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Correlation Dynamics of Qubit-Qutrit Systems in a Classical Dephasing Environment[1] GOKTUG KARPAT, BARIS CAKMAK, ZAFER GEDIK, Faculty of Engineering and Natural Sciences, Sabanci University — We study the time evolution of classical and quantum correlations for hybrid qubit-qutrit systems in independent dephasing environments. Our discussion involves a comparative analysis of the Markovian dynamics of negativity, quantum discord, geometric measure of quantum discord and classical correlation. In the presence of multilocal dephasing noise, we demonstrate the phenomenon of frozen quantum discord for qubit-qutrit states. We show that geometric discord can also get frozen for a class of separable states in this case. On the other hand, when only the qutrit is under the action of a dephasing channel, we observe that the partial coherence left in the system might enable quantum discord to remain invariant throughout the whole dynamics even though the entanglement in the qubit-qutrit state disappears in a finite time interval.

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