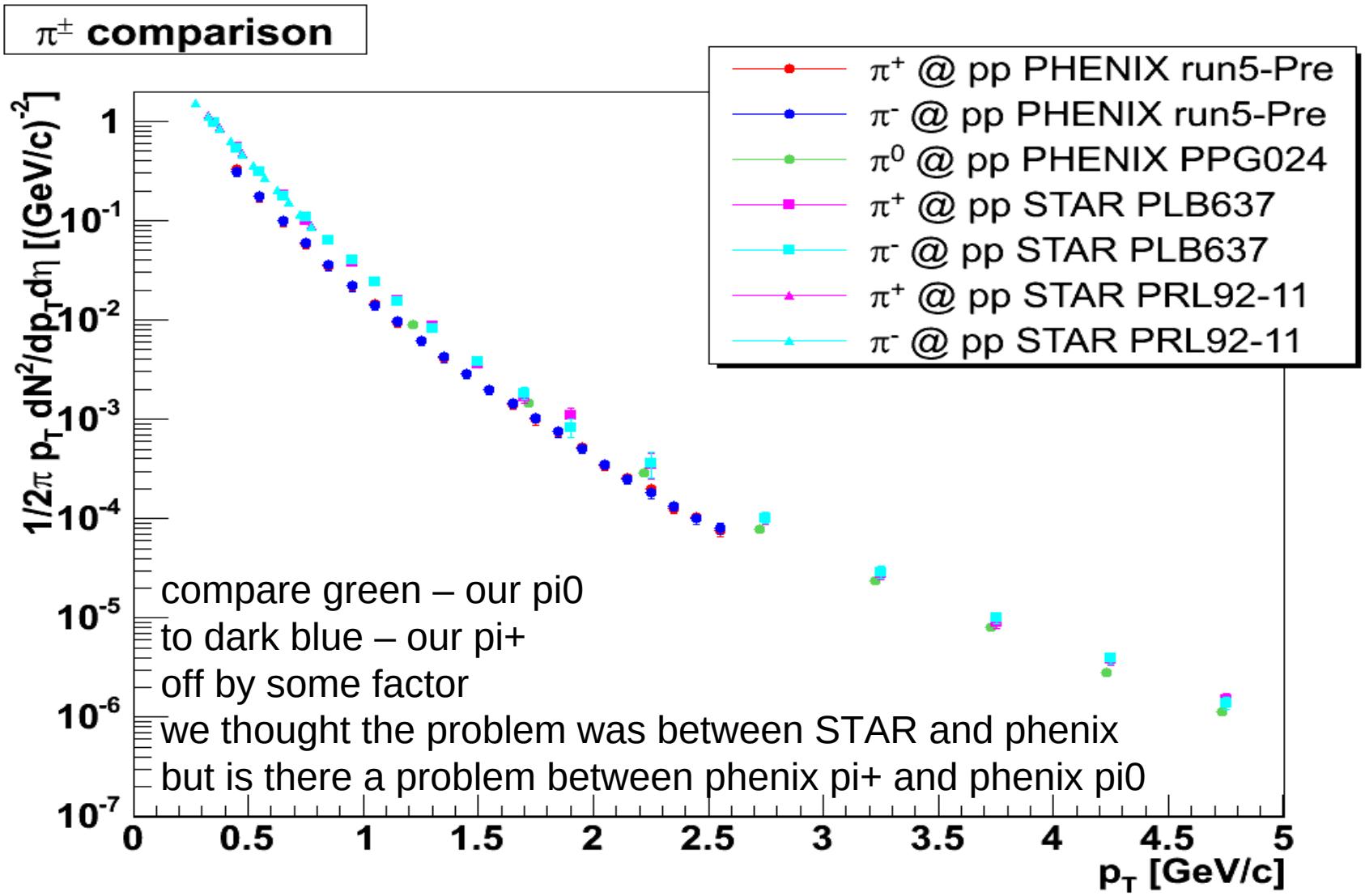
Comparing other particles

R. Seto

STAR comparisons
(question of importance – but continue)

- .kaons seem to be consistently off by ~20% in pp, dAu and AuAu
  - comment
    - 1.2^2=1.44
    - 1.4^2=2
  - Is it PID? or something else
  - pions seem to match (check how well this is really true)
- So folks have asked about Ks

