

Tagging of eta decay products in Bose-Einstein correlations to analyze chiral restoration

In case of chiral $U_A(1)$ symmetry restoration the mass of the eta' boson (the ninth, would-be Goldstone boson) is decreased, thus its production cross section is heavily enhanced. The eta' decays (through one of its decay channels) into five pions. These pions will not be correlated in terms of Bose-Einstein correlations, thus the production enhancement changes the strength of two-pion correlation functions at low momentum. Preliminary results strongly support the mass decrease of the eta' boson. In this paper we propose a method to select pions coming from eta' decays. We investigate the efficiency of the proposed kinematical cut in several collision systems and energies with several simulators. We prove that our method can be used in all investigated collision systems.

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Track Classification: Correlations and fluctuations