

Contribution ID: 192

HEP 2013 Stockholm 18-24 July 2013



Type: Talk presentation

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

Thursday 18 July 2013 09:00 (16 minutes)

Recent measurements of two-particle correlations in high-multiplicity p–Pb collisions at $\sqrt{sNN} = 5.02$ TeV revealed a long-range structure (large separation in $\Delta \eta$) at the near-($\Delta \phi \boxtimes 0$) and away-side ($\Delta \phi \boxtimes \pi$) 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.

Author: WEBER, Michael (University of Houston (US))

Presenter: WEBER, Michael (University of Houston (US))

Session Classification: Ultrarelativistic Heavy Ions

Track Classification: Ultrarelativistic Heavy Ions