Bell-inequality and skew-information non-localities in two lossy cavity-qubit systems linked by a waveguide

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Abstract:

We explore two open cavity-qubit systems linked via an optical fiber. The generation of non-local correlations (NLCs) between the two qubits, via skew-information and Bell-function, are investigated under the effects of the physical parameters of the initial state and the interaction couplings of the cavity-qubit and the cavity-fiber and the environment. It is found that the robustness and the generation of the NLCs depend on the physical parameters. Under the condition that the cavity-qubit couplings is much smaller than the cavity-fiber coupling, the regularity of the growth and the oscillations of the NLCs are enhanced and are more robust.

Keywords:

Non-local correlations; Cavity damping; Optical fiber

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