

Abstract Submitted
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Experimental realization of optimal control with robustness to coupling errors FEIHAO ZHANG, GUILU LONG, Tsinghua Univ — Optimal control theory is applied in quantum information processing for its ability to find objective evolution in complex quantum system. The negative factors, like the coupling to the environment, will impede the ideal evolution and increase their effect over time. In this work, we introduce a new method for finding objective propagator with robustness to coupling errors. The bath disturbance is analyzed by the time scale decomposition of spin dynamics. And the optimization is based on a gradient algorithm. We will give the experimental comparison between this robust optimal control method and the original one in spin system. Results show the advantage of this method in a noisy environment.

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