Boundary and expansion effects on one and two pion distributions in relativistic heavy-ion collisions

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Abstract

We examine the effects that a confining boundary together with hydrodynamical expansion exhert on one and two pion distributions in relativistic heavy ion collisions. We show that the increase of the experimental single particle spectrum at large transverse momentum is well reproduced by the above two effects for midrapidity pions produced in collisions with energies of order 10 GeV/A. The effects on the two-pion correlation function arise from the introduction of the correlation in phase space do to collective motion, leading to a reduction in the apparent source radius. However, the presence of the boundary itself does not introduce further significant effects on the two-pion correlation function.

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