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Charge-dependent azimuthal correlations of secondary particles in heavy ion collisions

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The CP symmetry breaking in quantum chromodynamics (QCD) could be realized via transitions between local fluctuations of gauge fields. Azimuthal correlations which characterize the asymmetry of the emitted charged particles with respect to the reaction plane in non-central nucleus-nucleus collisions are the promising tools for experimental study of local CP violation in the strong interactions. The preliminary estimations of correlators within the model of chiral magnetic effect are presented for types of nuclei and collision energies corresponded to RHIC and the LHC beams for two various nuclear densities, namely, for approach of the hard sphere and for the two-component Fermi model. Besides of the correlator estimations for the symmetric collisions, the results for asymmetric Cu+Au collisions are also discussed.

Presentation type

Section talk (10+5 min)

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