Linear reduced dynamics

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Abstract

Consider an open quantum, system interacting with its environment. Whether the reduced dynamics of the system can be given by a linear map or not is an important question in the theory of open quantum systems. Dominy, Shabani and Lidar have proposed a general framework for linear Hermitian reduced dynamics. In addition, it has been shown that their framework is, in fact, the most general one: The reduced dynamics of the system is linear if and only if it can be formulated within the Dominy-Shabani-Lidar framework. This result has been given in a rather abstract way. Here, we want to give another proof for it, in a more illustrative manner.

For full article, refer to the Persian section