

Abstract Submitted
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Multiplicity evolution of identified particle charge-dependent correlations in Pb-Pb, p-Pb and pp collisions at the LHC with ALICE¹ JIN-JIN PAN, Wayne State University, ALICE COLLABORATION — The charge pair creation and transport processes in heavy-ion collisions are investigated experimentally by measurements of charge-dependent correlations of identified particle pairs, related to the Balance Function[1]. The produced pair separation in rapidity is expected to be larger for hadrons arising from quark-antiquark pair creation in the early stages of the collision than for hadrons emerging from the later hadronization stage. Correlations are reported for charged-pion pairs in Pb-Pb, p-Pb and pp collisions at $\sqrt{s_{NN}} = 2.76, 5.02$ and 7 TeV, respectively; and for charged-kaon pairs in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV. The correlations are measured as a function of relative rapidity Δy and azimuthal angle $\Delta\phi$, and are dominated by a peak centered at $\Delta y = \Delta\phi = 0$. We observe that the peak widths in Δy and $\Delta\phi$ are narrower in higher multiplicity events in Pb-Pb, p-Pb, and pp collisions, which is consistent with the effects of radial flow, as well as the two-wave quark production mechanism. We investigate the charge transport and system evolution further by studying the $\Delta\phi$ width of the peak as a function of Δy . [1]Pratt,PRC85(2012)014904

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Jinjin Pan
Wayne State University

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