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Title:	Entanglement detection on an NMR quantum-information processor using random local measurements
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Keywords:	Construct Witnesses Entanglement Bipartite
Issue Date:	2016
Publisher:	American Physical Society
Citation:	Physical Review A, 94(6)
Abstract:	Random local measurements have recently been proposed to construct entanglement witnesses and thereby detect the presence of bipartite entanglement. We experimentally demonstrate the efficacy of one such scheme on a two-qubit NMR quantum-information processor. We show that a set of three random local measurements suffices to detect the entanglement of a general two-qubit state. We experimentally generate states with different amounts of entanglement and show that the scheme is able to clearly witness entanglement. We perform complete quantum state tomography for each state and compute state fidelity to validate our results. Further, we extend previous results and perform a simulation using random local measurements to optimally detect bipartite entanglement in a hybrid system of $2 \otimes 3$ dimensionality.
URI:	https://journals.aps.org/pra/abstract/10.1103/PhysRevA.94.062309 (https://journals.aps.org/pra/abstract/10.1103/PhysRevA.94.062309) http://hdl.handle.net/123456789/2399 (http://hdl.handle.net/123456789/2399)
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