

## Patterned Carbon Nanotube Films for Transparent and Stretchable Electrodes

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Transparent electrodes are important and essential elements of many optoelectronic devices such as solar cells, touch panels, e-paper, liquid-crystal displays (LCDs), and organic light-emitting diodes (OLEDs). Although tin doped indium oxide (ITO) has been widely used in transparent electrode film, the brittle property of ITO has limited its applications in flexible transparent electrodes. To address these issues, carbon nanotubes (CNTs) have been considered as the alternatives of sputtered ITO due to their excellent mechanical, optical, thermal, and electronic properties. The solution-based coating process of CNTs is an in-expensive, continuous, and simple method to fabricate the high conducting transparent electrode. In case of the randomly deposited CNT films, it is difficult to satisfy both high transparency and low sheet resistance. In particular, the regular patterned CNT films are expected to provide high transparency and low sheet resistance. In this research, we fabricated patterned carbon nanotube films on various substrates by using soft-lithography. We observed the change of sheet resistance by stretching test and compared the sheet resistance and transmittance values of different patterns.