Single pion spectra in pp

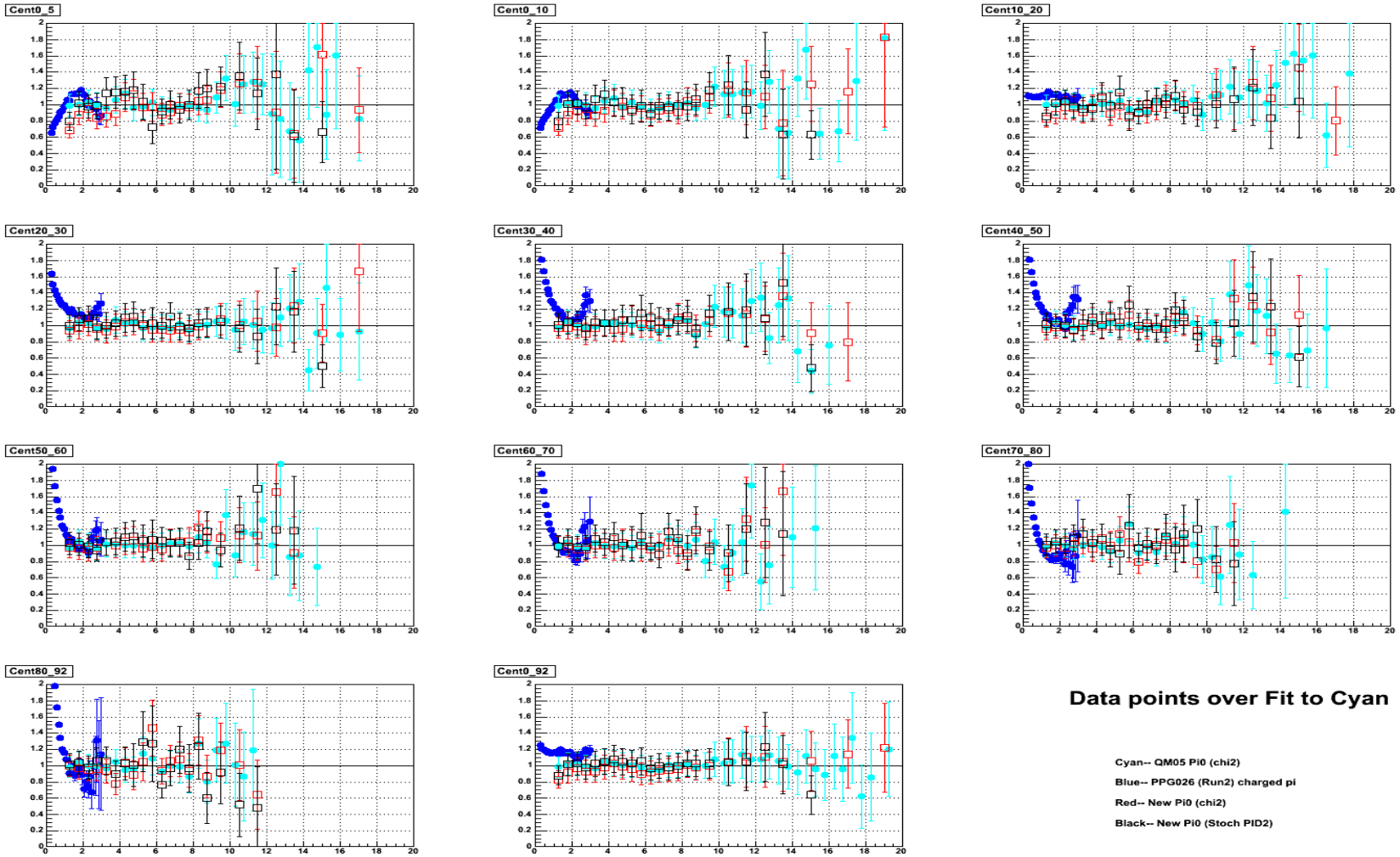


can Yuji show us the numbers? (I will show some for AuAu
Would be nice if ppg045 had some tables, ppg045 is still not published)

