Quantum Physics

Broadcast copies reveal the quantumness of correlations

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We study the quantumness of bipartite correlations by proposing a quantity that combines a measure of total correlations -- mutual information -- with the notion of broadcast copies -- i.e., generally nonfactorized copies -- of bipartite states. By analyzing how our quantity increases with the number of broadcast copies, we are able to classify classical, separable, and entangled states. This motivates the definition of the broadcast regularization of mutual information, the asymptotic minimal mutual information per broadcast copy, which we show to have many properties of an entanglement measure.

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