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Kaon femtoscopy in 200 GeV central Au+Au collsions at STAR

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Three-dimensional source extraction techniques allow us to get an
insight to the space-time extent and the freezeout dynamics of the hot and dense medium created in RHIC high energy heavy ion collisions, using Bose-Einstein correlated like-sign hadron pairs. Three-dimensional analyses of the pion source revealed a heavy, non-Gaussian tail in the "out" direction. The interpretation of these pion sources in terms of pure hydrodynamical evolution is, however, complicated by the strong contribution of feed-down from long-lived resonances to the source. On the other hand, kaons provide a much cleaner probe of the expanding fireball.

We present a recent three-dimensional kaon correlation analysis in
central Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV, using
Cartesian harmonics decomposition technique. We compare the three-dimensional spatial source function of kaons to that of pions, and
to a thermal model of source evolution. We also present results on the three-dimensional extent of the kaon source with respect to the pair transverse momentum, and compare it to predictions of two different hydrodynamical models.

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