Stability of Flip and Exchange Symmetric Entangled State Classes

MEHMET ZAFER GEDIK, Sabanci University — Flip and exchange symmetric (FES) many-qubit states, which can be obtained from a state with the same symmetries by means of invertible local operations (ILO), constitute a one-parameter family of curves in the Hilbert space. Eigenstates of FES ILOs correspond to vectors that cannot be transformed to other FES states. Therefore, equivalence classes of states under ILO can be determined in a systematic way for an arbitrary number of qubits. More important, for entangled states, at the boundaries of neighboring equivalence classes, one can show that when the fidelity between the final state after an ILO and a state of the neighboring class approaches unity, probability of success decreases to zero. In other words, the classes are stable under ILOs.

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