

Azimuthally differential pion femtoscopy with respect to second and third order event planes and event shape engineering in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV

Wednesday, June 14, 2017 3:20 PM (20 minutes)

Azimuthally differential HBT is a powerful tool for investigating the source shape at freeze out. In heavy ion collisions, the medium expansion through radial and anisotropic flow has been observed. These hydrodynamic expansions result the deformation of the initial geometry. Studying the deformation of the source shape by such strong expansion is the key to quantify the dynamics of the system evolution.

The azimuthal anisotropy flow coefficients v_n fluctuate significantly even within a same centrality range due to fluctuations in the participant shape.

Recently, event shape engineering (ESE) has been suggested as a powerful tool to control event-by-event flow fluctuations

by selecting the magnitude of flow vectors q_2 and q_3 .

Azimuthally differential HBT with ESE offers the detailed analysis of the relation between anisotropic flow and the deformation of source shape.

In this talk, we present azimuthally differential pion femtoscopy with respect to second and third order event planes and the study of how the source eccentricity changes with large q_2 and q_3 cuts.

List of tracks

Femtoscopy at RHIC and LHC: links to QGP physics

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Session Classification: Femtoscopy at RHIC and LHC: links to QGP physics