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Dynamics of Entanglement-ordering and Entanglement Annihilating Channels

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Abstract:

Entanglement induces a partial ordering of quantum states. We will investigate under which conditions on the dynamics and the entanglement measure such ordering is preserved. This will lead us to the concept of entanglement-annihilating channels which will be compared with the concept of entanglement-breaking channels. In particular, we will give an example of local channels acting on individual qubits that are not entanglement-breaking, but they are entanglement-annihilating, hence, they are capable to destroy any entanglement inside the multiqubit system. We will conclude with several open problems.