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Revisiting the "Spin-Transistor" ABU NASER ZAINUDDIN, LUTFE SIDDIQUI, SUPRIYO DATTA, Purdue University — A "spin-transistor" in principle requires efficient injection (source), efficient detection (drain) and electrical manipulation (gate). For sometime now, electrical manipulation based on the Rashba effect has been well established and in recent years there has been significant progress in the design of injectors and detectors. Lateral spin-valve structures showing $\sim$50% spin-polarization has been reported. In view of these advances it seems appropriate to evaluate various "spin- transistor" concepts. With this in mind, we have developed non- equilibrium Green's function (NEGF) based model and benchmarked against existing experiments.

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