Supporting Information

Recognition and One-pot Extraction of Right- and Left-handed Semiconducting Single-Walled Carbon Nanotube Enantiomers Using Fluorene-Binaphthol Chiral Copolymers

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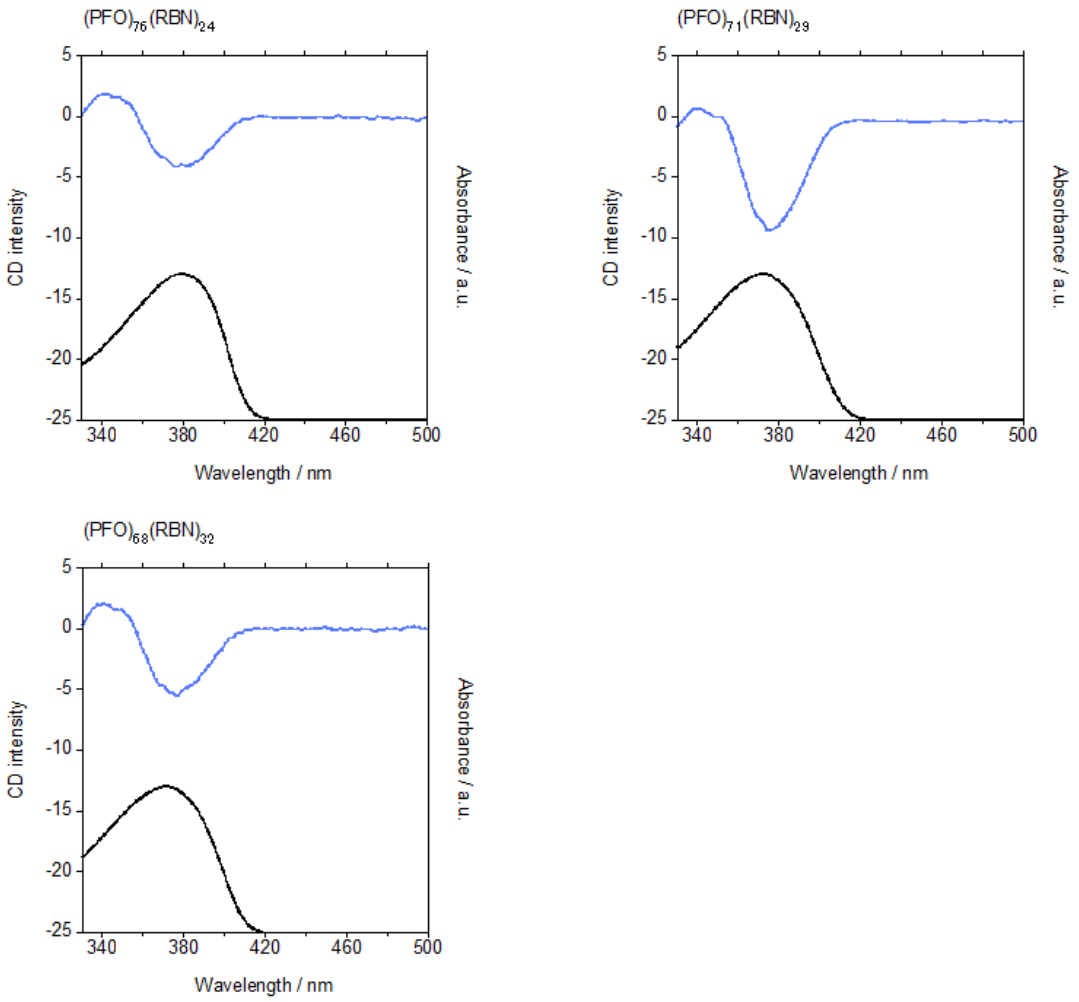


Figure S1. UV-vis absorption (black) and CD (blue) spectra of (PFO)x(RBN)y (x: y= 76: 24, 71: 29 and 68: 32). CD spectra are normalized based on the absorbance intensity of the copolymers at maximum wavelength.

