

Bulk properties of PbPb collisions at the LHC measured by ALICE

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Global variables, such as the charged particle multiplicity and the transverse energy are important observables to characterize Relativistic Heavy Ion collisions and to constrain model calculations. The charged-particle multiplicity $dN_{ch}/d\eta(\eta=0)$ and transverse energy $dE_t/d\eta(\eta=0)$ are measured at $\sqrt{s_{NN}}=2.76\text{TeV}$ in Pb-Pb collisions as a function of centrality and in p-p collisions. The fraction of inelastic cross section seen by the ALICE detector is calculated either using a Glauber model or the data corrected by simulations of nuclear and EM processes, or data collected with a minimum bias interaction trigger. The centrality, defined by the number of nucleons participating in the collision, is obtained, via the Glauber model, by relating the multiplicity distributions of various detectors in the ALICE Central Barrel and their correlation with the spectator energy measured by the Zero-Degree Calorimeters.

The results are compared to corresponding results obtained at the significantly lower energies of the BNL AGS, the CERN SPS, and the BNL RHIC, and with models based on different mechanisms for particle production in nuclear collisions. Particular emphasis will be given to a discussion on systematic studies of the dependence of the centrality determination on the Glauber model, and the validity of the Glauber model at unprecedented collision energies.

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