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Higher-order event-by-event mean- p_T fluctuations in pp and A-A collisions with ALICE

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The study of event-by-event mean transverse momentum (p_T) fluctuations is a useful tool to understand the dynamics of the system produced in ultrarelativistic heavy-ion collisions. The measurement of higher-order fluctuations of mean- p_T can help in probing the hydrodynamic behavior of the system and is considered to be a direct way of observing initial-state fluctuations. It can also be sensitive to the early-time evolution of the produced quark-gluon plasma. We present the first measurement of three- and four-particle p_T correlators and their intensive ratios, related to the skewness and kurtosis of event-by-event mean- p_T distribution, as a function of average charged-particle density in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV and Xe-Xe collisions at $\sqrt{s_{NN}} = 5.44$ TeV using the data recorded by the ALICE detector. For the baseline study, the analysis is performed also in pp collisions at $\sqrt{s} = 5.02$ TeV. The measurements are compared to corresponding results from the STAR experiment at lower collision energies and to different theoretical model predictions.

In-person participation

No

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