

HBT (Kaons)
7.7 GeV and 11.5 GeV
(Hydro 1PT, Hydro XPT, UrQMD)

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Analysis

- Datasets location

- Hydro: /zfs/store7.hydra.local/pbatyuk/mcDst/vHLLU_UrQMD/AuAu/
- UrQMD: /zfs/store7.hydra.local/gnigmat/mcDst/urqmd/

- Analysis procedure:

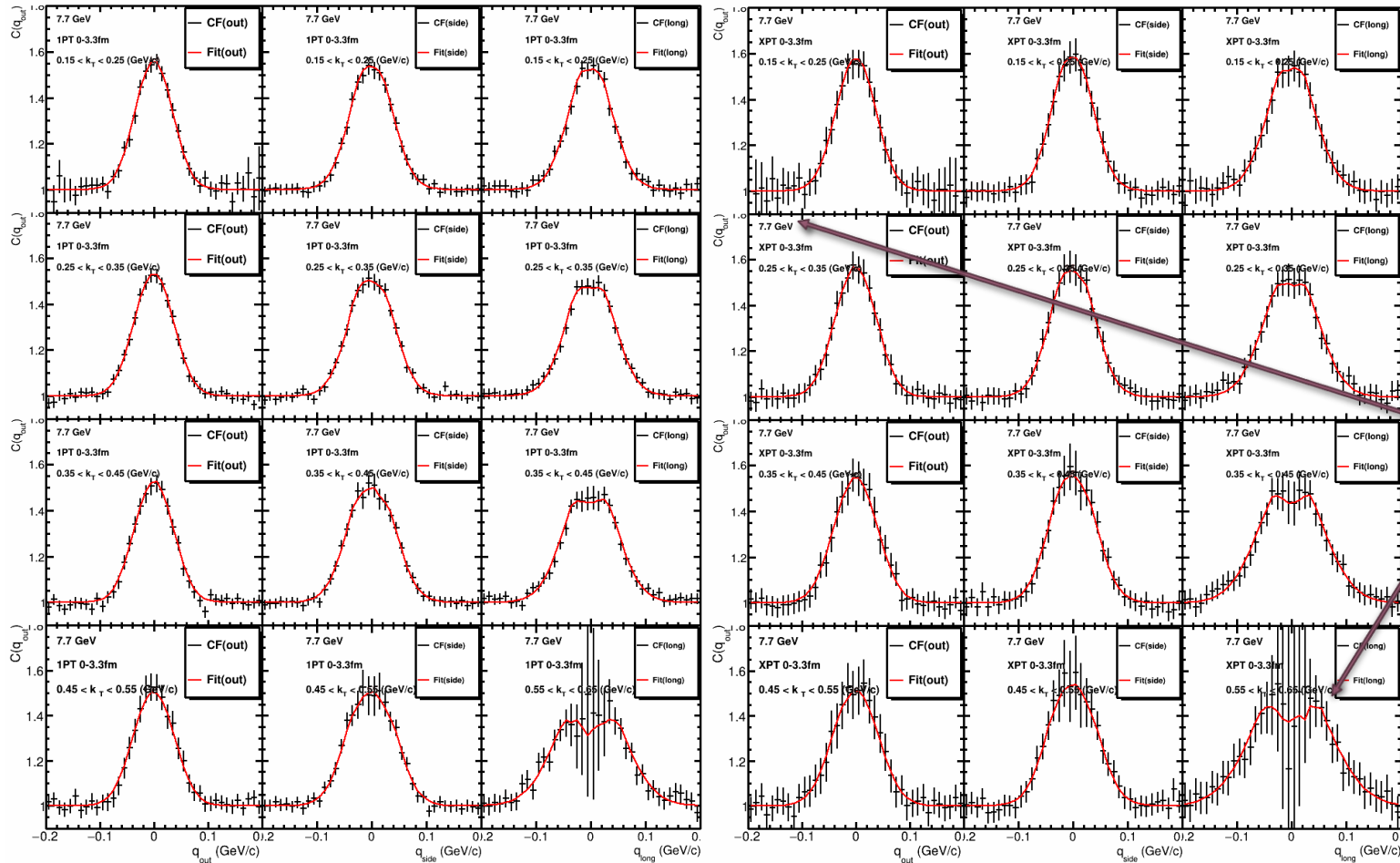
- Correlation function construction: $C(q) = \frac{A(q)}{B(q)} \left\{ \begin{array}{l} A(q) - q \text{ distribution with} \\ \text{Weight} = \text{lednicky codes} \\ B(q) - q \text{ distribution with} \\ \text{Weight} = 1 \end{array} \right.$
- Fit: $C(q) = 1 + \lambda G(q)$

