Supplementary Material (ESI) for Nanoscale

Stability of Single-walled Carbon Nanotubes/Oligo DNA Hybrids in Water

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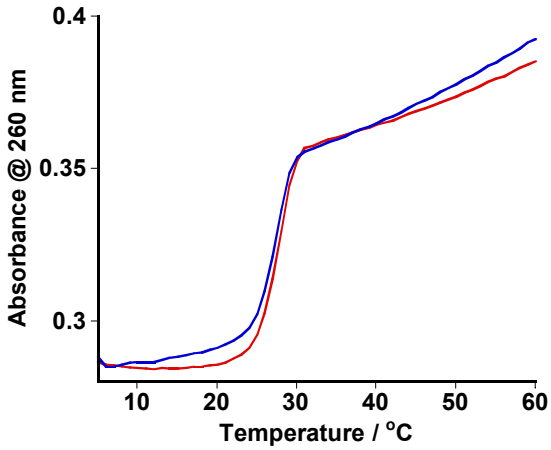

Fig. S1 Melting curve of $(dA)_{20}/(dT)_{20}$ in a tris-EDTA buffer before (red) and after (blue) sonication.

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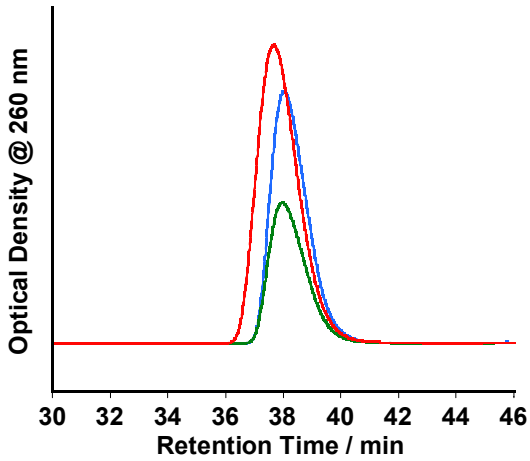

Fig. S2 SEC chromatograms of the three different oligo-DNA solutions, $(dA)_{20}/(dT)_{20}$ (red), $(dA)_{20}$ (blue) and $(dT)_{20}$ (green).

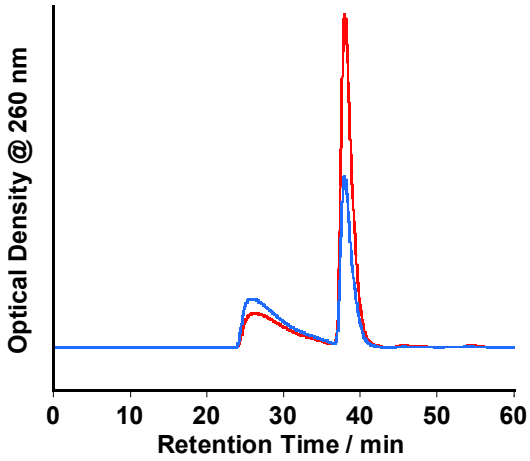

Fig. S3 SEC chromatograms of SWNT solutions solubilized using $(dA)_{20}$ (red) and $(dT)_{20}$ (blue), respectively.

