

ENTANGLEMENT CONVERSION WITNESSES BETTER THAN NEGATIVITY

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The primary goal of entanglement theory is to determine convertibility conditions for two quantum states. Up until now this has been done with the use of entanglement monotones, but such quantities, with the exception of the negativity, tend to be rather uncomputable. We instead promote the idea of “conversion witnesses”, which are functions on pairs of state whose value determines whether one state can be converted into the other. We construct a computable conversion witness that is better than the negativity at detecting when two entangled states are non-interconvertible. This shows that the study of conversion witness is in fact useful, and may have applications in quantum resource theories beyond that of entanglement.

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