Quantum Physics

Entanglement witnesses and geometry of entanglement of two--qutrit states

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We construct entanglement witnesses with regard to the geometric structure of the Hilbert--Schmidt space and investigate the geometry of entanglement. In particular, for a two--parameter family of two--qutrit states that are part of the magic simplex we calculate the Hilbert--Schmidt measure of entanglement. We present a method to detect bound entanglement which is illustrated for a three--parameter family of states. In this way we discover new regions of bound entangled states. Furthermore we outline how to use our method to distinguish entangled from separable states.

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