HBT (Kaons Vs Pions) 7.7 GeV and 11.5 GeV

vHLLE+UrQMD 1PT
vHLLE+UrQMD XPT

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Analysis

- Datasets location (pure generator tracks)
  - Hydro: /zfs/store7.hydra.local/pbatyuk/mcDst/vHLLE_UrQMD/AuAu/

- Analysis procedure:
  - Correlation function construction: $C(q) = \frac{A(q)}{B(q)}$
    - $A(q)$ – q distribution with $Weight = lednicky\ codes$
    - $B(q)$ – q distribution with $Weight = 1$
  - Fit: $C(q) = 1 + \lambda G(q)$

Without Coulomb!

$$G(q) = e^{-q_{out}^2 R_{out}^2 - q_{side}^2 R_{side}^2 - q_{long}^2 R_{long}^2}$$

Without Coulomb!

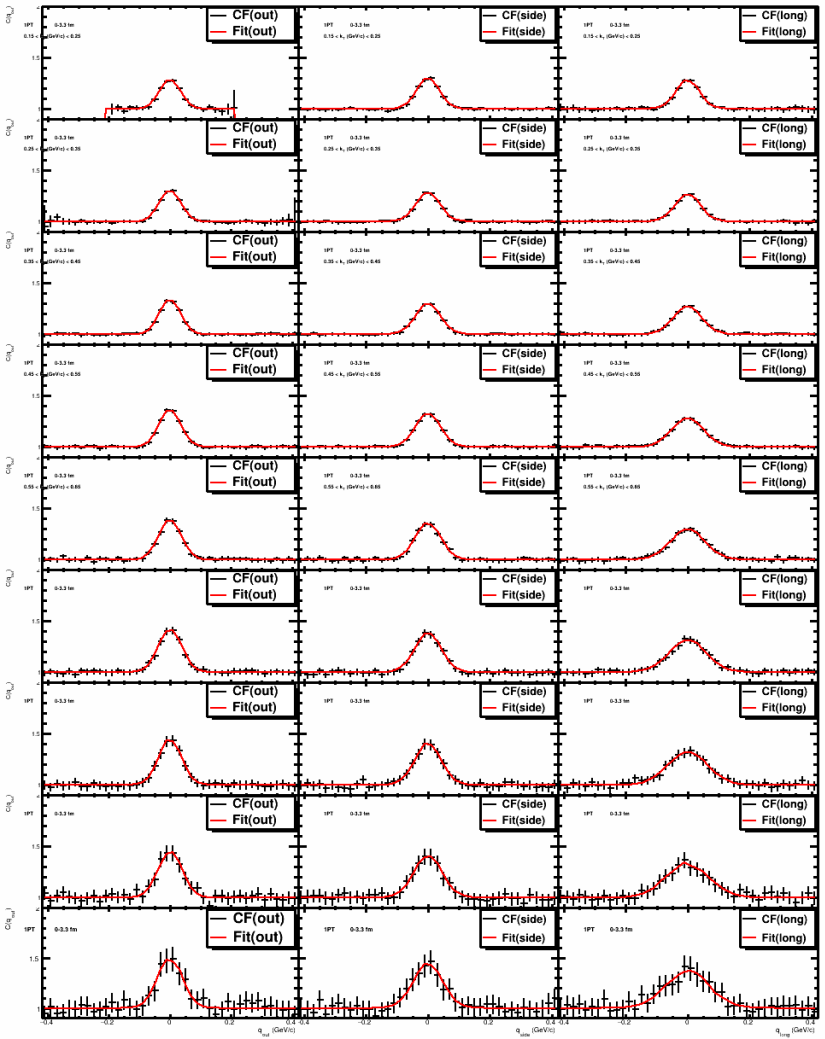
Analysis

- vHLLE+UrQMD (~1M events for each centrality bin)
  - 4 centrality bins (0 - 3.3 fm, 3.4 - 4.7 fm, 4.7 - 6.6 fm 6.6 - 10.4 fm)
  - 9 k_T bins (0.15 – 1.05 GeV/c with step = 100 MeV)

