We have developed a simple and efficient fabrication method of transparent, flexible and conductive single-walled nanotube (SWNT) thin films with precisely controlled thicknesses and transmittances [1]. Uniform SWNT thin films were produced through the doctor-blade method using highly viscous, uniformly dispersed SWNT ink with hydroxypropylcellulose (HPC) as a matrix polymer. After the film formation, HPC was successfully removed by either solution curing or photonic curing (pulsed light irradiation) at room temperature, which are advantageous post-processes enabling direct film formation on plastic substrates. The sheet resistances as low as 68-240 Ω/sq at T = 89-98 % (taking the transmittance of the substrate as 100 %) were obtained. Further, the SWNT film on poly(ethylene naphthalate) (PEN) exhibited superior flexibility and stability in flexure endurance test of 200,000 cycles with a curvature radius of 10 mm.


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**Fig. 1** Sheet resistance of the SWNT films after HNO$_3$ doping as a function of transmittance at 550 nm (the values taking the transmittance of the substrate as 100 %).

**Fig. 2** SWNT ink and resulting transparent conductive film prepared on PEN.