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Evolution of net-charge fluctuations in heavy ion collisions

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Recent publications have postulated that charge fluctuations in heavy ion collisions can provide a possible signature for the existence of the deconfined Quark Gluon Plasma phase. The charge fluctuations are sensitive to the number of charges in the system, thus the fluctuations in the QGP, with fractionally charged partons, are significantly different from those of a hadron gas with unit-charged particles. We investigate the evolution of fluctuations in rapidity space, which hints at signal damping as a function of rapidity. We estimate the magnitude of the diffusion of signal by taking the global charge conservation into consideration. Further, we emphasize the minimum rapidity gap required to estimate the diffusion of the signal in experiment.

On behalf of collaboration:

NONE

Primary author: JENA, Deepika (Panjab University (IN))

Co-author: JENA, Satyajit[[gmail](mailto:)]

Presenter: JENA, Deepika (Panjab University (IN))

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