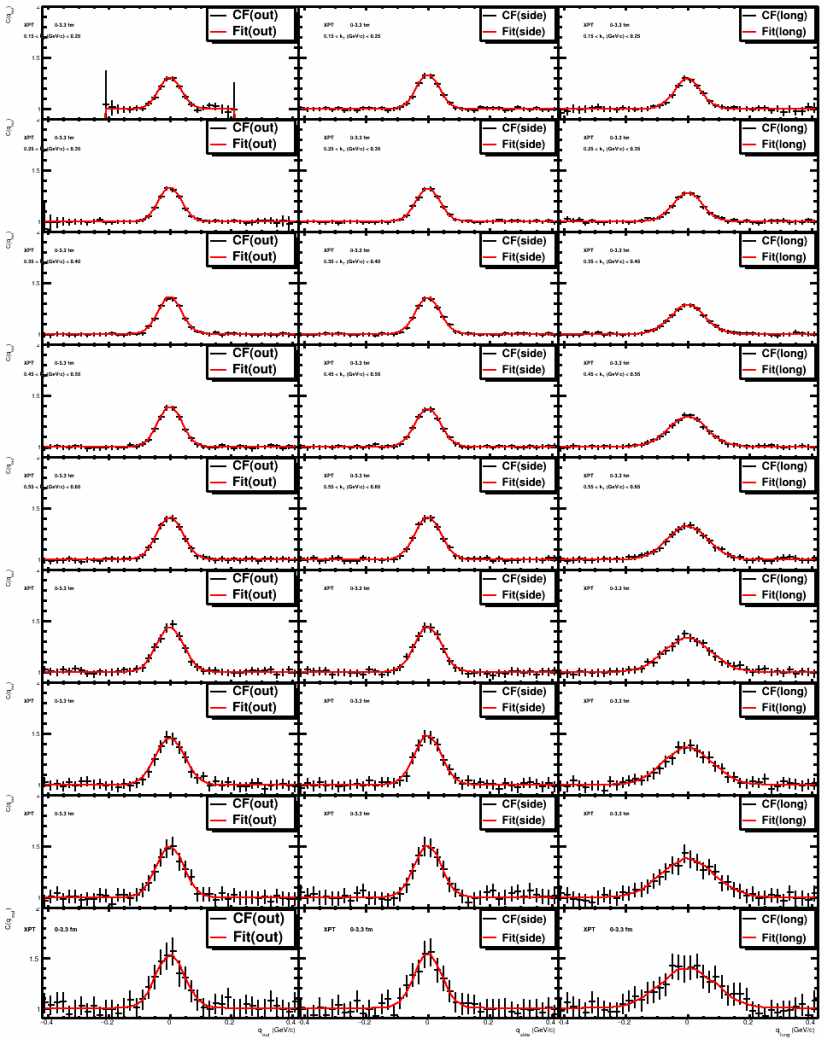
Event cuts	Track cuts	Pair cuts
minBais events	$0.15 < p_T$ (GeV/c) < 2.8	pair cuts was not applied
	$\|\eta\| < 1$	

Example of Cfs (vHLLE 7.7 GeV)

