

An extended Vlasov equation with pairing correlations

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Abstract

A simplified version of the Wigner-transformed time-dependent Hartree-Fock-Bogoliubov equations, leading to a solvable model for finite systems of fermions with pairing correlations, is introduced. In this model, pairing correlations result in a coupling of the Vlasov-type equation for the normal phase-space density with that for the imaginary part of the anomalous density. The effect of pairing correlations on the linear response of the system is studied for a finite one-dimensional system and an explicit expression for the correlated propagator is given.