

Abstract Submitted
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Nonlinear charge injection in organic thin-film field effect transistors BEHRANG HAMADANI, DOUGLAS NATELSON, Rice University, Houston, TX — Transport properties of a series of poly(3-hexylthiophene) organic field effect transistors with Cr, Cu and Au source/drain electrodes were examined over a broad temperature range. A procedure based on dependence of conductance on channel length was used to extract the current-voltage characteristics of the injecting contacts. Distinguishing between the contact and channel contributions in bottom contact organic transistors is an important step toward improved understanding and modeling of the nature of charge injection in these devices. A model of hopping injection into a disordered density of localized states, with emphasis on the primary injection event, is consistent with the field and the temperature dependence of the data over a broad range of temperatures and gate voltages.

Behrang Hamadani
Rice University, Houston, TX

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