

Charge Injection at the Metal/Organic Interface

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Abstract

Measurements of charge injection from Indium Tin Oxide (ITO) to the organic semiconductor tetraphenyl diamine doped polycarbonate (PC:TPD) were carried out. The current injected at the contact was measured as a function of the hole mobility in the organic semiconductor, which was varied from 10^{-6} to 10^{-3} $\text{cm}^2/\text{V}\cdot\text{sec}$ by adjusting the relative TPD to PC concentration. These experiments reveal that the current injected at the contact is proportional to the hole mobility in the bulk. As a result, the ITO/PC:TPD contact is found to limit current flow in all samples, regardless of the hole mobility in PC:TPD.

Biography

Yulong Shen received the B.S. and M.S. degree in Materials Science from Beijing Science & Technology University in 1994 and 1998 respectively. She is now pursuing the Ph.D. degree in Department of Materials Science and Engineering at Cornell University. Her research interests include the materials, fabrication process and charge injection mechanism at metal/organic interface for organic optoelectronic and electronic devices.