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Nanotube Film Electrodes in Electro-Optic Devices[1]
ZHUANGCHUN WU, [1], JEREMIAH K. MWAURA, [2], MARIA NIKOLOU, [1], TIMOTHY STECKLER, [2], DAVID B. TANNER, [1], JOHN R. REYNOLDS, [2], ANDREW G. RINZLER, [1] 1. Dept. of Physics, 2. Dept. of Chemistry, University of Florida, Gainesville, FL — The interface between conjugated polymers and conducting electrodes is crucial for the operation of organic electronic devices such as light emitting diodes (LEDs), electrochromics and photovoltaics. Transparent electrodes in these devices have been based mostly on indium tin oxide (ITO). There have been efforts to develop conducting polymer electrodes, and some success has been realized with films based on poly(3,4-ethylene-dioxythiophene)-poly(styrene sulfonate) (PEDOT-PSS).[1] In most cases however, the polymer conductivity is too low for such applications. Pure nanotube thin films, demonstrated to have much higher conductivities while exhibiting good transparency in the visible and near to mid IR, provide attractive alternatives.[2] Here we describe fabrication and performance of two devices: (1) an MEH-PPV polymer LED using a carbon nanotube film as the hole injecting electrode and (2) an infrared transmissive/absorptive electrochromic cell that makes use of the superior IR transmittance of the nanotube films. 1. A. A. Argun, A.Cirpan, J. R. Reynolds, Adv. Mater. 15, 1338 (2003). 2. Z. Wu, *et al.*, Science 305, 1273 (2004).

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