Enhancing the Generated Stable Correlation in a Dissipative System of Two Coupled Qubits inside a Coherent Cavity via Their Dipole-Dipole Interplay

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Abstract:

We explore the dissipative dynamics of two coupled qubits placed inside a coherent cavity-field under dipole-dipole interplay and 2-photon transitions. The generated non-classical correlations (NCCs) beyond entanglement are investigated via two measures based on the Hilbert-Schmidt norm. It is found that the robustness of the generated NCCs can be greatly enhanced by performing the intrinsic dissipation rate, dipole-dipole interplay rate, initial coherence intensity and the degree of the coherent state superpositions. The results show that the intrinsic decoherence stabilize the stationarity of the non-classical correlations while the dipole interplay rate boost them. The non-classical correlations can be frozen at their stationary correlations by increasing the intrinsic dissipation rate. Also NCCs, can be enhanced by increasing the initial coherent intensity

Keywords:

non-classical correlations; dipole-dipole interplay; intrinsic dissipation

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