

## Experimental

The indium tin oxide (ITO) and silicon dioxide (SiO<sub>2</sub>) films were deposited using rf magnetron sputtering. Prior to the deposition, the as-purchased PES substrates were rinsed subsequently in deionized water and ethanol solution in ultrasonic bath. The deposition of SiO<sub>2</sub> films was carried out under an equal Ar (10 sccm) and O<sub>2</sub> (1 sccm) gas flow, with pressure of  $1 \times 10^{-3}$  torr and working power of 150 W. The deposition of ITO films was carried out using a commercial sintered 100 mm ITO target containing 90 wt.% of In<sub>2</sub>O<sub>3</sub> and 10 wt.% of SnO<sub>2</sub>, under an equal Ar gas flow of 10 sccm. The optical transmission measurement was made using a UV-visible-near infrared (UV/Vis/IR) spectrophotometer. The crystallinity of ITO films were characterized by X-ray diffraction (XRD). The surface morphology of the ITO films were observed by the atomic force microscopy (AFM).