



Contribution ID: 447

Type: Poster

Higher order transverse momentum fluctuations in heavy-ion collisions

Wednesday 6 April 2022 18:10 (4 minutes)

In relativistic heavy ion collisions, the event-by-event mean transverse momentum ($\langle p_T \rangle$) fluctuations are sensitive to fluctuations in overlap area and reflect the nature of initial-state fluctuations in energy density. We present a cumulant framework to measure the event-by-event $\langle p_T \rangle$ fluctuations up-to 4th order which is then validated using HIJING, which is an independent source model. We observe a power law dependence for the measured cumulants of all orders as a function of charged particle multiplicity as expected from an independent source scenario. For a given N_{ch} , the measured fluctuations show a larger magnitude for pp collisions than for $p+Pb$, $Pb+Pb$ and $Xe+Xe$ collisions due to a bias in number of contributing sources for a given N_{ch} . In addition, a suppression of short-range correlation was observed upon using two-subevent method in comparison to the standard method. This study provides a baseline for higher order $\langle p_T \rangle$ fluctuations arising from independent superposition of nucleon-nucleon collisions and consisting only of short-range correlations.

Author: BHATTA, Somadutta (Stony Brook University (US))

Presenter: BHATTA, Somadutta (Stony Brook University (US))

Session Classification: Poster Session 1 T14_2

Track Classification: Hadron production and collective dynamics