

A comprehensive study of the high-pT particle correlations in pp collisions at LHC/ALICE

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Two-particle correlation with the high-pT triggers allows the study of the hard scattering phenomena like soft QCD radiation [1, 2], angular ordering [3] or jet fragmentation in the low and intermediate pT region [4, 5] where full jet reconstruction is challenging. An analysis of the first ALICE pp data where charged particle, π^0 and isolated photon are used as trigger particles will be presented. These measurements will serve as a reference for the same measurements in Pb-Pb collisions. A sensitivity of the associated particle momentum projection into the direction of the trigger particle, $x_E = -p_{T\text{h}\pm} \cdot p_{T\text{trig}} / |p_{T\text{trig}}|^2$, can be used to extract the average trigger particle momentum fraction and the jet imbalance function, whereas the γ -hadron correlations can be used to study the jet fragmentation function directly. The quest for the nuclear modification of the partonic properties in heavy ion collisions, using above mentioned quantities, will be also outlined.

References

- [1] D. Boer and W. Vogelsang, Phys. Rev. D69, 094025 (2004), hep-ph/0312320. [2] R. Perez-Ramos, F. Arleo, and B. Machet, Phys. Rev. D78, 014019 (2008), 0712.2212. [3] Y. L. Dokshitzer, D. Diakonov, and S. Troian, Phys.Rept. 58, 269 (1980). [4] PHENIX, S. S. Adler et al., Phys. Rev. D74, 072002 (2006), hep-ex/0605039. [5] PHENIX Collaboration, A. Adare et al., Phys. Rev. D 82, 072001 (2010), arXiv:1006.1347.

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