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The role of the initial system-bath correlations in the dynamics of open quantum systems

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Abstract content
   (Max 300 words)

In the typical derivation of the master equation for the system - bath interaction it is assumed that initially system and bath are uncorrelated. However,
in many physical situations it is not the case. Here, we study the influence of the initial system-bath correlations on the dynamics of the system. As a toy
model we will consider a particle with spin 1/2 interacting with a spin bath through an intermediate spin. On the one hand, we use the technique of correlated projection operators to construct a time convolutionless (TCL) master equation with inhomogenous term and on the other hand we will solve exactly the equation for the evolution operator of the total system. This allow us not
only to study the influence of the initial correlation on the system bath dynamics, but also the influence of the initial system-bath correlations on the accuracy of TCL approach.

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