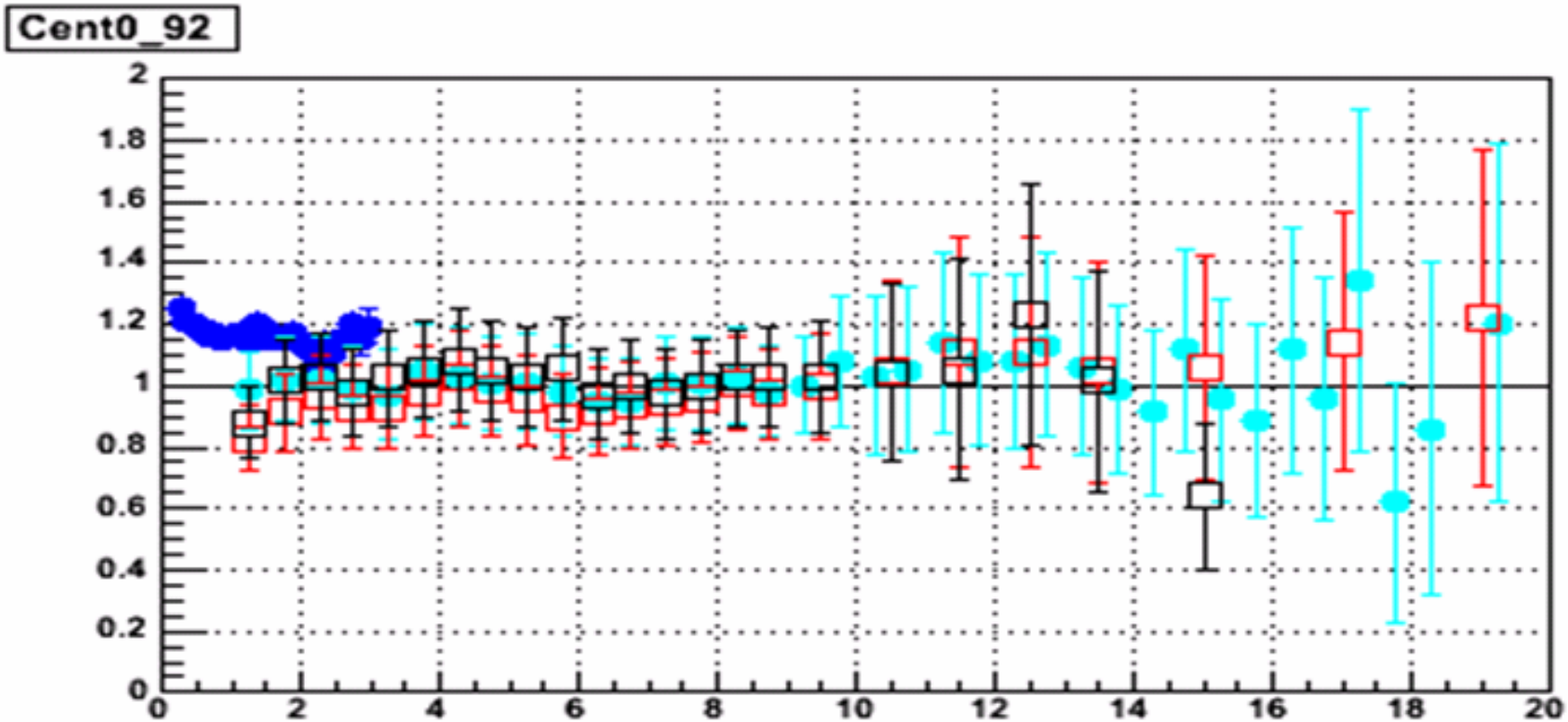
From Takao TadaAki's analysis

Comparison of PbSc pi0 AuAu

- Denominator: Fit to QM05 pi0 (Cyan)
- Numerator: Charged pi(Blue: PPG026), New Pi0 with chi2 cut(Red), New Pi0 with Stoch PID2 (Black):: Converged in ~10%



Blow up of 0-92%



quick check from data tables

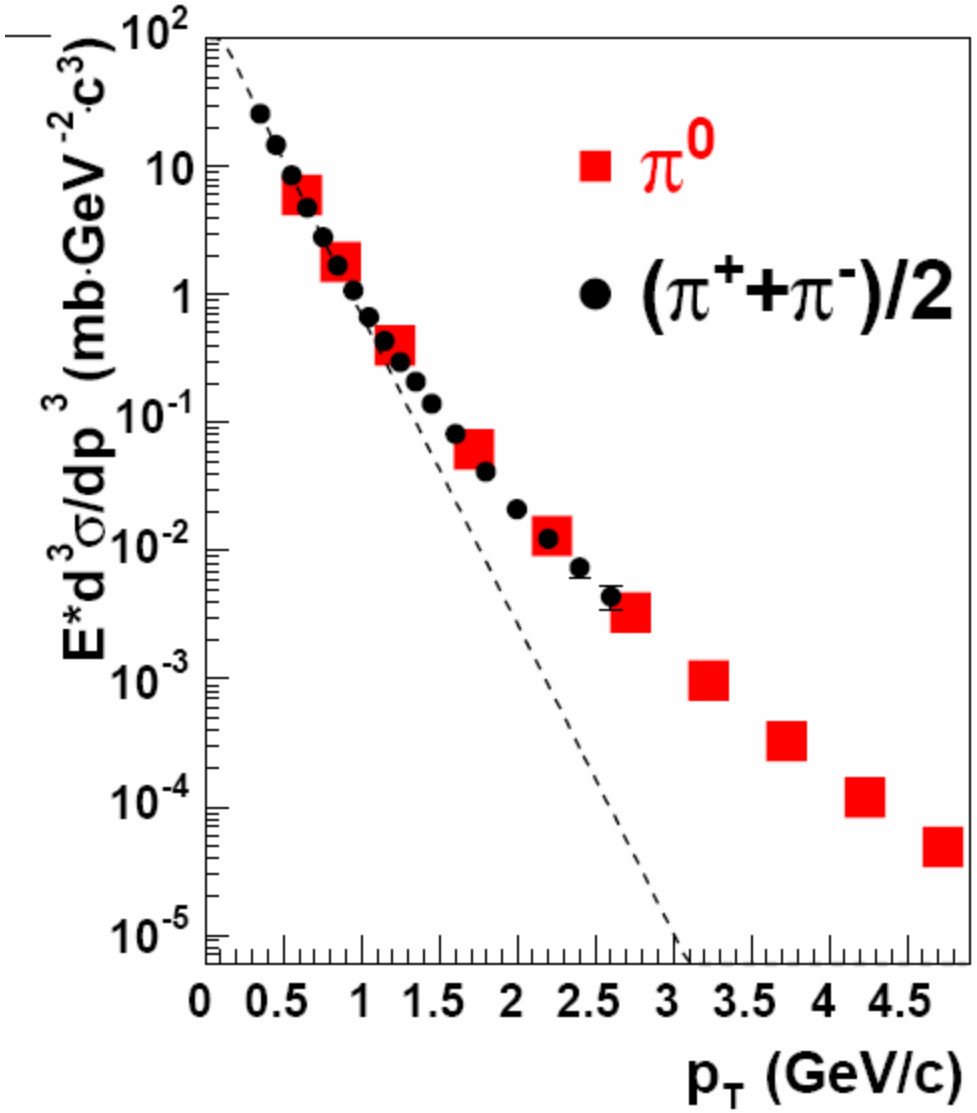
	ppg14	ppg026	ppg026		(pi+ + pi-)/2/pi0	
pT	pi0	pi+	pi-			
1.25	8.82E-01	1.05E+00	1.04E+00		1.18	
1.75	1.70E-01	1.77E-01	1.73E-01		1.03	
2.25	3.50E-02	3.27E-02	3.20E-02		0.93	

