Title:	Experimental detection of qubit-ququart pseudo-bound entanglement using three nuclear spins
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Abstract:	In this work, we experimentally created and characterized a class of qubit-ququart PPT (positive under partial transpose) entangled states using three nuclear spins on an nuclear magnetic resonance (NMR) quantum information processor. Entanglement detection and characterization for systems with a Hilbert space dimension ≥2 ⊗3is nontrivial since there are states in such systems which are both PPT as well as entangled. The experimental detection scheme that we devised for the detection of qubit-ququart PPT entanglement was based on the measurement of three Pauli operators with high precision, and is a key ingredient of the protocol in detecting entanglement. The family of PPT-entangled states considered in the current study are incoherent mixtures of five pure states. All the five states were prepared with high fidelities and the resulting PPT entangled states were prepared with mean fidelity ≥0.95. The entanglement thus detected was validated by carrying out full quantum state tomography (QST)
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