Supporting information for:

Effect of Surface Wettability Properties on Electrical Properties of Printed Carbon Nanotube Thin-Film Transistors on SiO_2/Si Substrates

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Figures and Tables in Supporting Information are listed as follows:

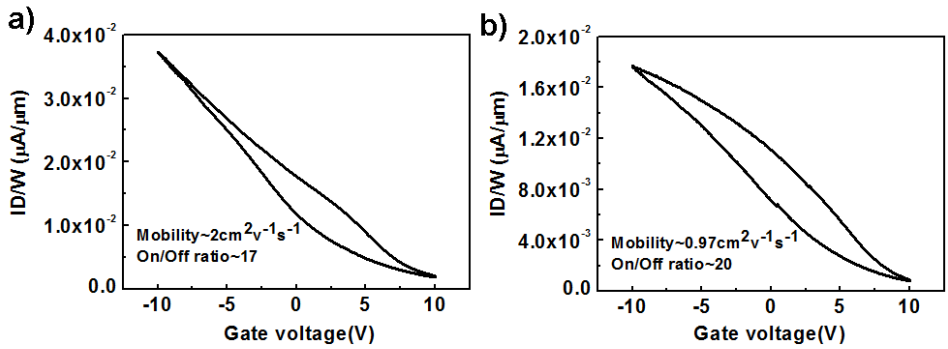

Figure S1 The electrical properties of printed SWCNT TFTs on the functionalization of substrates by a) APTES and b) poly-L-lysine. It could be seen from Figure S1 that printed SWCNT TFTs on APTES or poly-L-lysine functionalized substrates showed poor electrical properties.

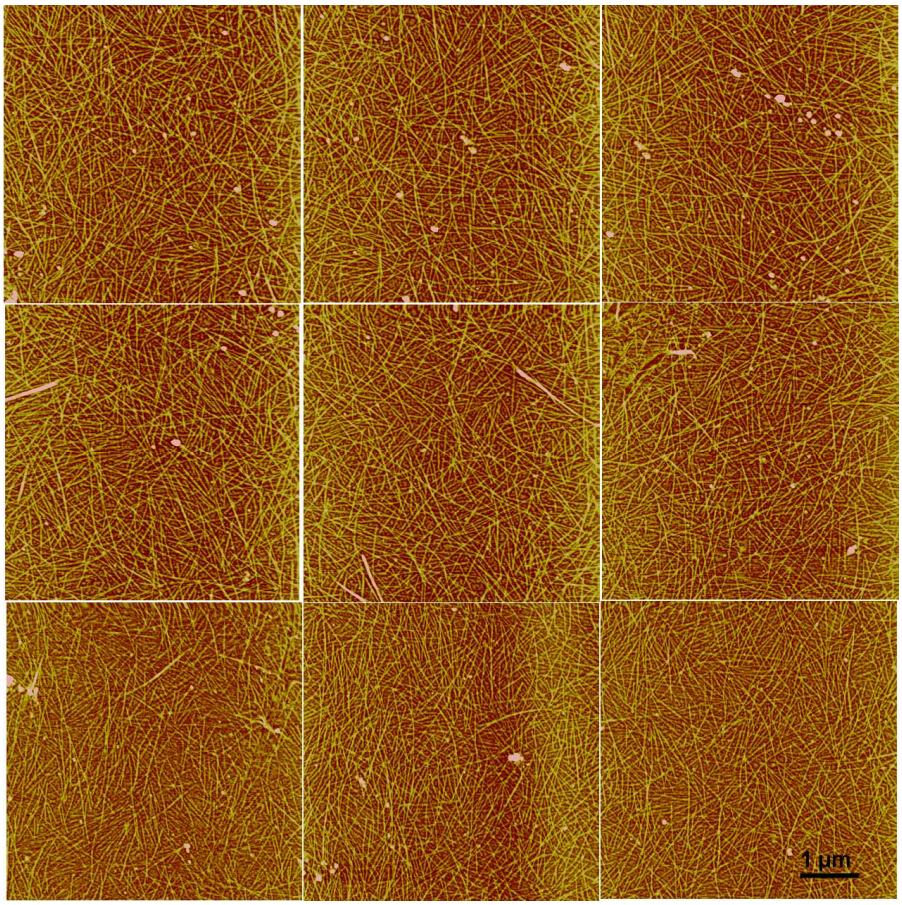

Figure S2 AFM images of SWCNTs on oxygen plasma treated SiO_2/Si substrates. High-density SWCNT thin films were obtained on oxygen plasma treated substrates.

