

Abstract Submitted
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“Piecewise” vs. “Coherently controlled” adiabatic passage

EVGENY SHAPIRO, The University of British Columbia — We develop a technique for executing robust and selective transfer of populations between pre-selected superpositions of energy eigenstates. Viewed in the frequency domain, our methods stem from the idea of Coherently Controlled Adiabatic Passage [1], in which several adiabatic passage pathways coherently add up to provide the desired population transfer. Viewed in the time domain, the methods work by piecewise accumulation of the wavefunction in the target wave packet, applying the Piecewise Adiabatic Passage technique [2] in the multi-state regime. The presentation will discuss the basic concepts behind the technique as well as recent theoretical and experimental developments [3,4].

- [1] P. Kral, I. Thanopoulos, M. Shapiro, *Rev. Mod. Phys.* 79, 53 (2007).
- [2] E.A. Shapiro et.al., *Phys. Rev. Lett.* 99, 033002 (2007).
- [3] E.A. Shapiro, V. Milner, M. Shapiro, *Phys. Rev. A* 79, 023422 (2009).
- [4] S. Zhdanovich et.al., *Phys. Rev. A* 80, 063405 (2009).

Evgeny Shapiro
The University of British Columbia

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