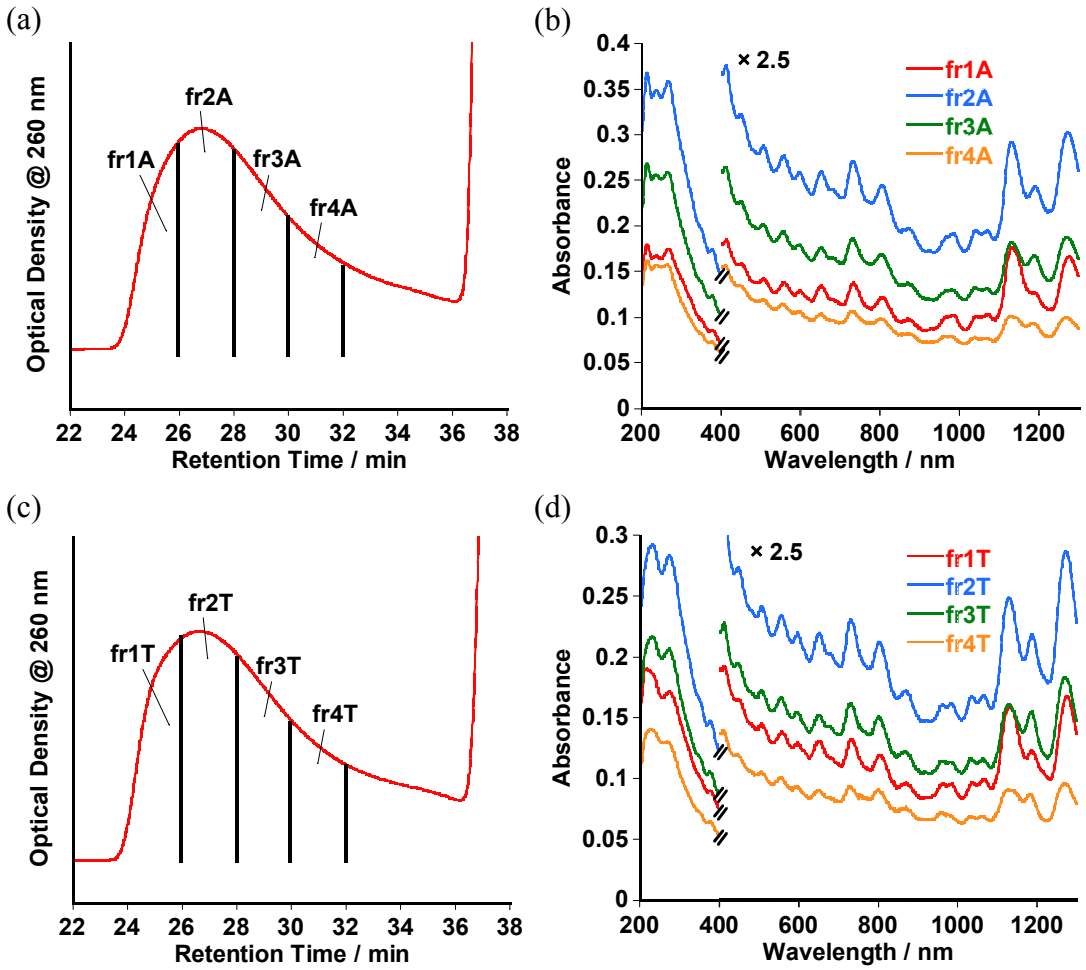

Fig. S4 Chromatogram of $(dA)_{20}$ (a)- or $(dT)_{20}$ (c)-solubilized SWNT solutions and UV-vis-near IR absorption spectra of fractionated SWNT solutions: fr1A - fr4A (b) and fr1T - fr4T (d).

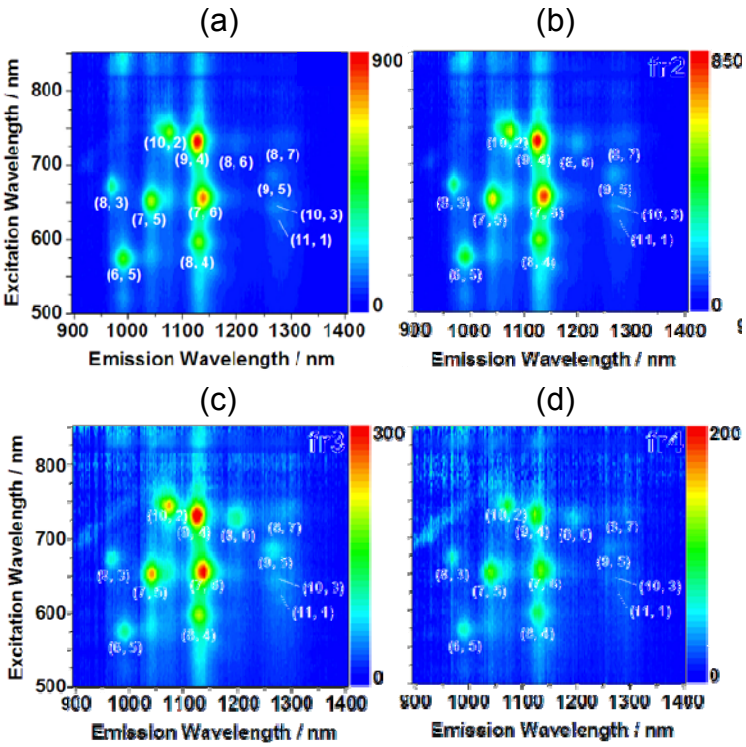

Fig. S5 Near-IR photoluminescence of the fractionated samples: fr1A (a), fr2A (b), fr3A (c) and fr4A (d).

