Correlations within the Non-Equilibrium Green's Function Method[1] HOSSEIN MAHZOON, Michigan State Univ, PAWEL DANIELEWICZ, Michigan State Univ, NSCL — Non-equilibrium Green's function (NGF) method is a powerful tool for studying the evolution of quantum many-body systems. Different types of correlations can be systematically incorporated within the formalism. The time evolution of the single-particle Greens functions is described in terms of the Kadanoff-Baym equations. In the current work I first focus on introducing the correlations in infinite nuclear matter and then in a finite system. Starting from the harmonic oscillator Hamiltonian, by switching on adiabatically mean-field and correlations simultaneously, a well-defined ground state of a correlated system is arrived at within the NGF method.

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