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Adaptive measurement of spin decoherence time T_2 YIHAO ZHANG, WEN YANG, Beijing Computational Science Research Center — Spin decoherence time T_2 is an important parameter in quantum mechanics. In order to estimate it accurately and efficiently, we propose a scheme for spin decoherence time T_2 estimation of a single spin using adaptive measurement. While the ordinary scheme of measuring T_2 yield an estimate precision scales with mean-square error $\sim 1/\sqrt{N}$ (N is the number of measurements). We present some simulated measurement which shows that the adaptive scheme, that is, the time between measurements was depended on the prior measurement results, will give a better scaling than MSE.

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