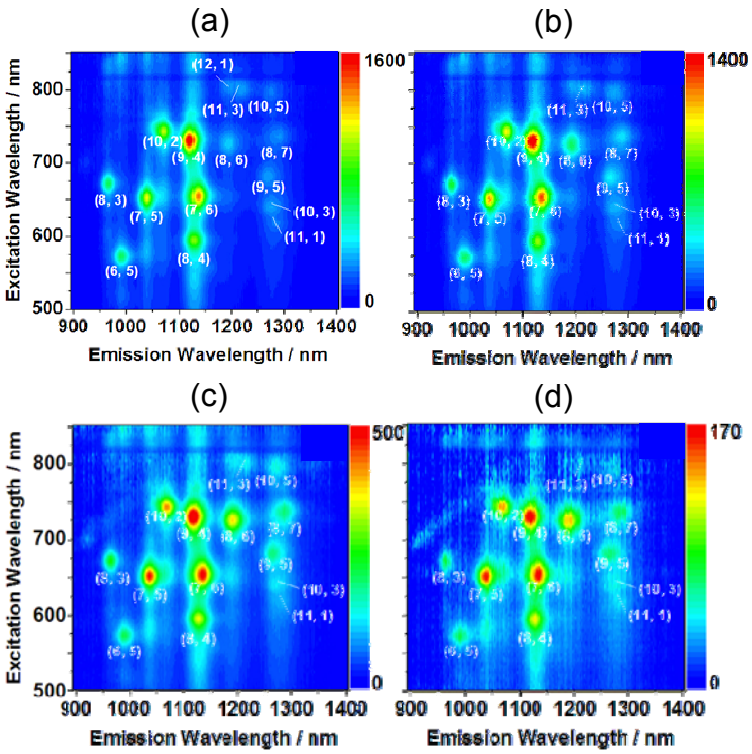

Fig. S6 Near-IR photoluminescence of the fractionated samples: fr1T (a), fr2T (b), fr3T (c) and fr4T (d).

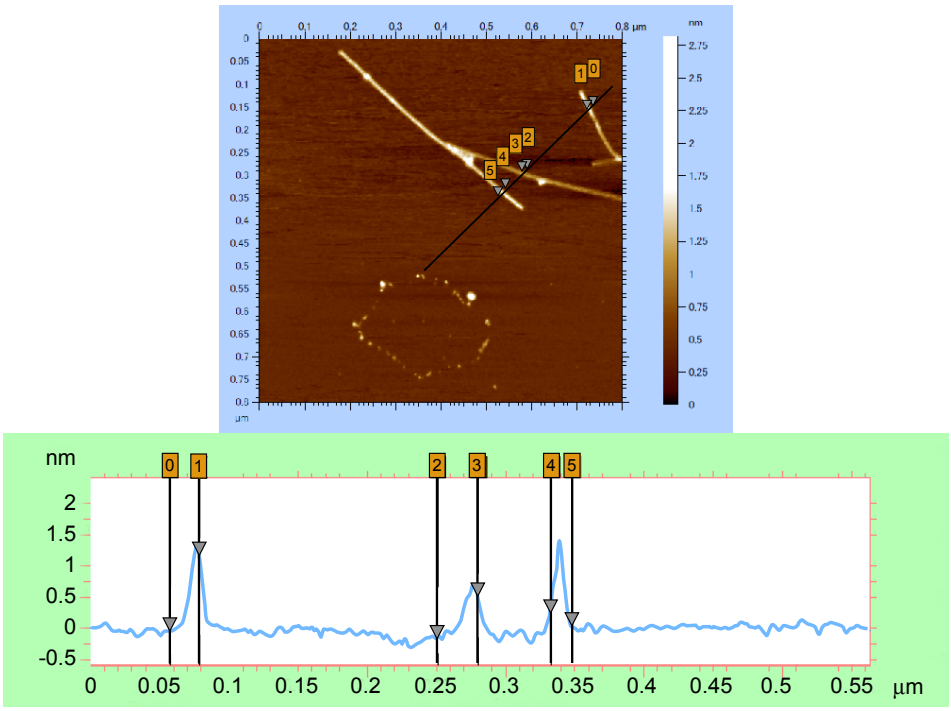

Fig. S7 AFM image (top) of the $(dA)_{20}/(dT)_{20}$/SWNT hybrid and its height profile (bottom).

Table S1 Concentrations of oligo DNA, SWNT and unbound oligo DNA in each fraction.[i)]

fraction	DNA concentration / nM	SWNT concentration / nM	Unbound DNA concentration / nM (their contents / %)		
			3 days after	1 week after	1 month after
fr1	45	10	2 (5)	2 (5)	11 (24)
fr2	107	35	2 (2)	3 (3)	5 (4)
fr3	88	37	2 (2)	2 (2)	2 (3)
fr4	63	35	1 (2)	1 (2)	2 (3)
fr1A	108	10	3 (3)	4 (3)	5 (5)
fr2A	275	41	5 (2)	7 (2)	10 (4)
fr3A	230	48	4 (2)	5 (2)	6 (3)
fr4A	150	42	3 (2)	4 (3)	5 (3)
fr1T	86	10	3 (4)	4 (4)	4 (5)
fr2T	180	35	4 (2)	5 (3)	6 (3)
fr3T	160	40	3 (2)	3 (2)	4 (2)
fr4T	112	37	2 (2)	2 (2)	3 (3)

[i)] SWNT concentrations were determined using absorbance at 280 nm of an SDS-solulbilized SWNT aqueous solution and the absorbance coefficient reported by H. Shinohara et al. (*Phys*. *Chem*. *Chem*. *Phys*. 2009, **11**, 1091-1097). Oligo DNA concentrations were estimated using the increment of the UV spectra at 280 nm of each fraction. Unbound oligo DNA concentrations were estimated using the areas of each peak around 38 min of the SEC-HPLC based on the calibration curve between the oligo DNA concentrations and SEC-HPLC peak areas. The contents of the unbound DNA were calculated from the ratios of the total DNA concentrations and unbound DNA concentrations.