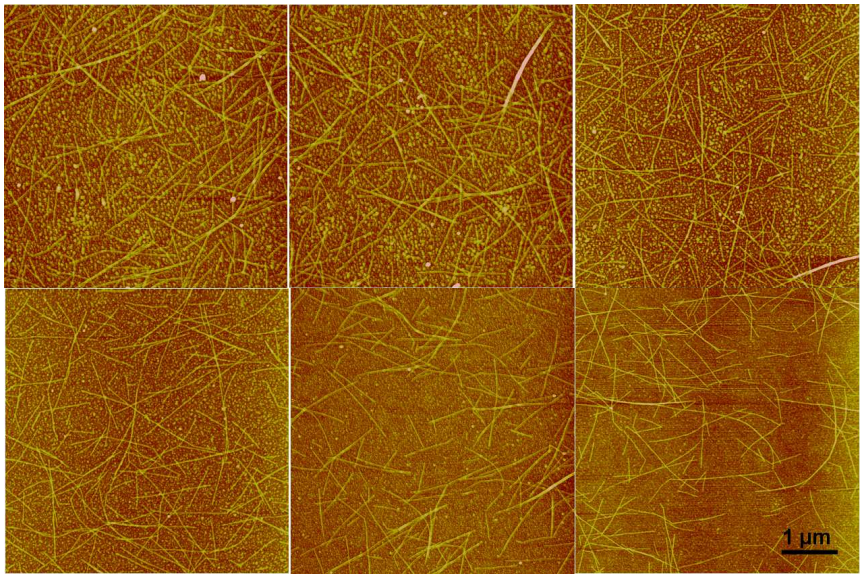

Figure S3 AFM images of SWCNTs on untreated SiO_2/Si substrates.

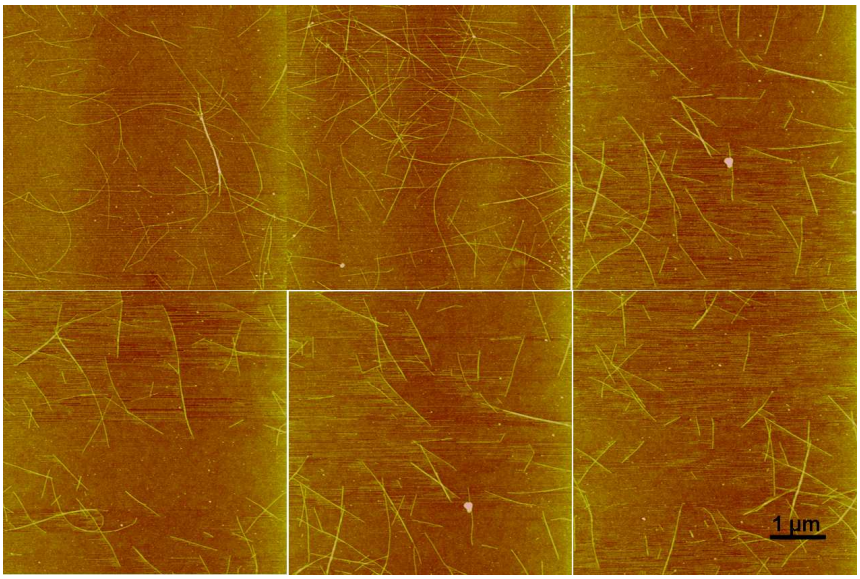

Figure S4 AFM images of SWCNTs on SiO_2/Si substrates after annealing at 200 °C for 1 h. The density of SWCNTs is very low.

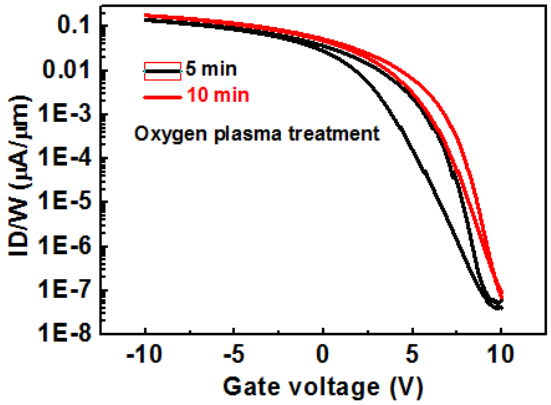

Figure S5 Typical transfer characteristics of SWCNT TFTs fabricated on substrates treated by oxygen plasma for 5 min and 10 min, respectively. Electrical properties of TFTs have no obvious differences when oxygen plasma treatment time was extended to 5 min and 10 min.

