

Abstract Submitted
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Fluctuations in Heavy Ion Collisions MALGORZATA ZIELINSKA-PFABE, DARCY LAMBERT, ALEXIS KNAUB, Smith College, Northampton, MA, VIRGIL BARAN, MARIA COLONNA, MASSIMO DI TORO, LNS Catania, Italy, HERMANN WOLTER, University of Munich, Germany, NUCLEAR DYNAMICS TEAM — Collisions between heavy ions are investigated within the semi-classical mean field formalism (BUU/BNV.) The influence of neglected higher order terms is considered as a fluctuation of the distribution function. Without fluctuations the widths of calculated mass and charge distributions are too narrow compared to experiment. We discuss the implementation and the effects of fluctuations on mean field dynamics and fragmentation. We consider two methods of including fluctuations. In one method we assume a local thermal equilibrium, determine the variances of density, and introduce density fluctuations according to these variances. In a second approach, a gauged numerical noise serves as an origin of fluctuations. The way in which the mean field evolves the fluctuation depends on the stability of the system. We consider the central ($b=2\text{fm}$) and semi-peripheral ($b=6\text{fm}$ and $b=8\text{fm}$) collisions of the Sn+Sn system at 50 MeV and use both approaches to study the time evolution of the average number of fragments, their charge distribution, the distribution of the number of fragments, their isospin asymmetry and the velocity correlations. We conclude that both ways of implementation of fluctuations lead to quite similar results for fragmentation and isospin distributions.

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