Title:	Determining the parity of a permutation using an experimental NMR qutrit
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Abstract:	We present the NMR implementation of a recently proposed quantum algorithm to find the parity of a permutation. In the usual qubit model of quantum computation, it is widely believed that computational speedup requires the presence of entanglement and thus cannot be achieved by a single qubit. On the other hand, a qutrit is qualitatively more quantum than a qubit because of the existence of quantum contextuality and a single qutrit can be used for computing. We use the deuterium nucleus oriented in a liquid crystal as the experimental qutrit. This is the first experimental exploitation of a single qutrit to carry out a computational task.
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