

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Gate Controlled Spin Precession Effect ABU NASER ZAINUDDIN, Purdue University, West Lafayette, LUTFE SIDDIQUI, SEOKMIN HONG, SUPRIYO DATTA, Purdue University — A two-dimensional (2D) non-local lateral spin-transport model is developed based on the non-equilibrium Green's function (NEGF) formalism for ballistic carriers in mode space approach. The effect of gate controlled Rashba spin-orbit (RSO) interaction in modulating the non-local spin voltage has been explicitly taken into account. We found a quantitative agreement with the recent observation on non-local controlled spin-precession by Koo *et. al* [1]. The phase shift observed in the voltage according to the analytical equation used in [1] is found to be the consequence of both multichannel effect and the effect of injecting and detecting ferromagnetic contact length. In such structures we predict that a short length contact as well as an etched out channel can improve the non-local voltage significantly. [1] H. C. Koo *et. al.* Science, 325, 1515 (2009).

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Date submitted: 19 Nov 2009

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