

Three particle correlations as a probe of eccentricity fluctuations

The geometrical overlap region in non-central heavy ion collisions is almond shaped. Due to this shape profile, density fluctuations for different harmonics are strongly correlated; for example v_1 and v_3 . If the final momentum space distributions in heavy-ion collisions depend on the initial density, then the coupling of different harmonics will lead to three particle correlations such as $\cos(\phi_1+2\phi_2-3\phi_3)$. In this poster we present STAR measurements of $\cos(\phi_1+2\phi_2-3\phi_3)$ as a function of p_t and centrality in $\sqrt{s_{NN}} = 200$ GeV Au+Au collisions. We compare our results to predictions from Teaney and Yan (1) based on ideal hydrodynamic calculations.

(1) D. Teaney and L. Yan, arXiv:1010.1876v1 [nucl-th]

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