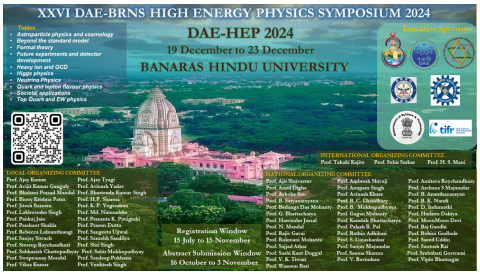

Contribution ID: **175** Type: **Oral**

Mean p_{T} fluctuations in pp collisions at $\sqrt{s}$ = 13 TeV with ALICE at the LHC

Event-by-event fluctuations in the mean transverse momentum (Event-by-event fluctuations in the mean transverse momentum (p_{T}) of charged particles produced in high-energy proton-proton (pp) collisions are investigated. High-multiplicity data at $\sqrt{s}$ = 13 TeV collected by ALICE is analyzed for this purpose. The mean p_{T} fluctuations are studied in terms of the two-particle correlator, $\sqrt{C_m}/M(p_T)_m$, which measures the strength of such fluctuations in units of mean p_{T}. The primary objective of the present study is to explore whether these fluctuations are of dynamic origin and may indicate the formation of Quark–Gluon Plasma (QGP) droplets in small systems like pp. A decreasing trend of correlator values with increasing charged particle density is observed which follows a power-law pattern, similar to those reported for both small and large collision systems at lower energies. Furthermore, the analysis is extended by examining the dependence of $\sqrt{C_m}/M(p_T)_m$ on particle multiplicity by varying p_{T} window widths and positions. Such a study would help distinguish potential thermal influences, like jets and minijets, from non-thermal effects such as radial flow. The results are compared with predictions of Monte Carlo models, like PYTHIA and EPOS, to examine how well these models can reproduce the observed fluctuation patterns.

Field of contribution

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Track Classification: Heavy ion and QCD