SPECTRAL FUNCTION AND KINETIC EQUATION FOR NORMAL FERMI LIQUID

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Abstract. On the basis of the Kadanoff-Baym (KB) version of the time-dependent Green's function method, a new *Ansatz* for the approximation of a spectral function is offered. The *Ansatz* possesses all the advantages of quasiparticle and extended quasiparticle approximations and satisfies the KB equation for a spectral function in the case of slightly nonequilibrium system when disturbances in space and time are taken into consideration in the gradient approximation. This feature opens opportunities for the microscopic derivation of the Landau kinetic equation for the quasiparticle distribution function of the normal Fermi liquid and provides the widening of these equation's temperature range of validity.

keywords: Spectral function, normal Fermi liquid, quasiparticle distribution, density matrix.
PACS number(s): 21.65.+f, 72.10.Bg, 72.20Dp.