

Abstract Submitted
for the PSF09 Meeting of
The American Physical Society

Controlling the spin-orbit amplitude in a non-flat quantum well¹

OLEG CHALAEV, GIOVANNI VIGNALE, University of Missouri-Columbia — Using the inverse-scattering theory, we adjust the wave functions of a quantum well so that electrons occupying two lowest subbands conserve their spin projection, while the electrons occupying the third subband experience Rashba spin-orbit interaction. Shifting the Fermi level in the well with an external gate, one can drastically change the strength of the spin-orbit interaction felt by electrons. Such system can work as a spin-orbit trigger which has two states: (i) when the spin projection s_z is a constant and (ii) when the spin precesses due to the spin-orbit interaction.

¹Work supported by ARO Grant No. W911NF-08-1-0317.

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Date submitted: 19 Oct 2009

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