1PT



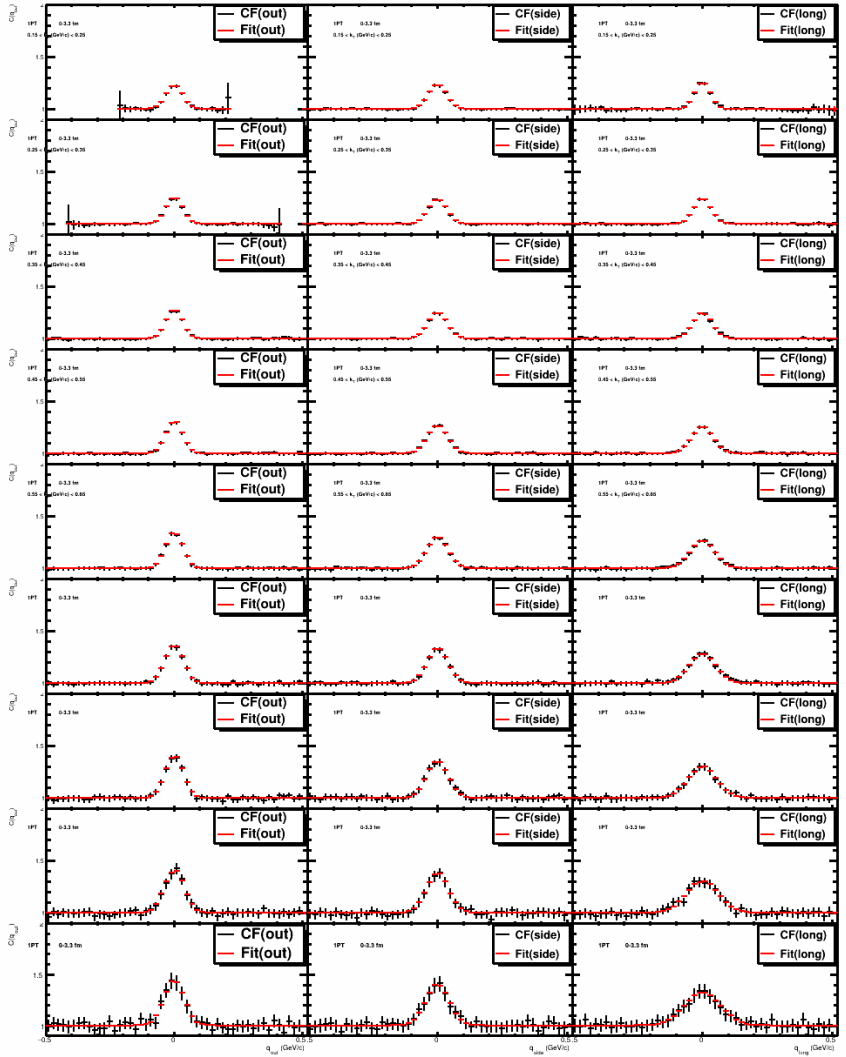
XPT



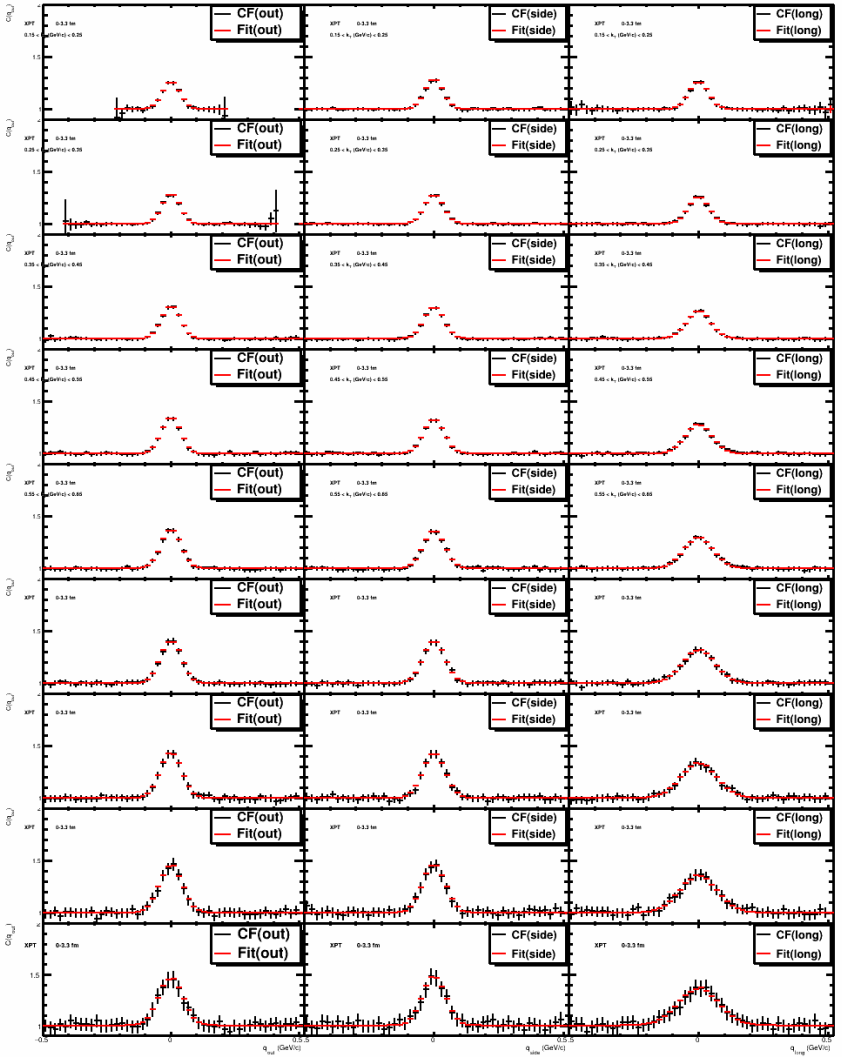
- Fits of CFs look good
- Not enough statistics for fit stability -> All hist. was rebinned by 2
- Now: $|q_{o,s,l}| < 0.5$, $N_{bins} = 50$

Example of Cfs (vHLLE 11.5 GeV)

