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Title: Detection of entanglement by mutually unbiased bases

Abstract:

Abstract: We present a simple and general geometrical construction of positive maps based on rotation in the space of density matrices. We restrict ourselves to rotations in subspaces of matrices diagonal in subsequent mutually unbiased bases - the family has now a smaller number of parameters and it contains known families of maps detecting entanglement and provide new examples of PPT entangled states. When we look at corresponding entanglement witnesses, their form shows immediately a decomposition into a combination of local observables. The procedure of checking the whole family of witnesses is to perform a partial tomography of a state - this strong tool of checking entanglement uses a partial tomogram of a state.