Bound states in non-equilibrium statistical physics

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In this talk we consider the problem of bound states in non-equilibrium statistical physics. For the consideration of bound states in non-equilibrium systems we need a kinetic equation. In the conventional kinetic theory, kinetic equations are derived under the assumption of "weakening of initial correlations" Under this condition, the build up of correlations (especially bound states) cannot be described. That finds its expression in the on-shell T-matrix in the Boltzmann equation. In order to take into account bound states we must

– modify the condition of weakening of initial correlations (partial weakening of initial correlations)

or

– use the Kadanoff-Baym equations to describe the influence of the initial state.

In this talk we focus on the second possibility and discuss kinetic equations with reactions.