Contribution ID: **68** Type: **Poster Presentation**

Investigating the non-flow effect in proton+proton collisions from two-particle correlation using PYTHIA8

Monday 4 November 2019 17:40 (20 minutes)

To explain the underlying mechanisms involved in particle production and the properties of the strongly interacting nuclear matter produced in high multiplicity p+p collisions, one can use two particle azimuthal correlation method as an important tool. We present here measurements of two particle azimuthal correlation with neutral pion(π^0), neutral kaon(k^0) and proton as trigger particles having the highest transverse momentum (p_T) and associated charged hadrons of transverse momentum (p_T) $>$ 0.5 in an event on the basis of the difference in azimuthal angle ($\Delta\phi$) and pseudorapidity ($\Delta\eta$) at midrapidity in p+p collisions at $\sqrt{s}$ = 13 TeV using the pQCD inspired model PYTHIA8. Multiplicity dependent study of these measurements can explain the production and hadronization of particles at different multiplicities. In order to explain the collective behavior of the medium formed, we can use this analysis. Mixed event technique is used to obtain the pure correlation distribution and afterward, the per-trigger yields are extracted on the near side ($|\Delta\phi| < 0.7$) as well as on the away side ($|\Delta\phi - \pi| < 1.1$). The modification in the per-trigger yields is given by a factor I_{AA} which is the ratio of near-side to away-side yields. The collectivity of the medium is explained by the Fourier coefficient (v_2) extracted from the two particles angular correlation function. This explains the collective motion of the particles. The mass dependency of particles and the behavior of mean transverse momentum ($\langle p_T \rangle$) as a function of charged-particle multiplicity is presented.

Authors: THAKUR, Dhananjaya (Indian Institute of Technology Indore (IN)); Mr SAHOO, Debasish (IIT Indore); SAHOO, Raghunath (Indian Institute of Technology Indore (IN))

Presenter: THAKUR, Dhananjaya (Indian Institute of Technology Indore (IN))

Session Classification: Poster Session

Track Classification: Collective dynamics and final state interaction