

Abstract Submitted
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Spin Response in Organic Spin-Valves based on LSMO Electrodes¹ FUJIAN WANG, CUNGENG YANG, Department of Physics, University of Utah, Z. VALY VARDENY, Department of Physics. University of Utah, XIAOGUANG LI, Hefei National Laboratory for Physics Sciences at Microscale and Department of Materials Science & Eng, University of Science and Technology of China, VARDENY'S GROUP TEAM, XIAOGUANG LI' GROUP COLLABORATION — We fabricated spin-valves made of organic semiconductor (OSEC) thin films sandwiched between ferromagnetic $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$ (LSMO) and cobalt electrodes, using several OSEC small molecules. We measured the temperature (T) and voltage bias (V) dependence of the spin-valve related giant magneto-resistance (GMR) effect. We found a universal GMR decrease with T, where the GMR completely diminishes at $\sim 250\text{K}$ regardless of the OSEC layer. We show evidence that the underlying mechanism for the GMR decrease with T is the decrease in the spin injection capability of the LSMO electrode. We also found that the GMR steeply decreases with V, and is asymmetric respect to the applied voltage direction.

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