

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Organic Light Emitting Diodes Using a Single Wall Nanotube Film Anode EVAN DONOGHUE, Dept. of Physics, University of Florida, KEN GRAHAM, Dept. of Chemistry, University of Florida, MATTHEW CRAPS, ZHUANGCHUN WU, Dept. of Physics, University of Florida, RYAN M. WALCZAK, JOHN R. REYNOLDS, Dept. of Chemistry, University of Florida, ANDREW G. RINZLER, Dept of Physics, University of Florida — To investigate single-walled carbon nanotube (SWNT) films as a replacement for indium tin oxide (ITO) as the anode in organic light emitting diodes (OLEDs), OLEDs constructed on SWNT films are compared to OLEDs on PEDOT:PSS/ITO. It is found that a simple, single polymer based device design of SWNT /poly[2-methoxy-5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene] (MEH-PPV)/Ca/Al can perform comparably with PEDOT:PSS/ITO OLEDs. For thick polymer layers of 300nm, both devices achieve a maximum light output of 700 cd/m² with efficiencies between 0.7-0.8 cd/A. The ITO device performance improves when a thinner MEH-PPV layer is used however variations in the SWNT film surface cause shorting if the MEH-PPV layer is substantially reduced in the SWNT anode devices. The advantages of a SWNT anode as well as the potential for future improvements will be discussed.

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Date submitted: 05 Dec 2007

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