Quantum Physics

The stabilizer dimension of graph states

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The entanglement properties of a multiparty pure state are invariant under local unitary transformations. The stabilizer dimension of a multiparty pure state characterizes how many types of such local unitary transformations existing for the state. We find that the stabilizer dimension of an n-qubit ($n\ge 2$) graph state is associated with three specific configurations in its graph. We further show that the stabilizer dimension of an n-qubit ($n\ge 3$) graph state is equal to the degree of irreducible two-qubit correlations in the state.

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