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**Simulation of causal hydrodynamic fluctuation in Bjorken expansion** KENICHI NAGAI, Sophia University, RYUICHI KURITA, KOICHI MURASE, The University of Tokyo, TETSUFUMI HIRANO, Sophia University
— We investigate the effects of causal hydrodynamic fluctuation [1] on dynamics of the quark gluon plasma (QGP) in the Bjorken expansion model [2]. The QGP is created in relativistic heavy ion collisions and its time evolution can be described by relativistic hydrodynamics. So far the effects of event-by-event (e-by-e) initial fluctuation on final flow observables have been focused. In addition to these effects, fluctuation during hydrodynamic evolution should be also important on an e-by-e basis of hydrodynamic description of the QGP. We first introduce causal hydrodynamic fluctuation into the Bjorken expansion model. We then perform simulations of this Bjorken model with hydrodynamic fluctuation on an e-by-e basis. We find the final entropy fluctuates around the mean value. This indicates multiplicity also fluctuates due to hydrodynamic fluctuation and can contain transport properties of the QGP. This effect would be significant in small system such as p-A and peripheral A-A collisions.

[1] K. Murase and T. Hirano, arXiv:1304.3243.
[2] J.D. Bjorken, Phys. Rev. D 27, 140 (1983).

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