

Event-by-event fluctuation and correlation measurements at the LHC energies in ALICE

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Event-by-event fluctuations in relativistic heavy-ion collisions may reveal important information about the QCD phase transition and can be used for characterizing the hot and dense system formed in heavy-ion collisions. Fluctuations of many observables are associated with thermodynamic quantities of the strongly interacting system. The event-by-event fluctuations of the mean transverse momentum, temperature, multiplicity and net-charges are related to the fundamental properties of the system. In this presentation, we will discuss the recent results from ALICE experiment on event-by-event fluctuations and particle correlations at LHC energies for Pb-Pb, p-Pb and pp collisions. Along with that the results of balance functions analysis at LHC energy will be shown. We will also make comparisons to the measurements at lower beam energies from different experiments and discuss the prospect for these studies at LHC energies.

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