

The Wigner ENsemble Monte Carlo (WIENS) is an union of theoretical and numerical approaches, algorithms, and experimental code for Wigner simulation of nanostructures. Recently WIENS has been theoretically extended for the special limiting cases where transport is nearly coherent or is dominated by processes of dissipation. The underlying idea is to assume knowledge of the solution of the transport equation in the considered limiting case and to consider the equation for the corresponding correction. The latter is given by the difference between the Wigner-Boltzmann and the coherent Wigner functions, if the phonon interaction is weak when compared to the involved potential variations, and between the Wigner-Boltzmann and the Boltzmann functions, if the transport is nearly classical. Several numerical advantages are expected from this treatment. The correction is by assumption small which reduces the required precision. The corresponding equation describes the evolution of an initial condition as the contact injection terms cancel in the process of derivation. Then a priori information needs to be interfaced with other numerical approaches which are more efficient in obtaining the limiting solution. In particular the coherent Wigner solution can be provided by a Green's function approach which is quite effective for coherent cases. The thereby established interface to alternative simulation approaches involves collaboration with groups from the home and international institutions.