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

Example of Cfs (Hydro 7.7 GeV)

1PT

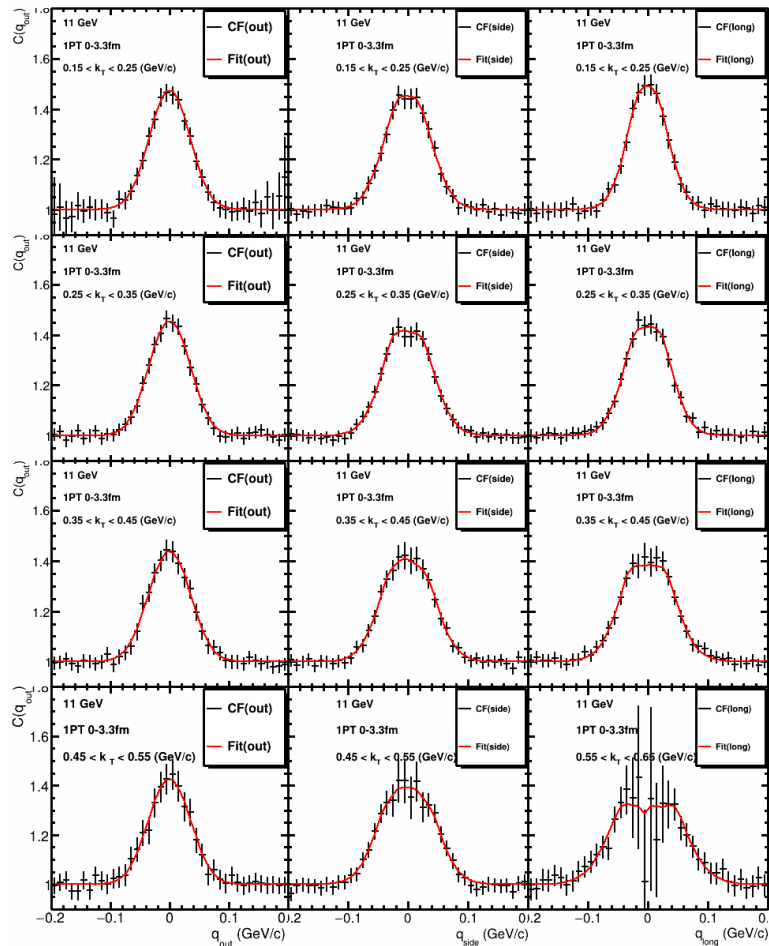
XPT



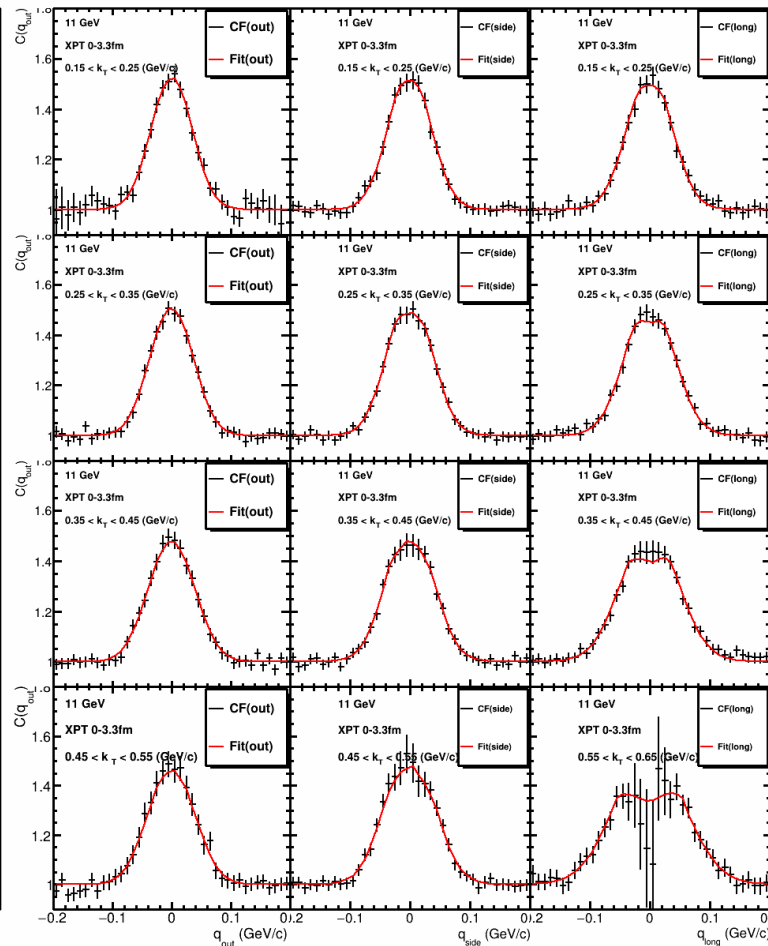
- Fits of CFs look good
