Charge Correlation in Au-Au 200 GeV

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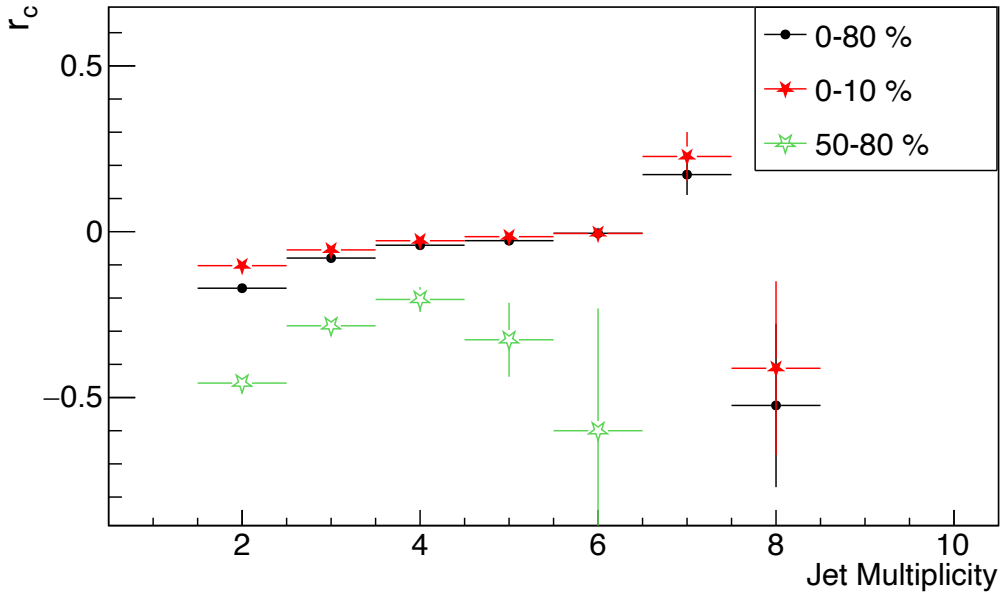
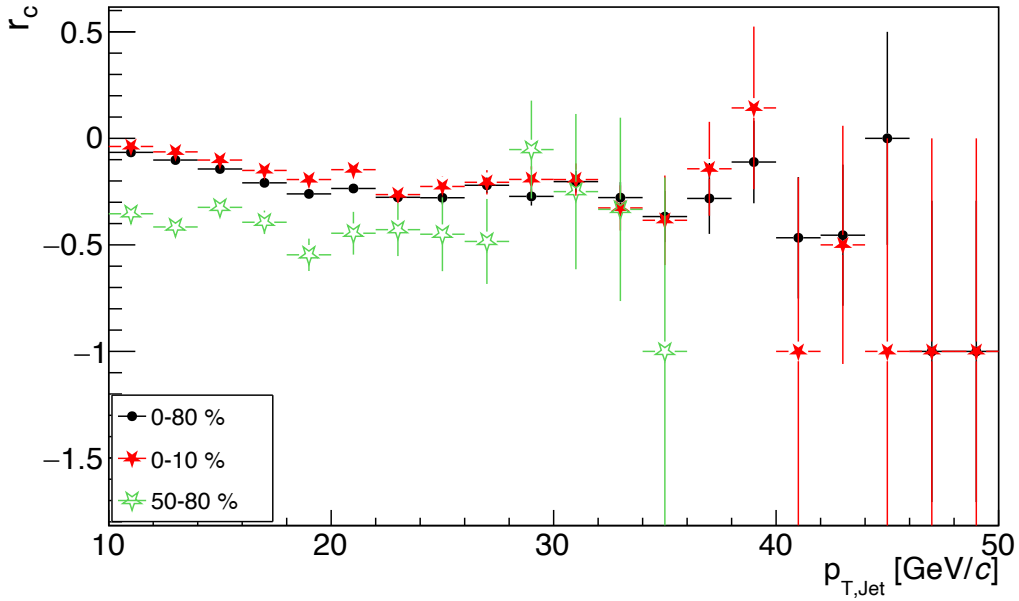
Dataset:

