

Abstract Submitted  
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**Carbon nanotube sheets as transparent charge injectors in organic light-emitting diodes** CHRISTOPHER WILLIAMS, MEI ZHANG, RAQUEL OVALLE, KRUTARTH TRIVEDI, ALEXANDER KUZNETSOV, SERGEY LEE, RAY BAUGHMAN, ANVAR ZAKHIDOV, The University of Texas at Dallas — Carbon nanotubes (CNTs) have been recognized for their potential in many applications ranging from high strength materials and fibers to true nanoscale electronics. Recently a method for making strong and transparent CNT sheets has been developed, producing free-standing multiwall nanotube sheets which are easy to process [1]. Their mechanical and electrical properties allow them to meet the needs of a wide range of applications, particularly in optoelectronics. We show here the potential for using these thin, flexible CNT sheets in the development of flexible organic light-emitting diode (OLED) displays. The high transparency of the sheets, the high degree of orientation of tubes and the high work function of the material make them suitable hole injectors for typical hole transport materials used in OLEDs and polymeric LEDs (PLEDs). We show that CNT sheets can be used as anodes for both PLEDs and molecular OLEDs. We also introduce a method for producing inverted OLEDs on existing drive electronics for active matrix displays and a design for a transparent display using CNT sheets as both the electron and hole injector. [1] M. Zhang, S. Fang, A. Zakhidov, S. Lee, A. Aliev, C. Williams, K. Atkinson, R. Baughman, *Science* **309**, 1215 (2005)

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