Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Adiabatic change assisted Rabi transitions between Adiabatic change assisted Rabi transitions between decoupled quantum states XINGXIANG ZHOU, ARI MIZEL, Pennsylvania State University — A periodic perturbation such as a laser field cannot induce transitions between two decoupled states because the transition matrix element vanishes. However, if in addition some system parameters are varied adiabatically, such transitions are possible via the adiabatic change induced excitations to other states. We study such transitions between two decoupled states and show that full amplitude transfer can be achieved. The resulting physics can be understood in terms of the rotation of an effective spin 1/2 in the two-state subspace, but with a rotation angle dependent on the path traversed by the system in the parameter space only.

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Date submitted: 26 Nov 2006 Electronic form version 1.4