- Not enough statistics for fit stability

Example of Cfs (Hydro 11.5 GeV)

1PT



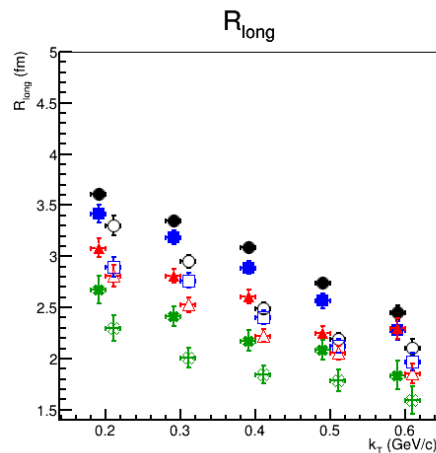
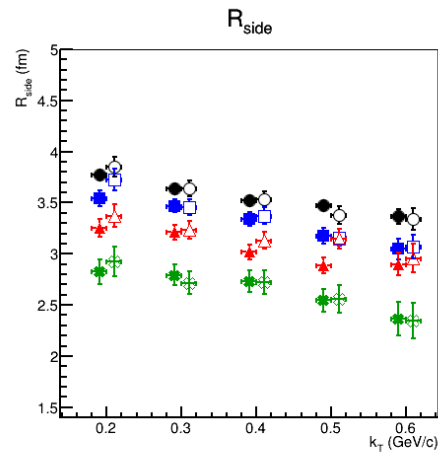
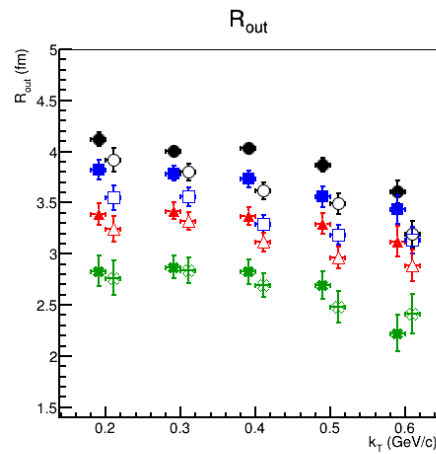
XPT



