

Abstract Submitted  
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**Chemically doped, transparent carbon nanotube films and the study of their interface with amorphous silicon** BHUPESH CHANDRA, IBM TJ Watson Research Center, GEORGE TULEVSKI, ALI AFZALI-ARDAKANI, TERESITA GRAHAM — Carbon nanotube films are a strong candidate for replacing ITO as transparent electrode in variety of applications such as solar cells, flexible electronics, displays etc. A nanotube film is a network of semiconducting and metallic nanotubes where the electronic properties are dominated mainly by tube-tube interfaces. Chemical doping of nanotubes decreases the tube resistivity and helps in reducing the high barriers present at the tube-tube junctions. However, most of the chemical dopants presently used are very unstable and highly oxidizing in nature, making them less attractive for practical applications. Present work focuses on a novel charge transfer compound which can bring a much stable chemical doping to the nanotube films. Optical and electronic transport measurements on such doped films will be presented. Measurement of interfacial electronic barriers between doped nanotube films and p-doped silicon surface of amorphous silicon solar cell will also be discussed.

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