

Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Canceling spin exchange interaction in a spin-1 Bose-Einstein condensate via magnetic pulses¹ HUANBIN LI, WENXIAN ZHANG, School of Physics and Technology, Wuhan University, Wuhan, Hubei 430072, China — Spin exchange interaction between atoms in a spin-1 Bose condensate causes atomic spin evolve periodically under the single spatial mode approximation. By applying fast magnetic pulses, we find analytically that the effect of the spin exchange interaction is effectively canceled, i.e., the atomic spin is frozen, for certain initial states. Numerical calculations with and without single mode approximation are carried out to confirm the validity of the analytical predictions.

¹Supported by the National Basic Research Program of China (Grant No. 2013CB922003), the National Natural Science Foundation of China under Grant No. 11275139, and the Fundamental Research Funds for the Central Universities.

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Date submitted: 29 Jan 2014

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