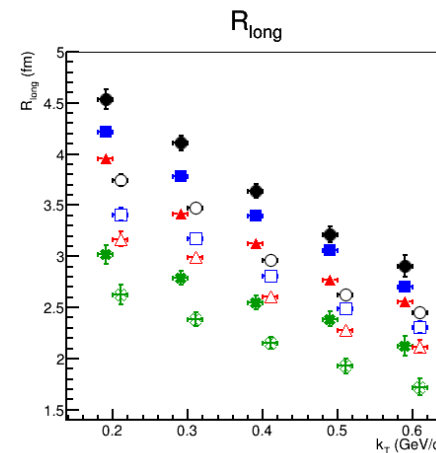
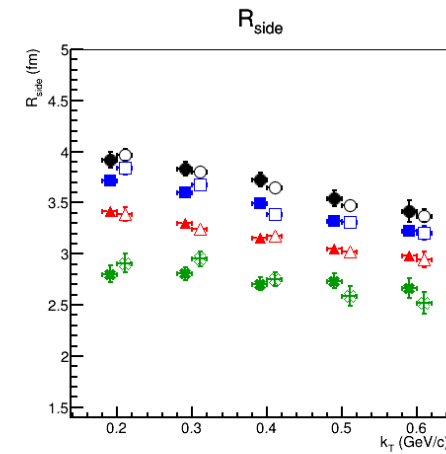
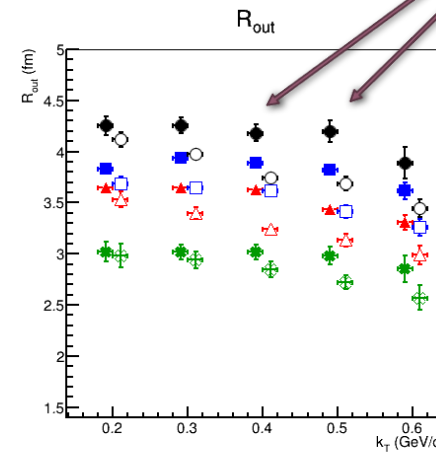
- Fits of CFs look good
- Not enough statistics for fit stability

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

Points “jump” due to insufficient statistics (fit instability)



- 7.7GeV 1PT 0-3.3fm ($K^+K^+ + K^-K^-$)
- 7.7GeV 1PT 3.4-4.7fm ($K^+K^+ + K^-K^-$)
- ▲ 7.7GeV 1PT 4.7-6.6fm ($K^+K^+ + K^-K^-$)
- ✱ 7.7GeV 1PT 6.6-10.4fm ($K^+K^+ + K^-K^-$)
- 7.7GeV XPT 0-3.3fm ($K^+K^+ + K^-K^-$)
- 7.7GeV XPT 3.4-4.7fm ($K^+K^+ + K^-K^-$)
- △ 7.7GeV XPT 4.7-6.6fm ($K^+K^+ + K^-K^-$)
- ⊗ 7.7GeV XPT 6.6-10.4fm ($K^+K^+ + K^-K^-$)

