

Abstract Submitted
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Spin transport in organic semiconductor single crystals H.-JAE

JANG, Semiconductor Electronics Div. NIST & Dept. of Physics, Wake Forest Univ., OLEG KIRILLOV, KURT PERNSTICH, Semiconductor Electronics Div. NIST, WILLIAM RIPPARD, Electromagnetics Div. NIST, KATELYN P. GOETZ, OANA D. JURCHESCU, Dept. of Physics, Wake Forest Univ., DAVID GUNDLACH, MARIONA COLL BAU, BRAD R. CONRAD, CHRISTINA HACKER, CURT A. RICHTER, Semiconductor Electronics Div. NIST — Organic semiconductors have been attracting much attention as potential spin transport media due to their weak spin-orbit and hyperfine interactions that promise long spin lifetimes. However, to date most studies have focused on amorphous, or polycrystalline thin-film based organic semiconductors. In addition, short transport distances equal to or less than a couple of hundred nanometers have been measured despite the prediction of long spin transport distance. We have investigated spin injection and transport in high purity single-crystal organic semiconductors, especially rubrene(5,6,11,12-tetraphenylanthracene). We will present and discuss our experimental results obtained in both vertical and lateral transport geometries. Great care is needed to understand and avoid possible spurious effects in these studies.

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