1PT



XPT



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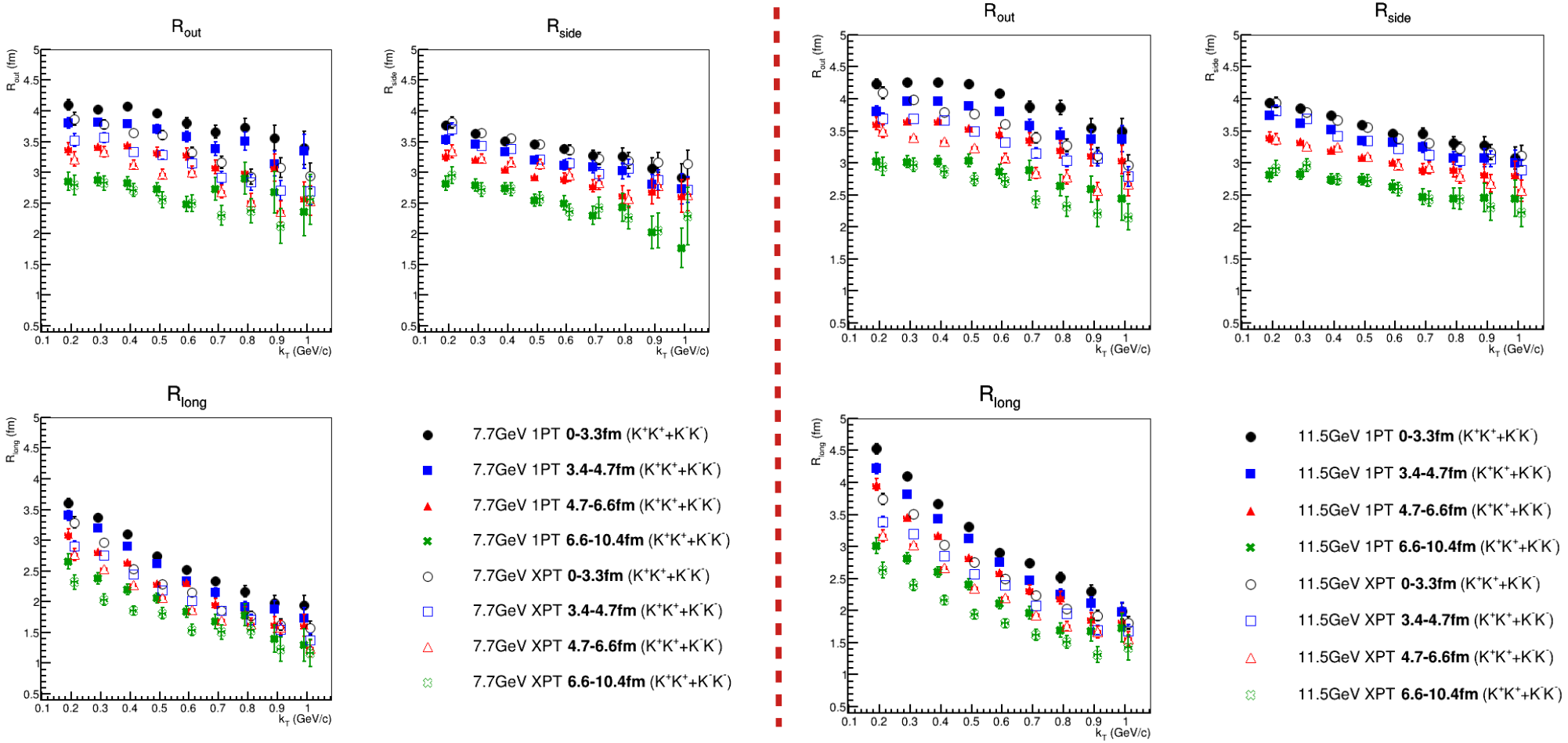
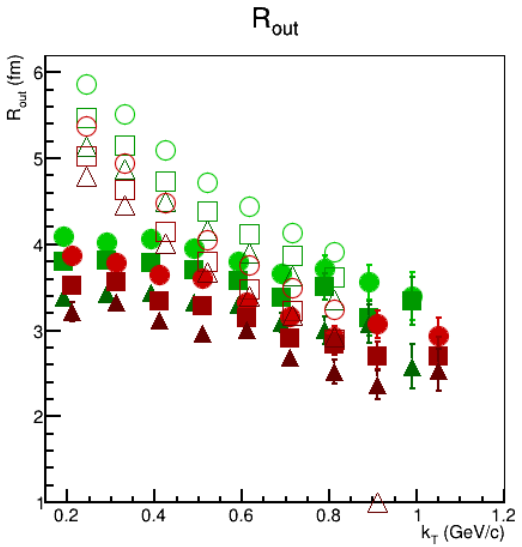
vHLLE $R_{o,s,l}$ Vs. k_T