things to 20%

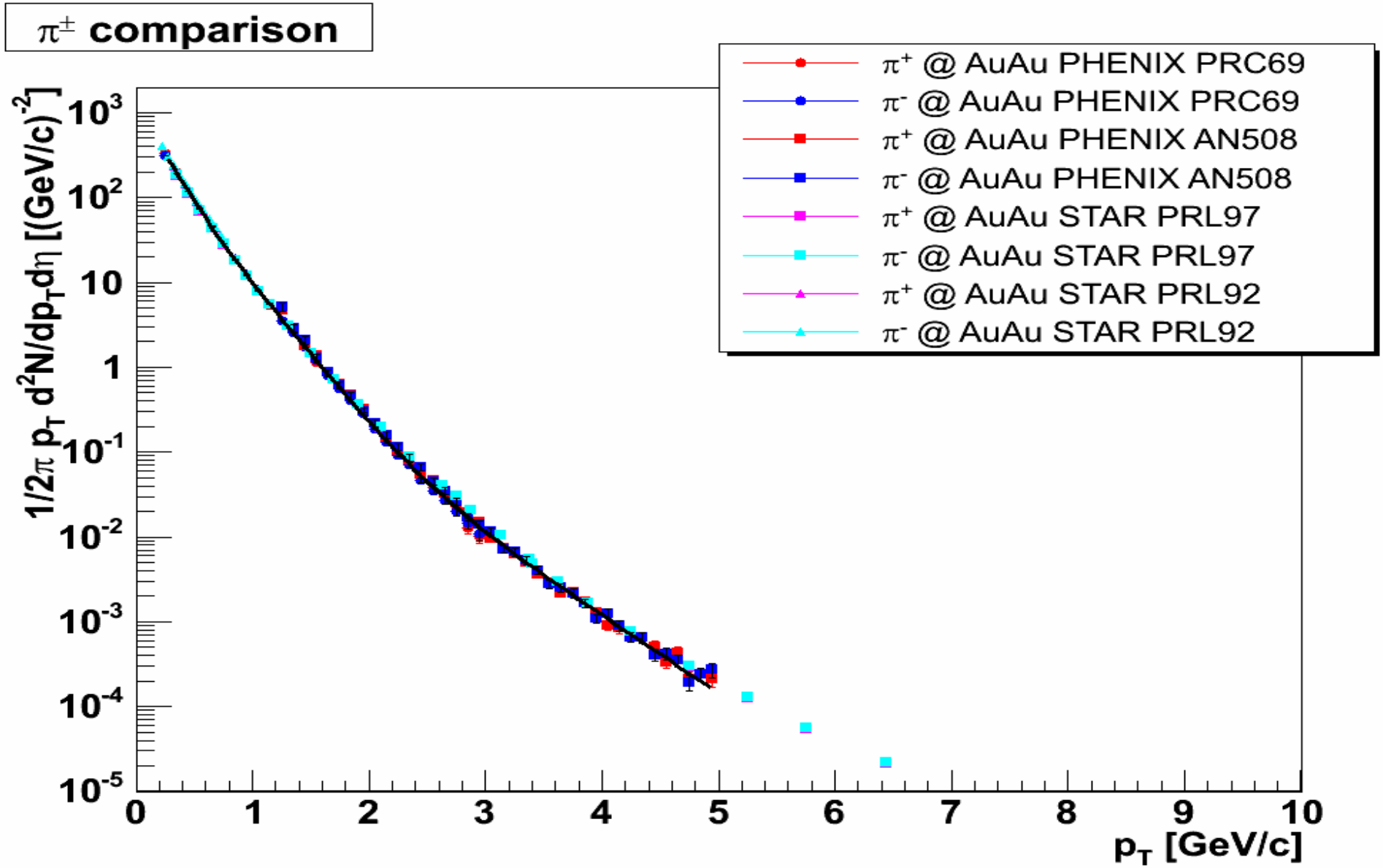
new comparison from ppg063

can someone look into where they get the spectra and look at the numbers

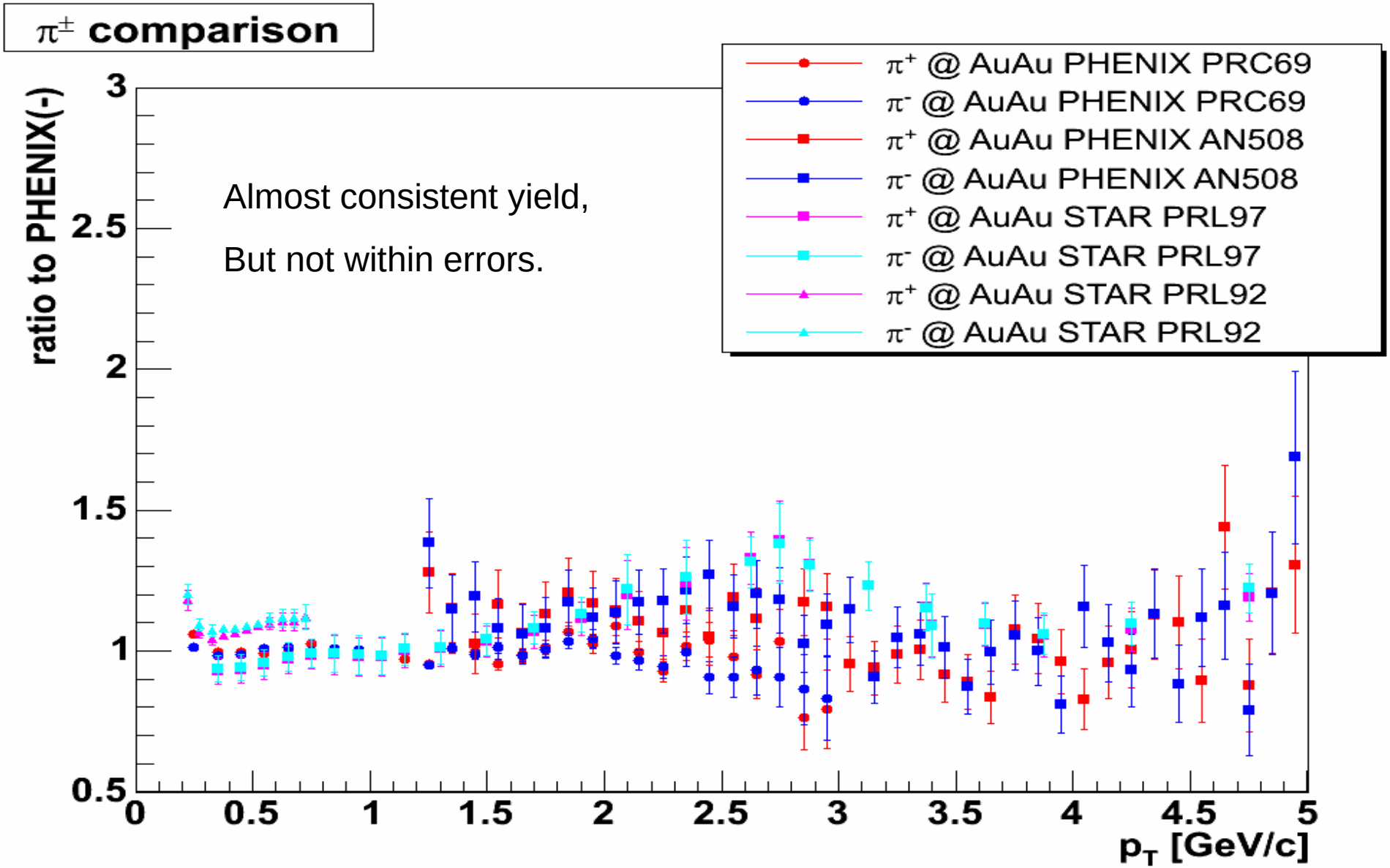
Are they good to better than 20%



Pion comparison @ most-



