

Abstract Submitted
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Probing the Physics of Organic-Organic Heterojunctions using Laterally defined Organic Field Effect Diodes¹ BAL MUKUND DHAR, GEETHA KINI, NINA MARKOVIC, HOWARD KATZ, Johns Hopkins University — Scanning Probe Microscopy has been used extensively to probe the physics of metal/organic semiconductor contacts. However, a similar level of knowledge for Organic/Organic interfaces has been elusive because of the buried nature of the junction. We have invented a novel lithographic technique to fabricate a lateral heterojunction diode, the characteristics of which can be tuned by use of third terminal in a thin film transistor configuration. Kelvin Probe microscopy reveals the built in potential at the junction and its modulation by use of the third gate terminal. Changes in potential are consistent with changes in rectification behavior as evidenced by I-V plots. We also report the use of such a junction to investigate the energetics of doped organic interfaces, including the density of states profile on each side of the junction.

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