

Supplemental materials for Nonoguchi et al “Thickness-dependent thermoelectric power factor of polymer-functionalized semiconducting carbon nanotube thin films”

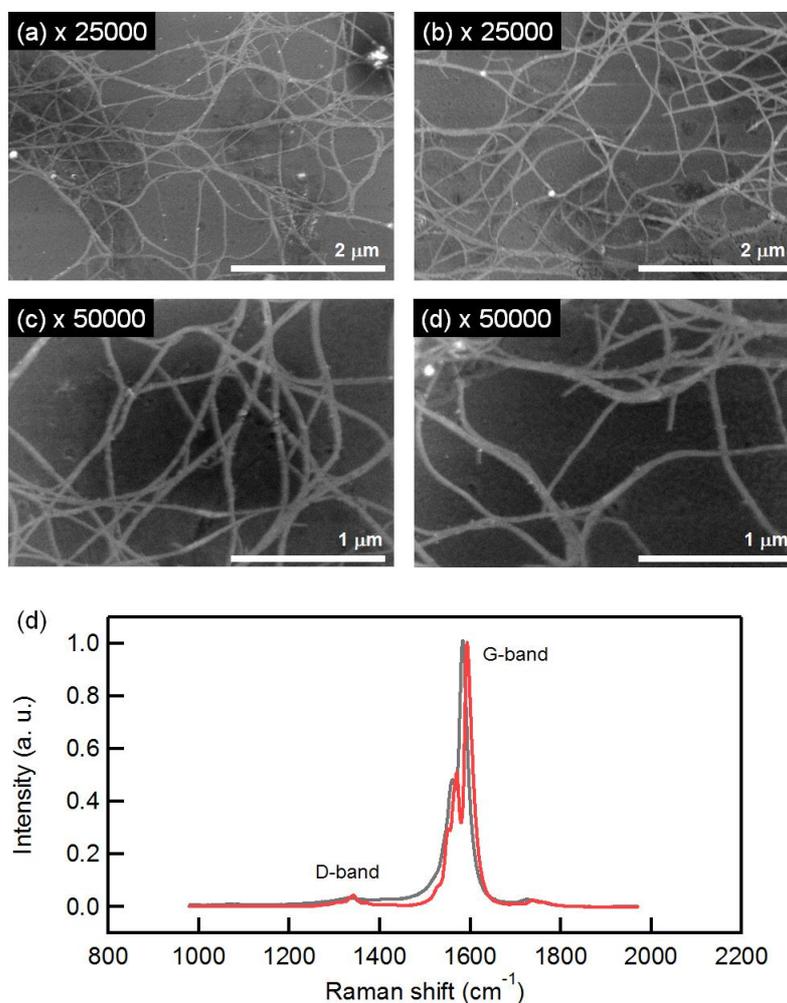


Figure S1. SEM images of PF12-functionalized s-SWNTs deposited on Si/SiO(90nm) substrates at (a, b) 25,000 and (c, d) 50,000 magnification. An applied voltage was set at 10 kV. Due to the charge-up of SWNTs, their diameters looked much larger. (e) Raman spectra of as-received (grey) and PF12-functionalized (red) s-SWNT films.

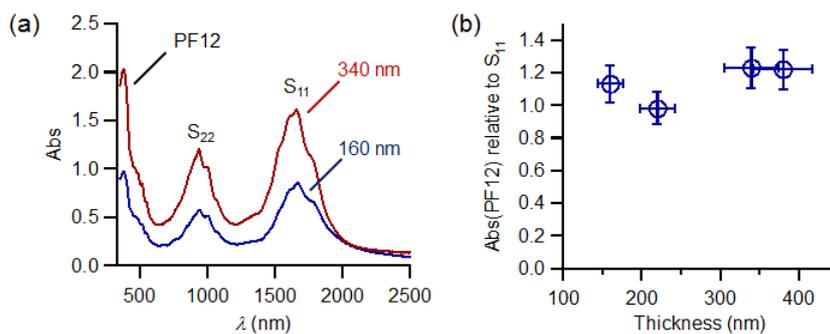


Figure S2 (a) Absorption spectra of PF12-functionalized s-SWNT thin films of different diameters. (b) Peak top ratios between the first transitions of PF12 and s-SWNTs ( $S_{11}$ ).

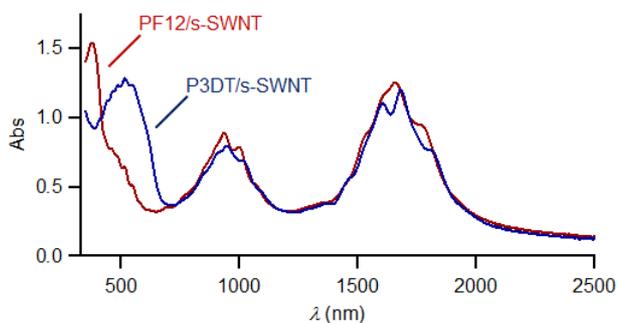


Figure S3 (a) Absorption spectra of **PF12/s-SWNT** and **P3DT/s-SWNT** thin films.

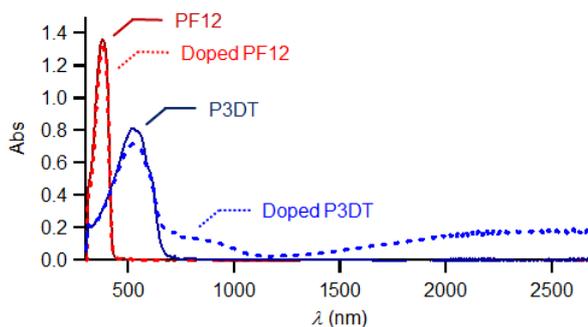


Figure S4 Absorption spectra of **PF12** (red) and **P3DT** (blue) thin films before and after the doping with  $2.5 \text{ mg ml}^{-1}$  AgTFSI butanol solution.

Table S1. SWNT films doped with the 3.0 mg mL<sup>-1</sup> butanol solution of AgTFSI.

Condition	$\sigma$ (S cm <sup>-1</sup> )	$\alpha$ ( $\mu$ V K <sup>-1</sup> )
As-prepared	<b>480</b>	<b>79</b>
Nine-month	<b>86</b>	<b>122</b>