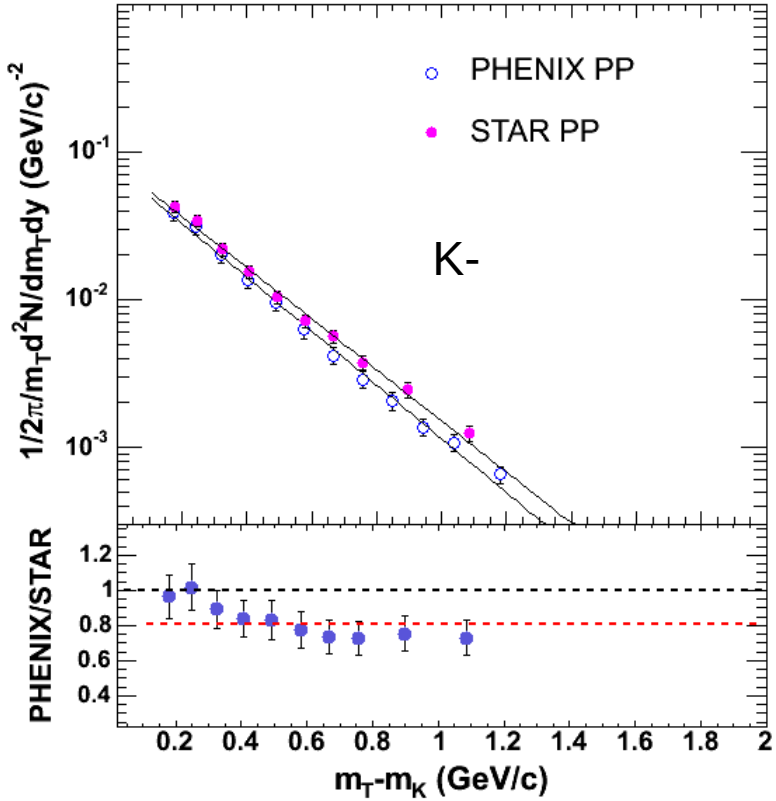
Pion ratio @ most-central



Almost consistent yield,

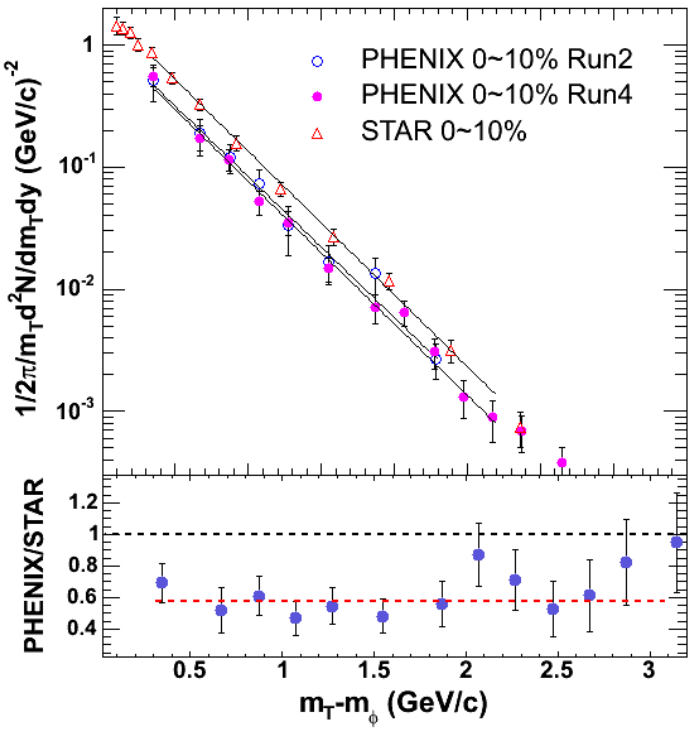
But not within errors.

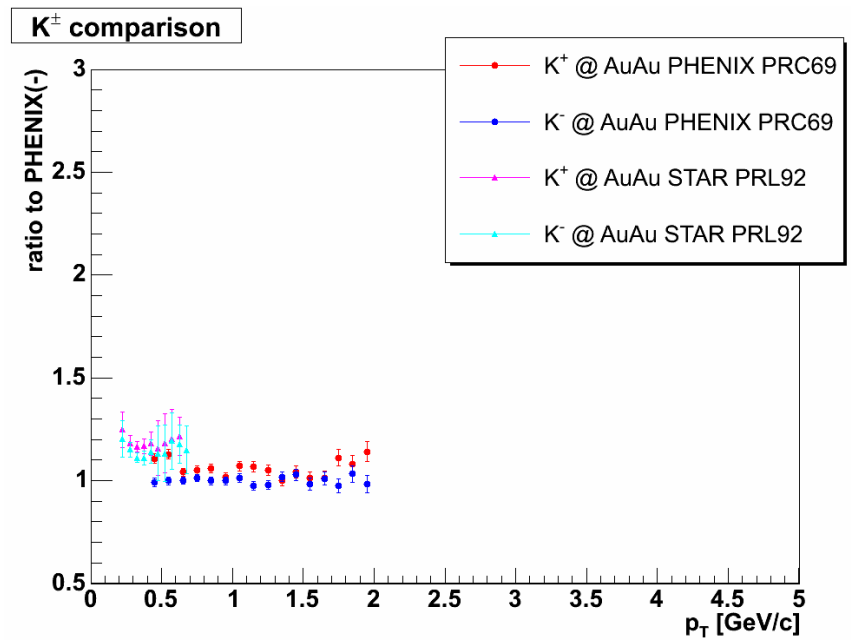
pp comparison of Kaons