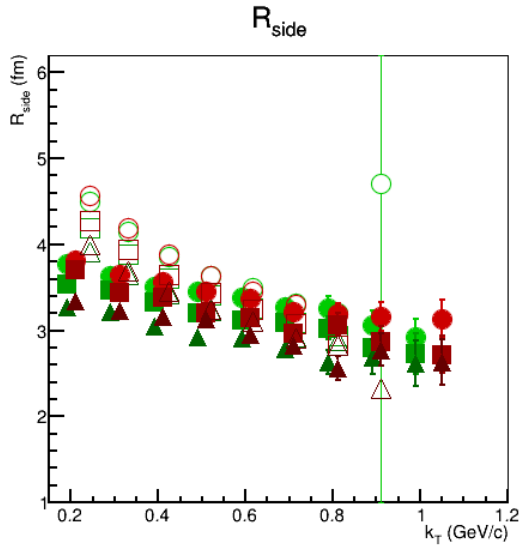


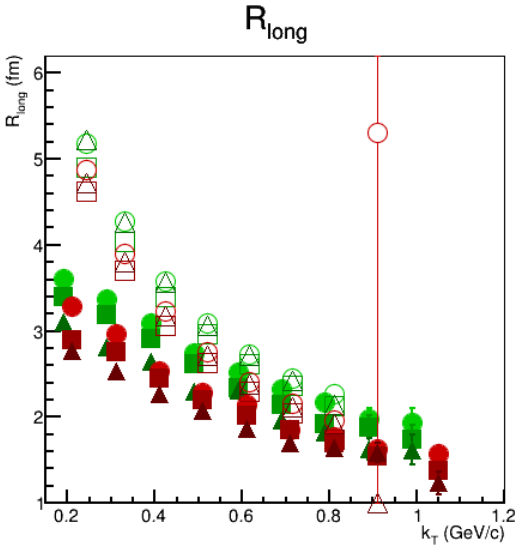
- Radii decreases with increasing k_T
- Radiii increases with decreasing impact parameter

- Clear difference between R_l and R_o obtained from 1PT and XPT and small difference for R_s

Kaons Vs. Pions - $R_{o,s,l}$ Vs. k_T







7.7GeV 1PT **0-5%** (K^+K^++K^-K^-)
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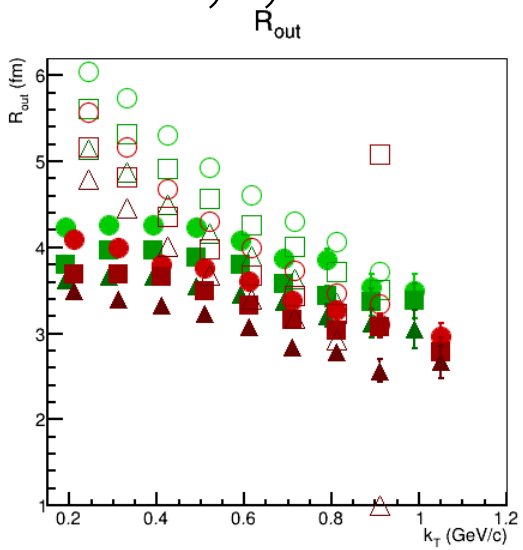

