

Measurements of Balance Functions for Identified Particles in Pb-Pb Collisions at $\sqrt{s_{NN}} = 2.76$ TeV at ALICE

Measuring balance functions of different hadronic species holds the prospect of providing a quantitative insight into the chemical evolution of the Quark Gluon Plasma created in ultra-relativistic heavy ion collisions[1]. Balance functions have been measured for identified charged-pion pairs and for identified charged-kaon pairs in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV by the ALICE detector at the Large Hadron Collider (LHC). These balance functions are presented in relative rapidity Δy and relative azimuthal angle $\Delta\phi$. The charged-pion balance function widths in terms of Δy and $\Delta\phi$ appear to be narrower in central Pb-Pb collisions compared to peripheral collisions. Furthermore, we present a comparison between the balance functions of charged-pions, charged-kaons and unidentified charged particles. The results of this analysis agree with the effects of delayed hadronization and radial flow, as well as the two-wave nature of quark production proposed in [1]. Detailed model comparisons will also be shown to draw more quantitative conclusions.

[1] Pratt, Phys. Rev. C 85 (2012) 014904

Preferred Track

Correlations and Fluctuations

Collaboration

ALICE

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