Time evolution of quantum correlation and entropic uncertainty relation in the presence of quantum memory under noisy channels and one-axis twisting Hamiltonian

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Abstract

Assuming, a symmetric system with *N* qubits under Hamiltonian one-axis twisting and different kinds of noisy channels, such as amplitude damping, phase-flip and phase-damping channel, it is studied the time evolution of quantum correlation and entropic uncertainty relation in the presence of quantum memory. By comparing the behaviors of the dynamics of entropic uncertainty and quantum correlation, it is shown that they increase with increasing of the number of qubits in the beginning of the time. But, they behave in contrary to each other, during the time. As a result, the uncertainty of incompatible observables increases, when quantum correlation decreases.

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