Abstract Submitted
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Large oscillating non-local voltage in multi-terminal single wall carbon nanotube devices[1] GUNNAR GUNNARSSON, University of Basel, JELENA TRBOVIC, Univeristy of Basel, CHRISTIAN SCHOENENBERGER, University of Basel, UNIVERSITY OF BASEL TEAM — Spin field-effect transistor has been recently realized in single wall carbon nanotube (SWCNT) devices contacted with NiPd alloy [1]. In order to separate charge related effects from that of pure spin transport we measure a non-local voltage in SWCNTs by using a four-terminal structure. The four contacts divide the tube into three quantum dots (QD) which we control by the back-gate voltage V_g. We inject the current through the first QD by using excitation voltage of 200 μV and measure the non-local signal V_{nl} across the third QD. We measure large *oscillating* non-local voltage as a function of V_g with amplitude of $V_{nl} \sim 2\mu$V [2]. While the classical resistor model can account for the negative sign of the non-local voltage its large amplitude needs deeper understanding. We discuss the origin of this large non-local signal and its effect on the non-local spin transport measurements in this type of devices. [1] S. Sahoo, et al. Nature Phys. **1**, 99 (2005). [2] G. Gunnarsson et al., arXiv:0710.0365v1.

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