

Decay of fidelity in terms of correlation functions

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Abstract

We consider, within the algebraic formalism, the time dependence of fidelity for qubits encoded into an open physical system. We relate the decay of fidelity to the evolution of correlation functions and, in the particular case of a Markovian dynamics, to the spectral gap of the generator of the semigroup. The results are applicable to the analysis of models of quantum memories.