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Dynamics of quantum correlations in two 2-level atoms coupling with thermal reservoirs

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The present poster shows current results we obtained concerning the dynamics of quantum correlations in two noninteractive 2-level atoms coupled to two independently identical thermal reservoirs. The atoms were initially prepared in a Gisin state, which is a mixture of a maximally entangled two-qubit state and a separable mixed state. The quantum entanglement in the evolved Gisin state is quantified by logarithmic negativity (LN), and the nonclassical correlation is characterized by trace distance discord (TDD) and local quantum uncertainty (LQU). Using the mean photon number of reservoirs and spontaneous emission rates of atoms as inputs, we examine how these quantum correlation quantifiers behave. According to our study, trace distance discord (TDD) is the most effective quantifier for revealing nonclassical correlations in the two 2-level system induced by the interaction with thermal reservoirs in all scenarios.

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