

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Charge Injection into Cathode-Doped Amorphous Organic Semiconductors BENJIE LIMKETKAI, MARC BALDO, Massachusetts Institute of Technology — We analyze electron injection at a wide variety of metal-organic semiconductor interfaces, and find remarkably universal characteristics at low temperature. The current voltage characteristics at $T = 10$ K follow power-law behavior, $J \sim V^m$, where $m = (20 \pm 1)$ for over 15 combinations of the metals Li, Mg, Al, Ag and Au and the organic semiconductors Alq₃, BCP, CBP, TAZ, and CuPC. The material independence of injection characteristics at low temperature is attributed to the effect of interface roughness on the image potential. We develop an analytic model to explain charge injection into organic semiconductors at disordered interfaces.

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Date submitted: 07 Dec 2004

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