Implementation and Effects of Fluctuations in Heavy Ion Reactions MALGORZATA ZIELINSKA-PFABE, ALEXIS KNAUB, SELAMNESH NIDA, Smith College, Northampton, MA 01063, VIRGIL BARAN, MARIA COLONNA, MASSIMO DI TORO, LNS Catania, Italy, HERMANN WOLTER, University of Munich, Germany — Collisions between heavy ions have been studied within the semi-classical mean field formalism (BUU/BNV). The effects of the neglected higher order terms were included as a fluctuation of the distribution function. Two methods of implementing these fluctuations were considered. In the first method, one assumes a local thermal equilibrium and determines the variances of the density distribution. The density fluctuations are introduced randomly, 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 fluctuations, depends on the stability of the system. A test particle method was used to solve the BUU equation. The calculations were performed for the Sn+Sn collisions at 50 MeV per nucleon at the impact parameters of 2 and 6 fm. Several obserables were considered: charge distribution of the observed fragments, charge asymmetry of the fragments, their kinetic energy and velocities, light particle yields, and time evolution of the number of prodced fragments. The two methods of introducing fluctuations lead to quite similar results. There are, however, minor differences in the dynamical evolution of some of the observables.

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Date submitted: 24 Feb 2006   Electronic form version 1.4