**Quantum Physics**

# Classification and quantification of nonlocality in ensembles consisting of orthogonal bipartite states

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An ensemble of mutually orthogonal multipartite states may not be distinguishable by means of local operations and classical communication (LOCC) and could exhibit a kind of nonlocality different from quantum entanglement. We here introduce a measure to quantify and classify the nonlocality of ensembles consisting of mutually orthogonal bipartite states, which is the entanglement cost in addition to LOCC to distinguish the states with vanishing error in the asymptotic limit. We estimate various upper and lower bounds for the nonlocality measure and evaluate the exact values for ensembles consisting of mutually orthogonal maximally entangled bipartite states.

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