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Balance function studies for non-identified particles in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV

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The possible creation of a strongly interacting deconfined phase (Quark-Gluon plasma) in relativistic heavy ion collisions would be measurable in a delayed hadronization time. It was proposed to test this hypothesis via the measurement of correlations between positive and negatively charged pairs as a function of rapidity, the so-called Balance functions, which was done at SPS and RHIC energies. We will present first studies of Balance functions at LHC energies with the ALICE experiment. In Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV the width of Balance functions in pseudorapidity and azimuthal angle for non-identified charged particles shows a clear centrality dependence. In addition a comparison to other experiments (NA49, STAR) at lower c.m. energies and different models (Hijing, AMPT, Blast wave) will be presented.

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