

Dynamical Suppression of Decoherence in Two-Qubit Quantum Memory

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Abstract: In this paper, we have detailedly studied the dynamical suppression of the phase damping for the two-qubit quantum memory of Ising model by the quantum “ bang-bang” technique. We find the sequence of periodic radio-frequency pulses repetitively to flip the state of the two-qubit system and quantitatively find that these pulses can be used to effectively suppress the phase damping decoherence of the quantum memory and freeze the system state into its initial state. The general sequence of periodic radio-frequency pulses to suppress the phase damping of multi-qubit of Ising model is also given.

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Key words: decoherence suppression, quantum memory, bang-bang technique, Ising model

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