**Talk**
**Nonlocal quantum kinetic theory to simulate strong correlations**

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A quantum kinetic equation which unifies the achievements of transport in dense gases with the quantum transport of dense Fermi systems is presented [1,2,6]. The quasiparticle drift of Landau's equation is connected with a dissipation governed by a nonlocal and non-instant scattering integral in the spirit of Enskog corrections. These corrections are expressed in terms of shifts in space and time that characterize non-locality of the scattering process [3]. In this way quantum transport is possible to recast into a quasi-classical picture. Compared to the Boltzmann-equation, the presented form of virial corrections only slightly increases the numerical demands in implementations [4]. In order to achieve this, large cancellations in the off-shell motion have been used which are buried usually in non-Markovian behaviors. The remaining effects are: (i) off-shell tails of the Wigner distribution, (ii) renormalization of scattering rates and (iii) of the single-particle energy, (iv) collision delay and (v) related non-local corrections to the scattering integral. The balance equations for the density, momentum and energy include quasiparticle contributions and the correlated two-particle contributions beyond the Landau theory. The medium effects on binary collisions are shown to mediate the latent heat, i.e., an energy conversion between correlation and thermal energy [5,6]. The two-particle form of the entropy is derived which extends the Landau quasiparticle picture by two-particle molecular contributions and the H-theorem is proved.

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