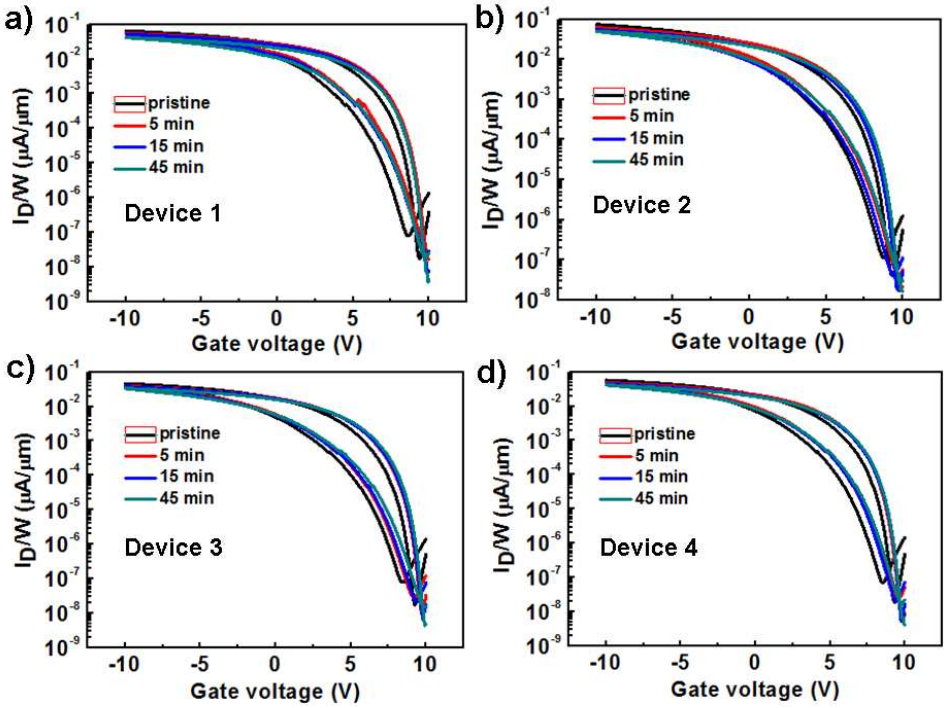

Figure S6 Transfer characteristic curves of four printed TFTs before and after sonication treatment for 5, 15 and 45 min, respectively. The value of mobility is reduced only 20% after sonication in water bath for 45 min, indicating the adhesive force is strong between PFO-BT functionalized sc-SWCNTs and the substrates.

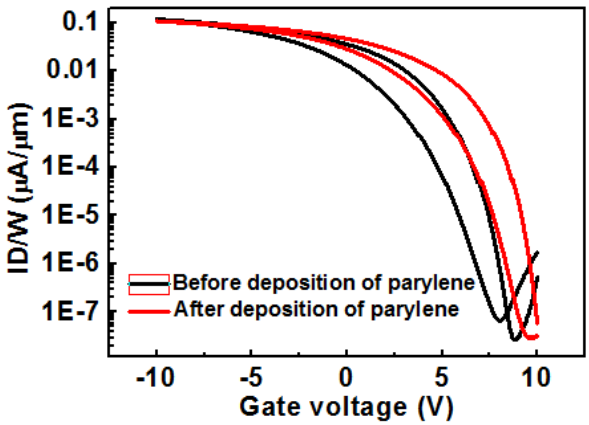

Figure S7 Typical transfer characteristics of SWCNT TFTs before and after deposition of 100 nm parylene by chemical vapor deposition at room temperature. Electrical properties of printed TFTs have no changes after deposition of parylene on top of SWCNT thin film.

Table S1 Comparison of electrical properties and some important parameters of SWCNT TFTs reported by some groups

Reference	Mobility ($cm^2V^{-1}s^{-1}$)	On/off ratio	On current (A)	SWCNTs	Processing	Channel length and width (μm)
16	10-30	10^4-10^7	10^{-5}	HiPco	Printing	89, 510
23	8.5-12	10^4-10^6	1.2×10^{-4}	HiPco	Dip-coating	L=10
29	21.8	10^3-10^5	10^{-6}	P2	Drop-casting	L=2-3
15	8-40	10^4-10^6	1×10^{-3}	P2	Printing	20, 600
This work	8-32.3	10^5-10^8	3.6×10^{-4}	P2	Printing	20, 600