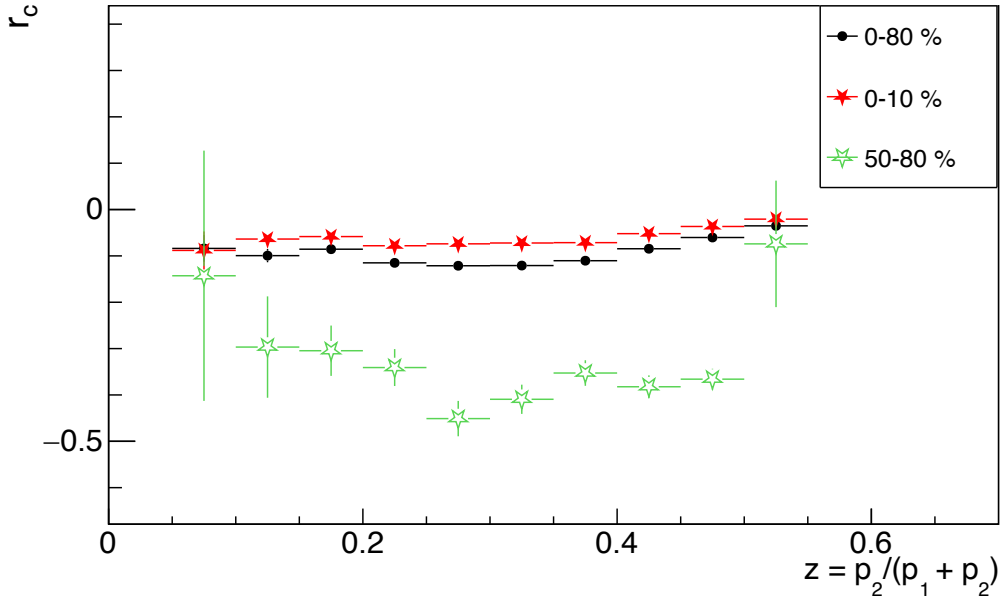
- Au + Au 200 GeV Run14 Low and Mid Lumi MinBias Dataset
- HFT present in tracking
- Detailed PID efficiency studies available for this dataset
- Jet p_T > 10 GeV/c, Constituent p_T > 2 GeV/c → **Hard Core** Jets
- Anti-kT jets, R = 0.4, |eta| < 1 - R
- Usually, no background subtraction done for such jets
- We can also look at the subsets of HT events

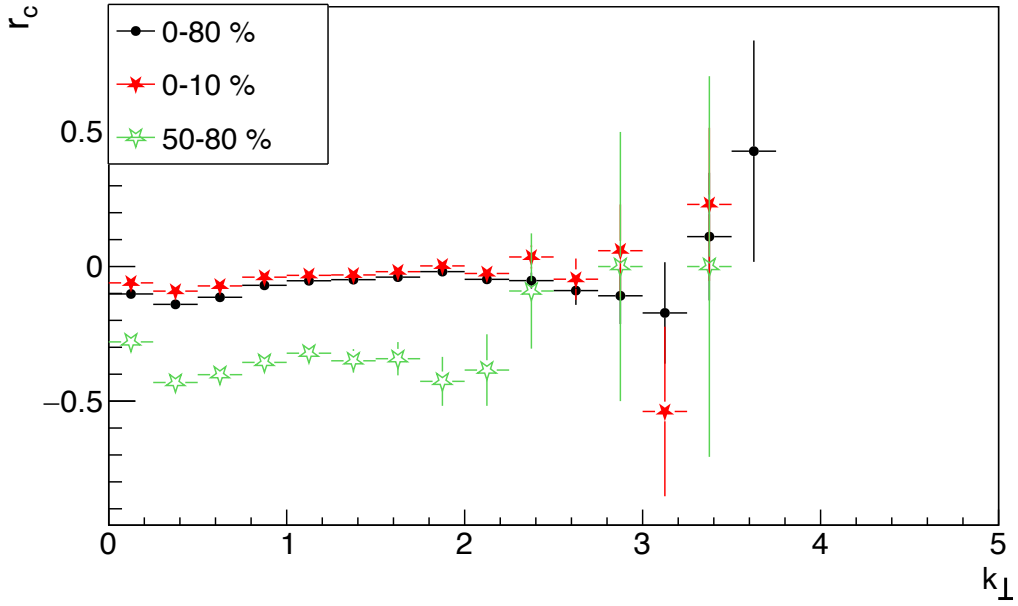
$$r_c(h_1h_2) = \frac{d\sigma_{h_1h_2} - d\sigma_{h_1\overline{h_2}}}{d\sigma_{h_1h_2} + d\sigma_{h_1\overline{h_2}}}$$