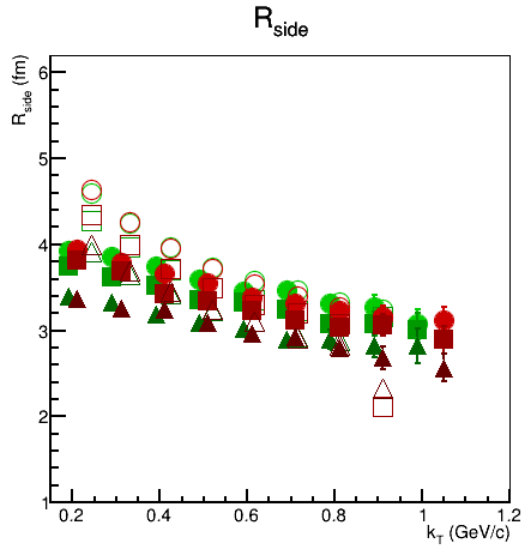

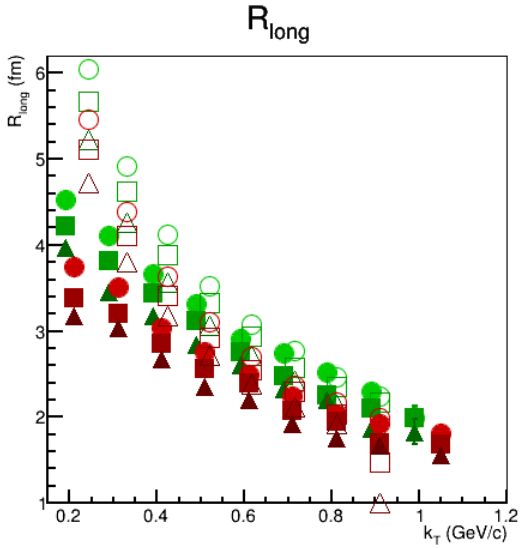

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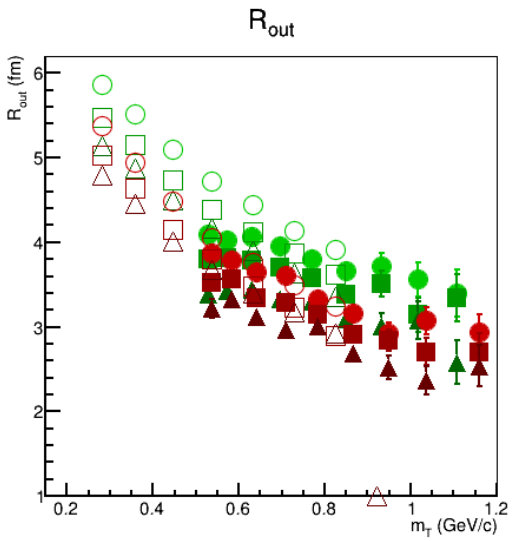
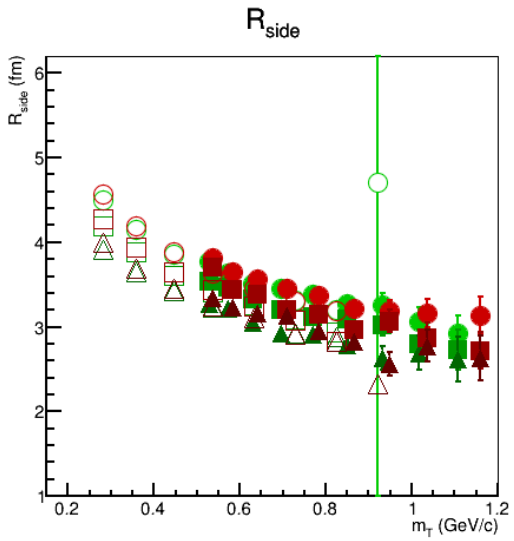
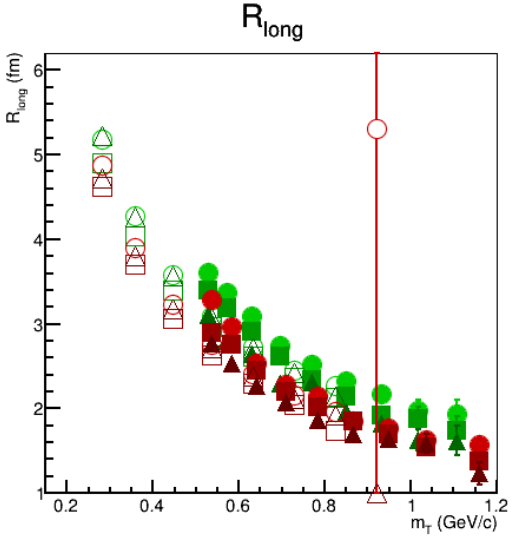
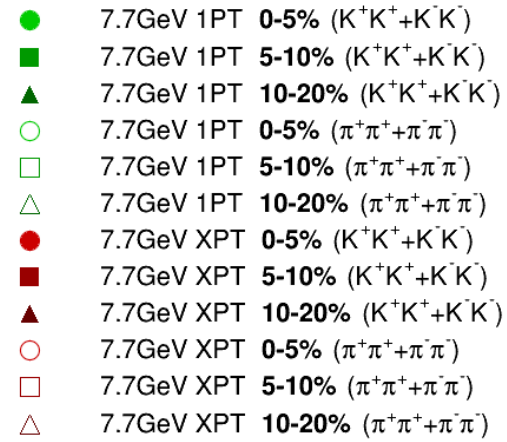
11.5 GeV

