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Effects of the global charge conservation on the time evolution of fluctuations of conserved charges in relativistic heavy ion collisions

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We investigate the effects of the global charge conservation on the rapidity window dependences of fluctuations of conserved charges observed in heavy ion collisions. We describe the time evolution of the higher order fluctuations in the hadronic medium by solving the diffusion master equation with boundaries. Our result suggests that the effect of the global charge conservation for the diffusion in the hadronic phase is negligible in the experimental results even with the largest rapidity window acceptance at ALICE unlike previously suggested. We argue that the rapidity window dependence of the charge fluctuation observed by ALICE at LHC is caused by not the global charge conservation but the time evolution of the fluctuation. The dependences of the fluctuations of conserved charges on the rapidity window contain various information on the matter generated in heavy ion collisions.

On behalf of collaboration:

None

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