

Event Plane dependent dihadron azimuthal correlations with event shape engineering in Au+Au collisions at $\sqrt{s_{NN}}=200\text{GeV}$

In heavy-ion collisions, strong interactions occur between hard scattered partons and the Quark Gluon Plasma. Dihadron azimuthal correlations with high p_T trigger particles are a valuable tool to study the interactions between jets and the medium.

Previously, it was shown that dihadron azimuthal correlations are expected to depend on the azimuthal angle of trigger particle relative to the event plane [1].

However, in-medium path length can additionally differ in the same multiplicity class because of the evolution of the system, and thus the strength of long-range correlations (flow), is sensitive to fluctuations in the initial geometry.

Event shape engineering (ESE) has been proposed as a powerful method to select the events which have different strength of flow [2].

We present a study of dihadron correlations for different selections of the trigger azimuthal angle with respect to the event plane in Au+Au collisions at $\sqrt{s_{NN}}=200\text{GeV}$ utilizing ESE.

References

[1] Adamczyk et al. (STAR Collaboration), Phys. Rev. C. 89(2014) 41901

[2] J.Schukraft, A.Timmins, and S.A.Voloshin, "Ultra-relativistic nuclear collisions: event shape engineering", Phys.Lett. B719 (2013) 394–398

Preferred Track

Jets and High p_T Hadrons

Collaboration

STAR

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