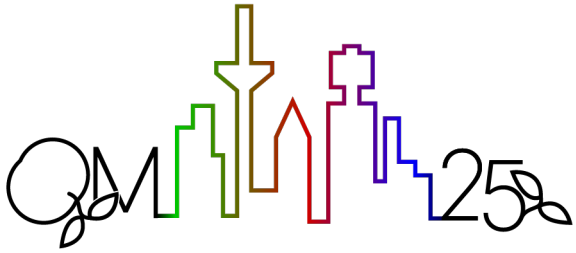

Contribution ID: **250** Type: **Poster**

Disentanglement of soft and hard origins of mean p_{T} correlations in ALICE at the LHC.

ALICE data recorded from pp collisions at $\sqrt{s} = 13$ TeV are analyzed to study the mean transverse momentum (p_{T}) fluctuations. The study is motivated by the idea that non-monotonic changes in p_{T} correlations with varying energy, if observed, may be taken as an indicator for the QGP formation. The mean p_{T} fluctuations are studied in terms of the two-particle correlator, $\sqrt{C_m}/M(p_{\mathrm{T}})_m$, which measures the strength of such fluctuations in units of mean p_{T}. The dependence of $\sqrt{C_m}/M(p_{\mathrm{T}})_m$ on particle multiplicity in varying p_{T} window widths and positions has been analyzed. A study of soft, intermediate and hard p_{T} would significantly impact on understanding of equilibrium and thermal (radial flow), as well as non-thermal (jets/minijets) sources for p_{T} fluctuations.

A decreasing trend in correlator values with increasing charged particle multiplicity has been observed, following a power-law pattern. The dependence of the power–law coefficient on different p_{T} ranges has also been analyzed. To further investigate collective effects, within a common multiplicity range, correlators have been studied across different collision systems, such as p–Pb and Pb–Pb at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV and Xe–Xe at $\sqrt{s_{\mathrm{NN}}} = 5.44$ TeV. The findings are compared with predictions from Monte Carlo models, like PYTHIA (pQCD string) and EPOS (core–corona), to gain further insight.

Category

Experiment

Collaboration (if applicable)

ALICE

Author: Ms ALI, Bushra (Aligarh Muslim University (IN))

Co-authors: AHMAD, Shakeel (Aligarh Muslim University (IN)); BASU, Sumit (Lund University (SE))

Presenter: Ms ALI, Bushra (Aligarh Muslim University (IN))

Session Classification: Poster session 2

Track Classification: Collective dynamics & small systems