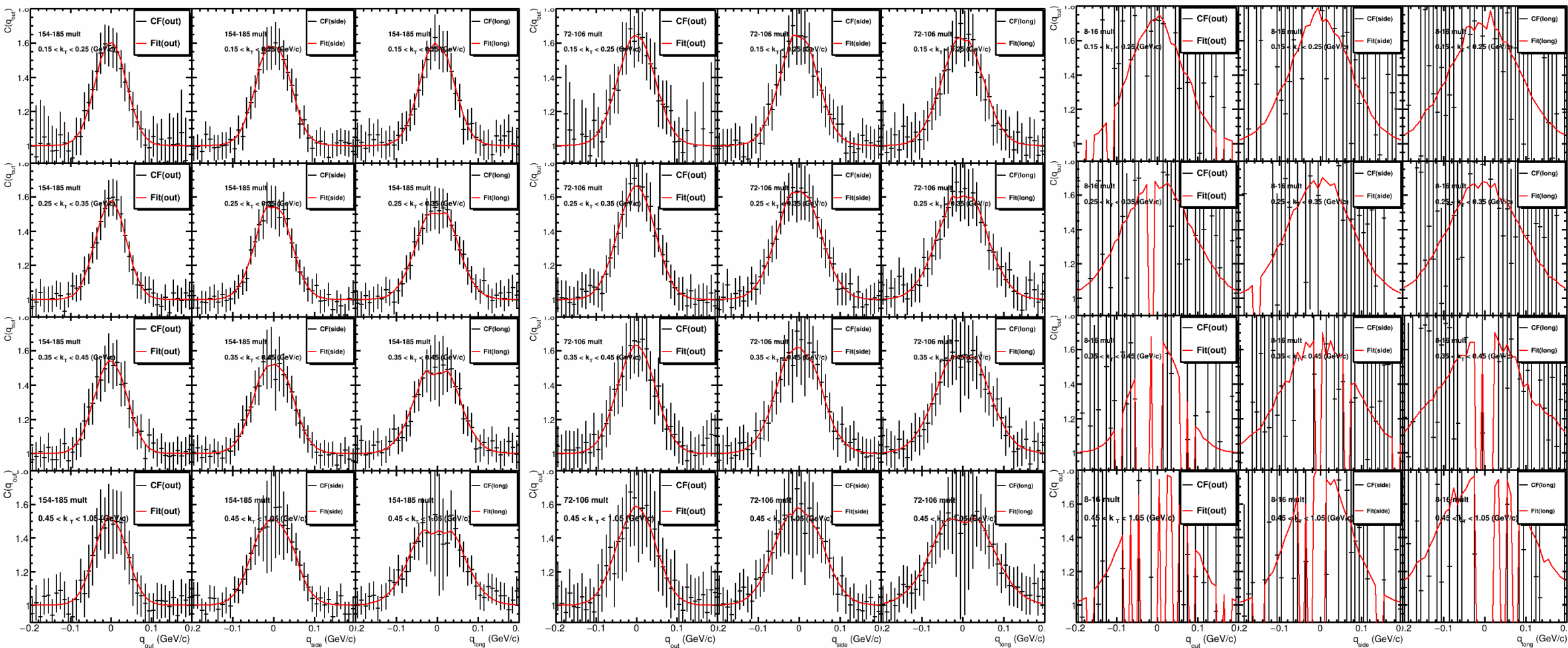


- 11GeV 1PT 0-3.3fm ($K^+K^+ + K^-K^-$)
- 11GeV 1PT 3.4-4.7fm ($K^+K^+ + K^-K^-$)
- ▲ 11GeV 1PT 4.7-6.6fm ($K^+K^+ + K^-K^-$)
- ✱ 11GeV 1PT 6.6-10.4fm ($K^+K^+ + K^-K^-$)
- 11GeV XPT 0-3.3fm ($K^+K^+ + K^-K^-$)
- 11GeV XPT 3.4-4.7fm ($K^+K^+ + K^-K^-$)
- △ 11GeV XPT 4.7-6.6fm ($K^+K^+ + K^-K^-$)
- ⊗ 11GeV XPT 6.6-10.4fm ($K^+K^+ + K^-K^-$)

