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Non-Markov effect on the time evolution of higher order fluctuations of conserved charges MIKI SAKAIDA, MASAYUKI ASAKAWA, MASAKIYO KITAZAWA, Osaka University — Fluctuations of conserved charges in a given rapidity window are promising observables for extracting the properties of the QGP in heavy ion collisions. Recent experimental result on the rapidity window dependence of the net electric-charge fluctuation observed at LHC shows an interesting behavior that the value of the fluctuation does not reach their thermal equilibrium value. This result suggests that observed fluctuation contains information on the QGP. We investigate the time evolution of higher order fluctuations of conserved charges in the hadronic stage in heavy ion collisions. Previous study on the time evolution is modeled by the diffusion master equation, which describes a Markov process. However, diffusion on fluctuations of conserved charges in heavy ion collisions is non-Markov process. In the present study, we describe the time evolution of fluctuations of conserved charges with Kramers equation in order to include non-Markov property and investigate this effect on the rapidity window dependence of fluctuations of conserved charges.

Miki Sakaida
Osaka University

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