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Two–particle correlations and balance functions in p–Pb and Pb–Pb collisions at LHC energies with ALICE

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Recent measurements of two–particle correlations in high–multiplicity p–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV revealed a long–range structure (large separation in $\Delta\eta$) at the near–($\Delta\varphi \approx 0$) and away–side ($\Delta\varphi \approx \pi$) of the triggering particle [1, 2, 3]. At LHC energies, these ridge–like structures have already been observed in Pb–Pb collisions [4], but also in high–multiplicity pp collisions [5]. In the first case, this phenomenon is commonly related to collectivity in hadron production, i.e. hydrodynamic evolution, whereas in the latter, mechanisms like longitudinal color connections and multi–parton interactions might play an important role. To shed light on the particle production mechanisms in p–Pb and Pb–Pb collisions and answer the question for collectivity, we extend the two–particle correlation analysis for hadrons in two directions: identified particles, which should show a characteristic pattern in case of collective motion in a hydrodynamic medium, and charge dependent correlations studied with the balance function, which are sensitive to charge dependent effects like local charge conservation.

References

[1] CMS Collaboration, Phys. Lett. B 718 (2013) 795.

[2] B. Abelev et al., ALICE Collaboration, Phys.Lett. B 719 (2013) 29. [3] G. Aad et al., ATLAS Collaboration, CERN-PH-EP-2012-366.

[4] K. Aamodt et al., ALICE Collaboration, Phys. Lett. B 708 (2012) 249.

[5] V. Khachatryan et al., CMS Collaboration, JHEP 1009 (2010) 091.

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