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**Analysis of the Injection Efficiency Saturation in Polyfluorene Copolymers** DAVID DUNLAP, University of New Mexico, TIANJIAN LU, HON HANG FONG, GEORGE MALLIARAS, Cornell University — Recent experiments of the transport of holes across a 1 - 5  $\mu\text{m}$  layers of the copolymer poly [9,9-dioctylfluorenyl-2,7-diyl)- co-(4,4'-(N-(4-sec-butylphenyl))diphenylamine)] (TFB) reveal an injection efficiency that saturates at high voltages, which is indicative of space-charge-limited current. The injection efficiency is on the order of  $10^{-3}$ , three orders of magnitude smaller than what would be expected if the current followed the Mott-Gurney law. It is difficult to explain this behavior as arising from trapping phenomena, for time of flight transients show clear plateaus, and the extracted mobility is only weakly dependent on temperature[1]. We propose that the behavior may be accounted for by an interface dipole at the metal/organic injecting contact which is dependent on the applied voltage. Quantitative support to for this mechanism is obtained through numerical simulations of the convection-diffusion equation.

[1] H. H. Fong, A. Papadimitratos, and G. G. Malliaras, Appl. Phys. Lett. 89 (2006) 172116

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