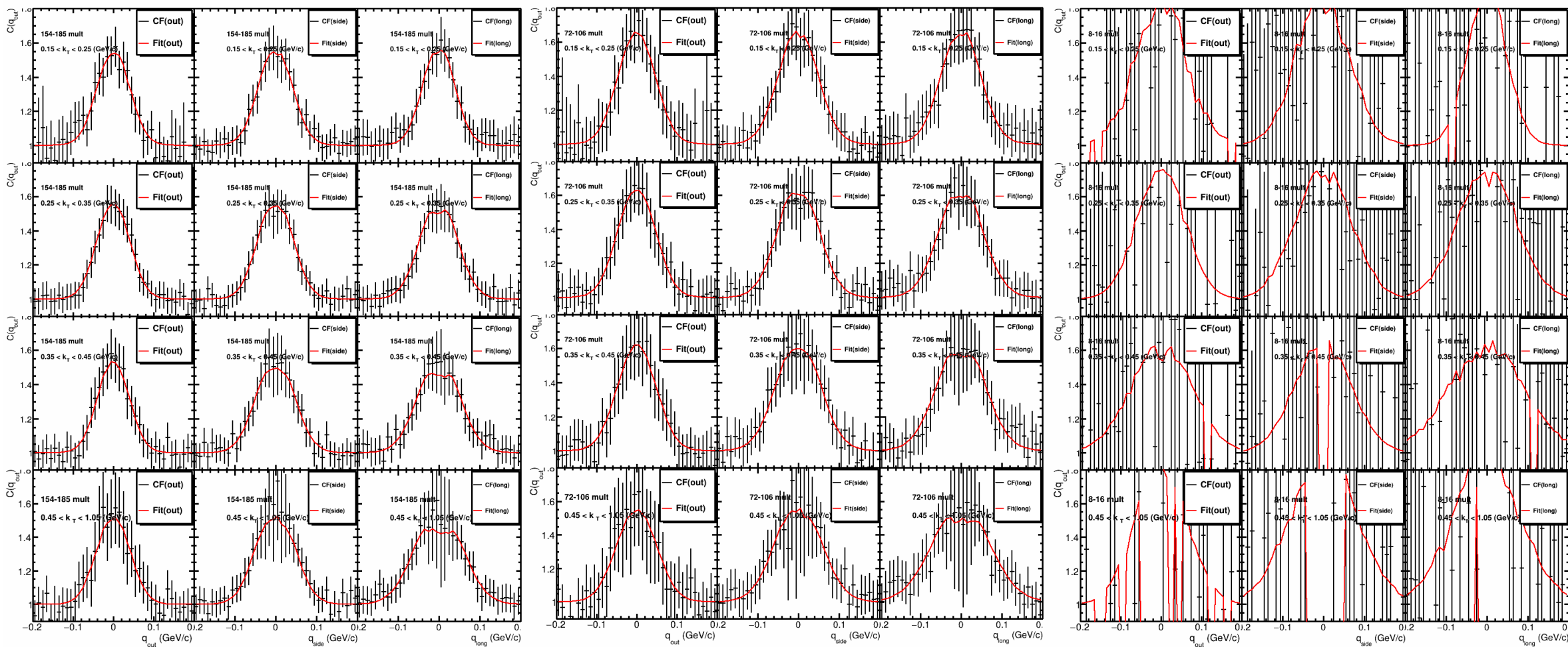
- Radii decreases with increasing k_T
- Radii increases with decreasing impact parameter

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

Cfs (UrQMD 7.7 GeV)