STAR is ~1/.8=1.25 or 25% higher than PHENIX

200GeV Au+Au





~57% of STAR
(previous slide-1/1.9=53%)

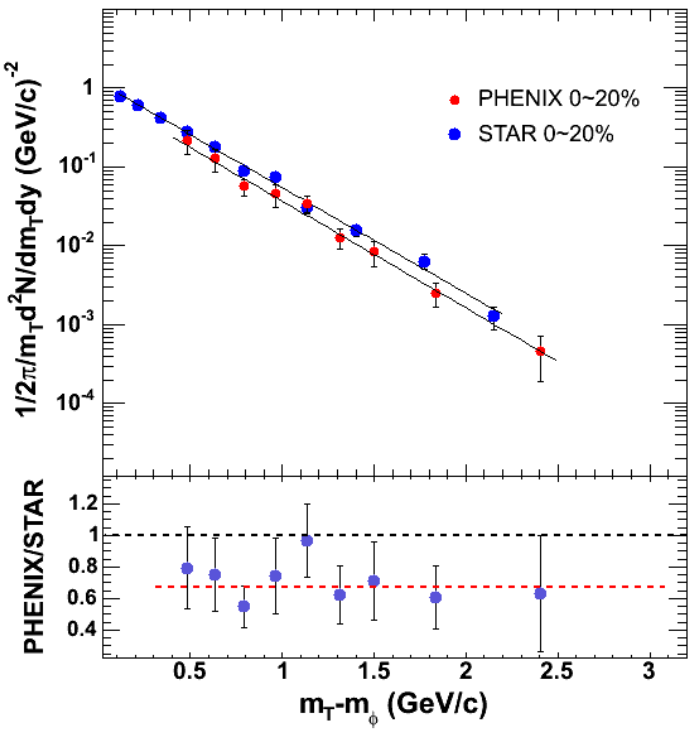
STAR kaon measured from TPC has at least 15% systematic error due to the electron contamination. Phi done with TOF

