

Abstract Submitted
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Quantum Computing through Quantum Networks CHENG WU,
Missouri University of Science and Technology — Entanglement of two Aharonov-Bohm (AB) rings, or two artificial atoms, is similar to the entanglement of spins from two electrons. The directions of the angular momentum of two AB rings serve as the inputs for a basic two-bit computing in the quantum network. The question is whether the read-out is to be performed under a short and weak external perturbation? We found that a stronger entanglement than the situation needed for a quantum superposition combines with a strong external terminal connections is the only solution for robust classical readouts. A “half-adder” example will be presented. There has to be an inter-relation between internal and external coupling strengths. They are so adjusted for each other so that read-outs are possible.

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