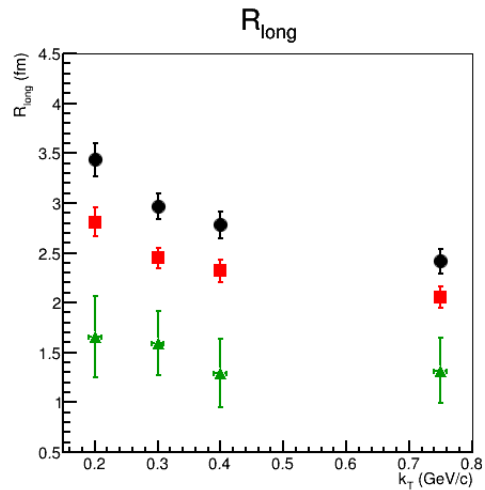
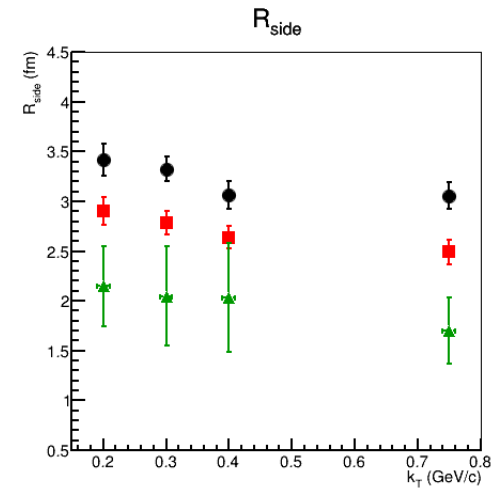
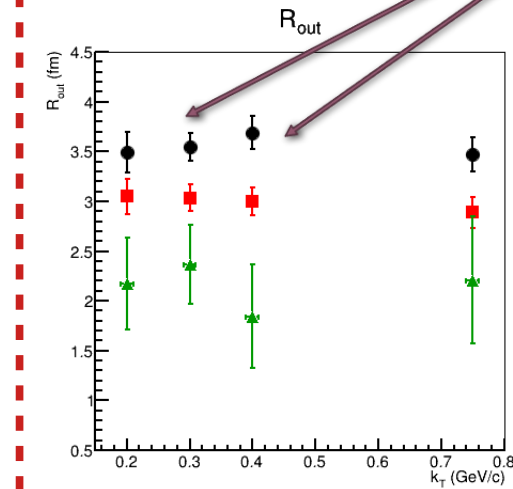
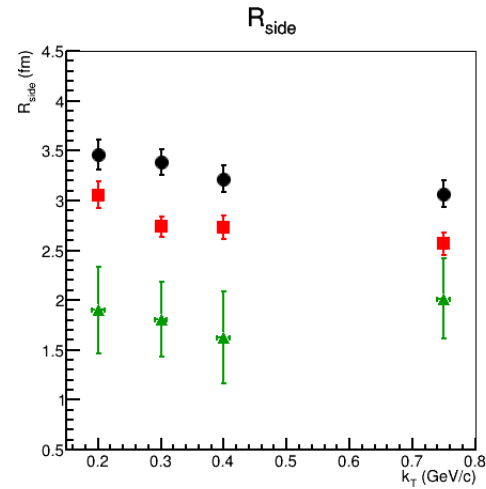
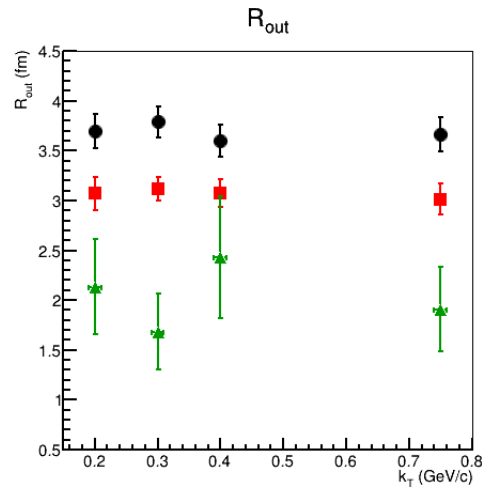


Cfs (UrQMD 11.5 GeV)

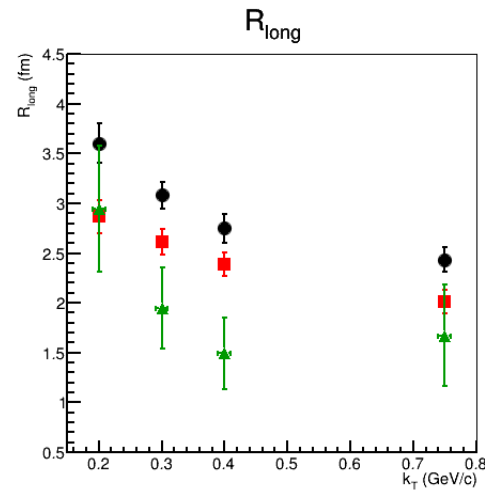


UrQMD $R_{o,s,l}$ Vs. k_T

Points “jump” due to insufficient statistics (fit instability)



- 7.7GeV 154-185 mult ($K^+K^+ + K^-K^-$)
- 7.7GeV 72-106 ($K^+K^+ + K^-K^-$)
- ▲ 7.7GeV 8-16 mult ($K^+K^+ + K^-K^-$)



- 11.5GeV 154-185 mult ($K^+K^+ + K^-K^-$)
- 11.5GeV 72-106 ($K^+K^+ + K^-K^-$)
- ▲ 11.5GeV 8-16 mult ($K^+K^+ + K^-K^-$)

• Need more statistics

Summary

- Radii decreases with increasing k_T for both UrQMD and Hydro
- Radii increases with decreasing impact parameter (increasing particle multiplicity) for both UrQMD and Hydro
- Clear difference between R_1 obtained from 1PT and XPT and small difference for R_s and R_o

Need more statistics for both UrQMD and Hydro

Thank you for your attention!