Would need sqrt(1/.57)=1.32 or a 32% higher kaon yield in STAR to explain the phi
Not able to get a TOF Kaon spectrum to compare

shengli

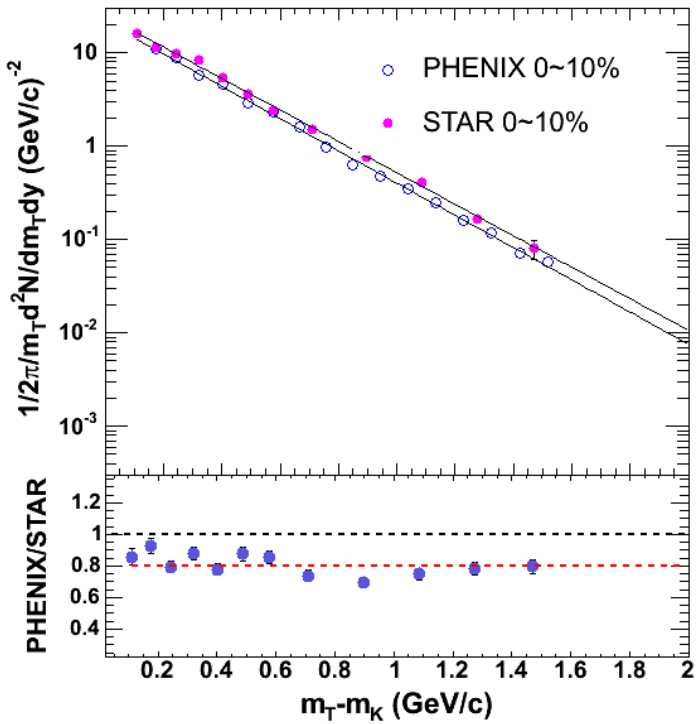
62GeVAuAu

Phi->kk@62GeV



~67% of STAR, no clear pT dependence

Single kaon(-)@62GeV

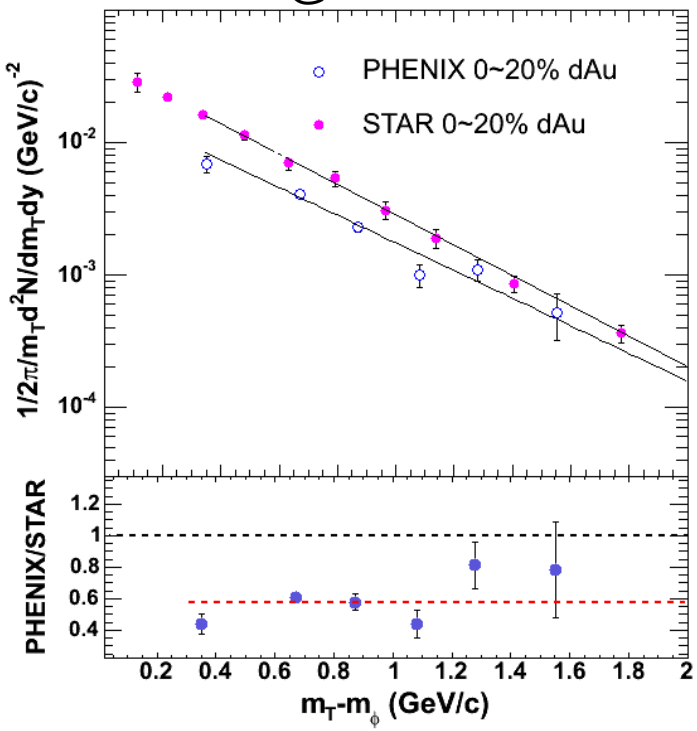


need sqrt(1/.67)=1.22 or 22% we see 1/.85=1.18 or 18% in the TOF

shengli

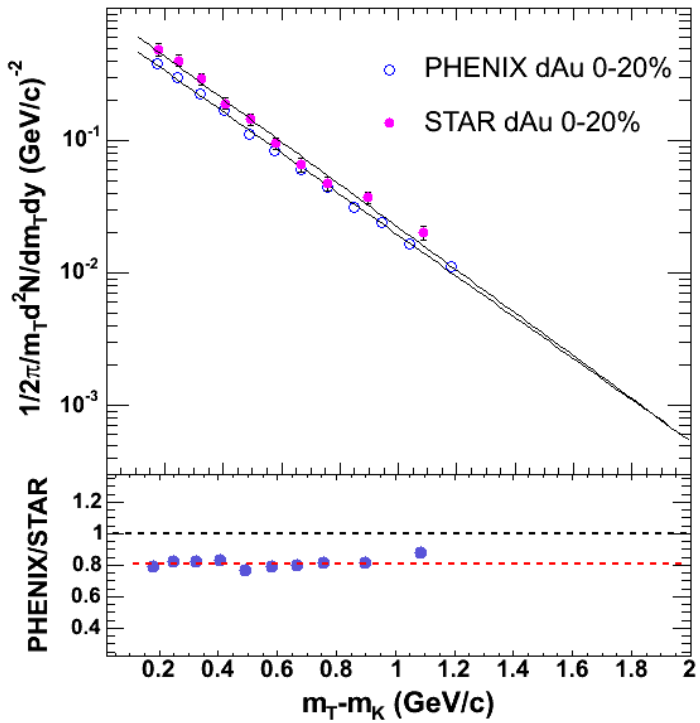
200GeV dAu

Phi->kk@200GeV dAu



60% of STAR

Single kaon(-)@200GeV dAu



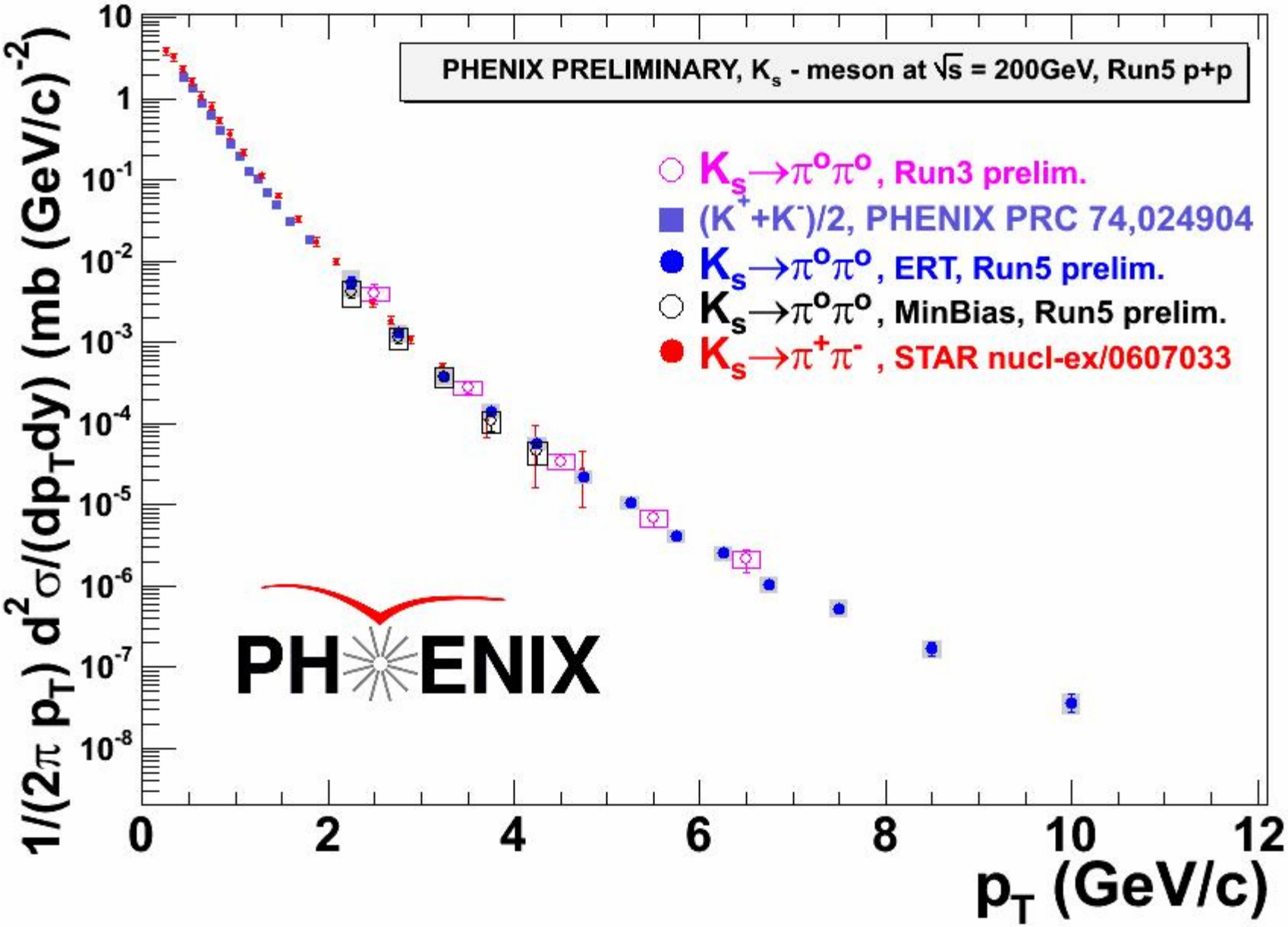
80% of STAR

the discrepancy of phi could be explain by kaon difference in 200GeV dAu too.

The 20-30% higher Kaon Yield of STAR could go a long way to explain the factor of almost 2 (Actually it can explain 70%) Is there another factor?

Suggestion from Conveners meeting

- One thing that would certainly be worthwhile is to compare our charged kaons to STAR's K_short - both spectrum and yield.


PHENIX PRELIMINARY, K_s - meson at $\sqrt{s}$ = 200GeV, Run5 p+p
$K_s \rightarrow \pi^o\pi^o$, Run3 prelim.
$(K^+ + K^-)/2$, PHENIX PRC 74,024904
$K_s \rightarrow \pi^o\pi^o$, ERT, Run5 prelim.
$K_s \rightarrow \pi^o\pi^o$, MinBias, Run5 prelim.
$K_s \rightarrow \pi^+\pi^-$, STAR nucl-ex/0607033
$1/(2\pi\ p_T)\ d^2\sigma/(dp_T dy)$ (mb (GeV/c)$^{-2}$)
p_T (GeV/c)
PHENIX

Other things

- **Comment on formation time from Kyoichiro**
  - I think we should be careful about dAu. Results of KEK-E325 are understood as a nuclear density effect. In mid rapidity of dAu at PHENIX, generated particle may not feel a nuclear density of Au. So, when we see the difference between KK and ee in dAu, we should carefully think about the origin of the difference.
  - Decayed electron-positron pair from phi meson carries the information of medium at phi decayed point. When phi meson decays in d+Au collision, Au already pass away to forward, if we consider formation time and life time of phi. If we see very forward rapidity, such as Au beam rapidity region, we can expect nuclear density effect.
  - In Au+Au, a high density medium is formed in mid-rapidity and phi feels such medium at decayed point.
- **Trigger**
  - CuCu J/psi is having problem with understanding a couple trigger settings. Could this affect our dAu (or pp) Anyone know about this. (I have asked Tony in email)