Charge Correlation Without PID









PID Inefficiencies

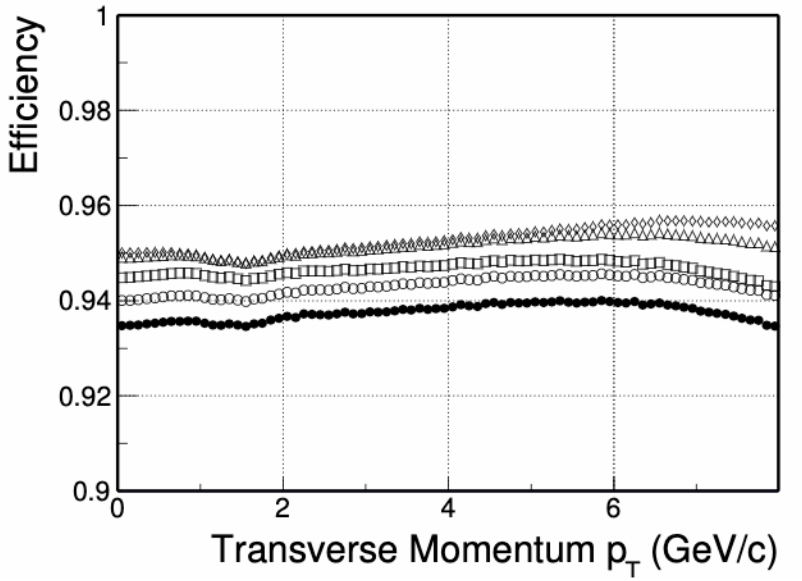


FIG. 31: The combined PID cut efficiency with the hybrid PID method for 0-10% symbols) to 60-80% (open diamonds) collisions.

pion PID:

- $|nSigmaPion| < 3.0$, based on TPC dE/dx
- If TOF is avaliable: $|\frac{1}{\beta} - \frac{1}{\beta_{exp}}| < 0.03$

kaon PID:

- $|nSigmaKaon| < 2.0$, based on TPC dE/dx
- If TOF is avaliable: $|\frac{1}{\beta} - \frac{1}{\beta_{exp}}| < 0.03$

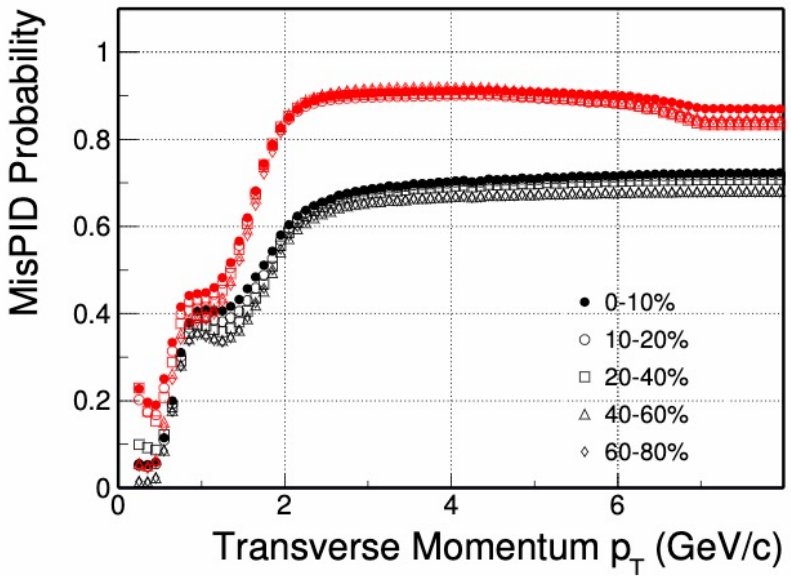


FIG. 32: Particle misidentification probability for kaons (red) and pions (black) from different centrality bins in Au+Au collisions.