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Derivation and its Application of the Generalized Spin Injection Coefficients in the Ferromagnet-Organic Semiconductor-Ferromagnet non-Local Spin Transport Structure HUAZHOU WEI, SHIWEI FU, China University of Petroleum-Beijing — Be aware of the possibility of spin flipping in the interface between ferromagnet and organic semiconductor(OSC) and the special charge-spin relationship of the carriers in organic semiconductors, we theoretically investigate the improvement of spin transport coefficients and spin injection efficiency within the frame of non-local spin transport structure. Considering the redistribution for two spin bands inside the junction while the current goes through it, we derive a generalized spin injection efficiency formula and find that efficiency can be increased considerably in the presence of spin flipping in the junction region. Besides, we also numerically obtain the effects of two spin bands ratio and the polaron proportion, which is unique for OSC, on the spin injection efficiency and spin transport coefficients.

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