Herbut, F. (YU-SAOS)

The role of coherence entropy of physical twin observables in entanglement. (English summary)


81P15

The concept of physical twin observables \cite{Herbut2002} is substantially simplified. The relation between observable and state is studied using the coherence entropy, defined as \( E_C(A, \rho) = S(\sum_{j} P_j \rho P_j) - S(\rho) \), where \( S(\rho) \) is the von Neumann entropy of the quantum state \( \rho \), and \( A = \sum_{j} a_j P_j \) is a self-adjoint operator with distinct eigenvalues \( a_j \), representing a physical observable. Some properties of the coherence entropy are explored. It is shown that quantum discord \cite{Ollivier2002} can be expressed through the coherence entropy of a complete set of physical twin observables relative to a state, not only for pure states but also for a class of mixed states.

\textbf{Reviewed} by Adán Cabello

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