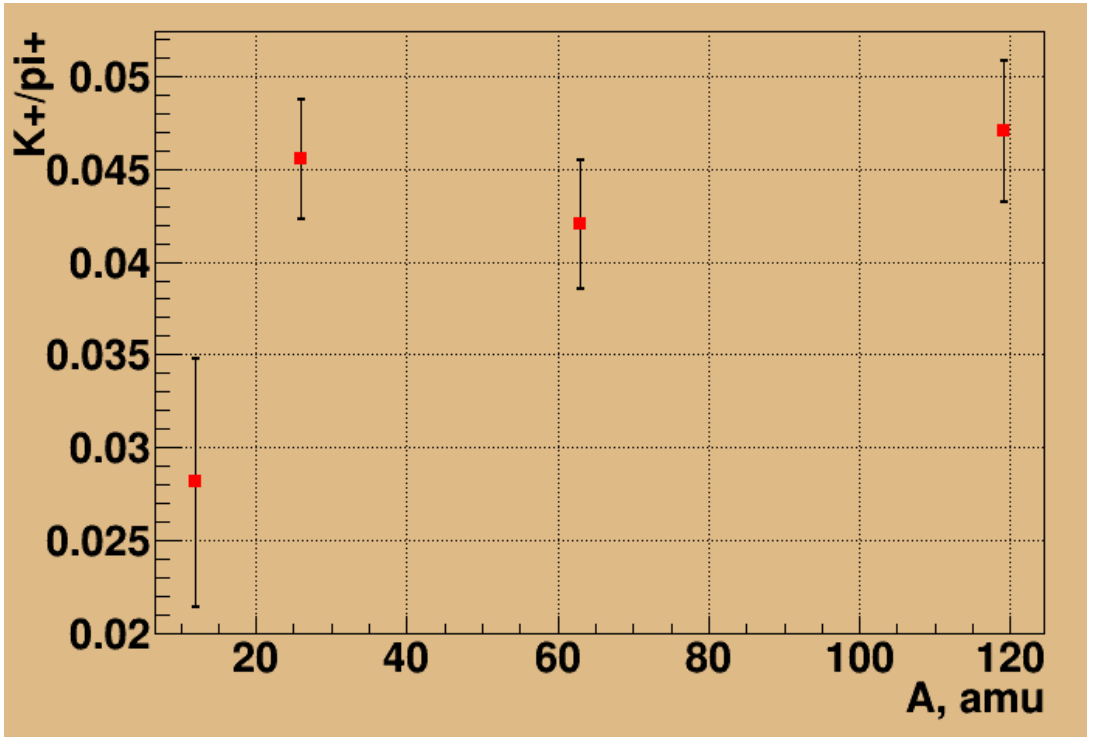
K^+/π^+(pq) with corrections vs MC





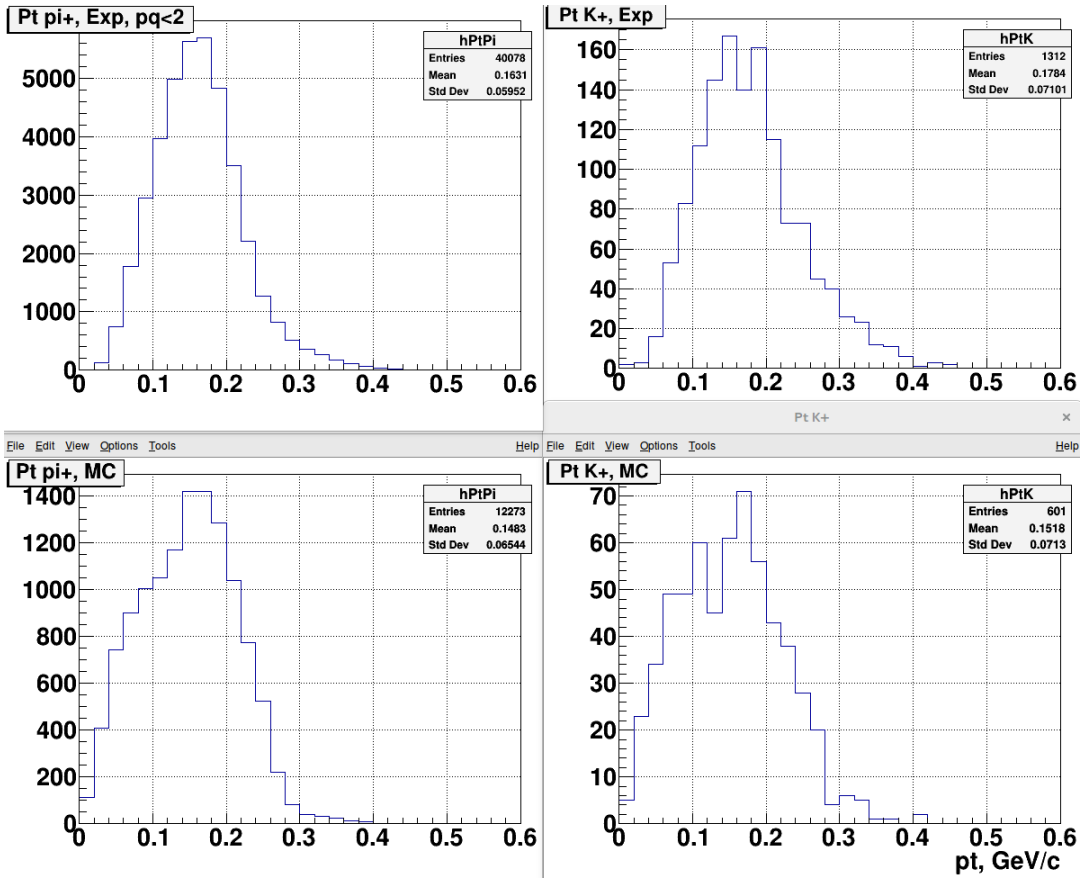
- K^+/π^+(pq) for Exp and MC become close

$K^+/\pi^+(A)$ with MC correction



- Coef=0.5568
- Same correction for all targets
- Is it necessary to multiply errors to Coef also?

Pt spectra for K^+ and π^+, Exp vs MC



- For MC identifiable tracks are shown
- Common pt interval 0-0.5 GeV/c
- Less particles with low pt in Exp

TODO: K^+/π^+(pt)

- Could we use following pt intervals: 0-0.1-0.15-0.2-0.5?
- How to go from pq to y?
- Simple approach is to build y spectrum and repeat all analysis steps for it

Thank you!