Kaons Vs. Pions - $R_{o,s,l}$ Vs. m_T

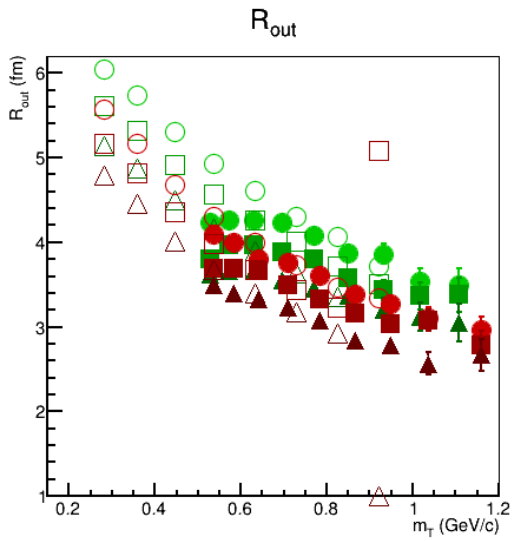


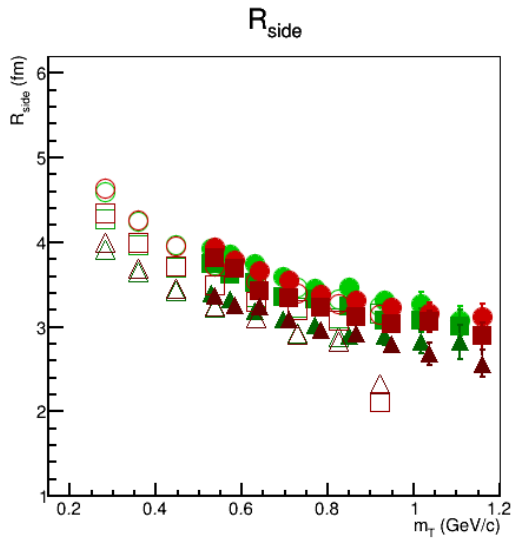


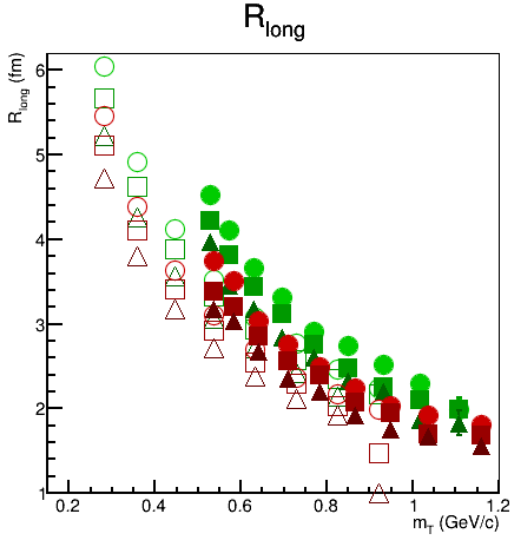


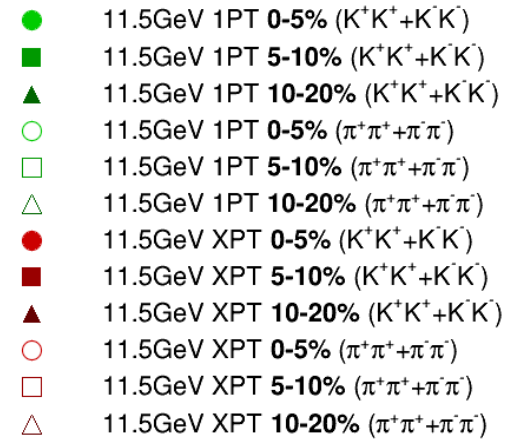


7.7 GeV









11.5 GeV

Summary

- All histogram was rebinned by 2 due to the poor statistics
- Rlong and Rout have more strong dependence on PT than Rside
- The difference increases with collision energy