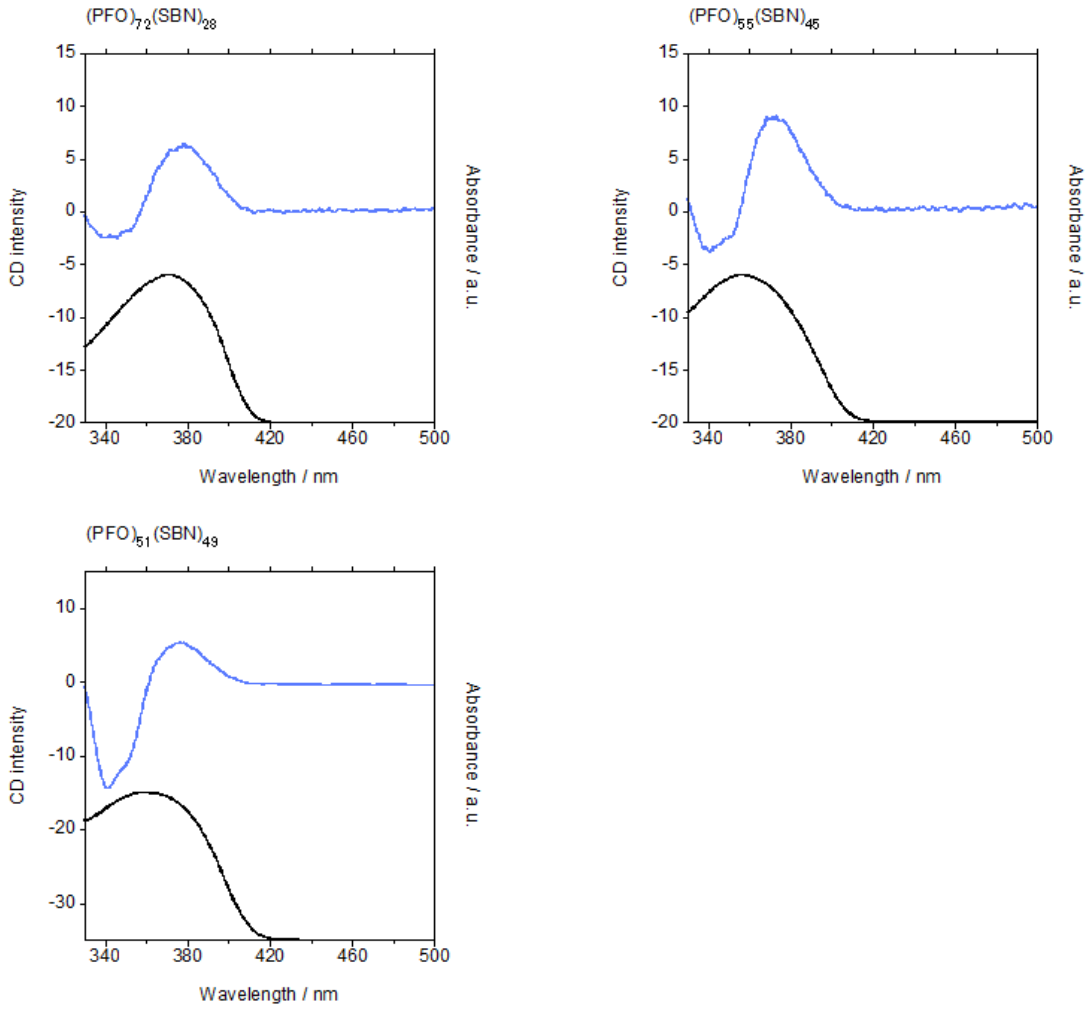


Figure S2. UV-vis absorption (black lines) and CD (blue lines) spectra of (PFO)x(SBN)y (x: y= 72: 28, 55: 45 and 51: 49). The CD spectra are normalized based on the absorbance intensity of the copolymers at their maximum wavelength.

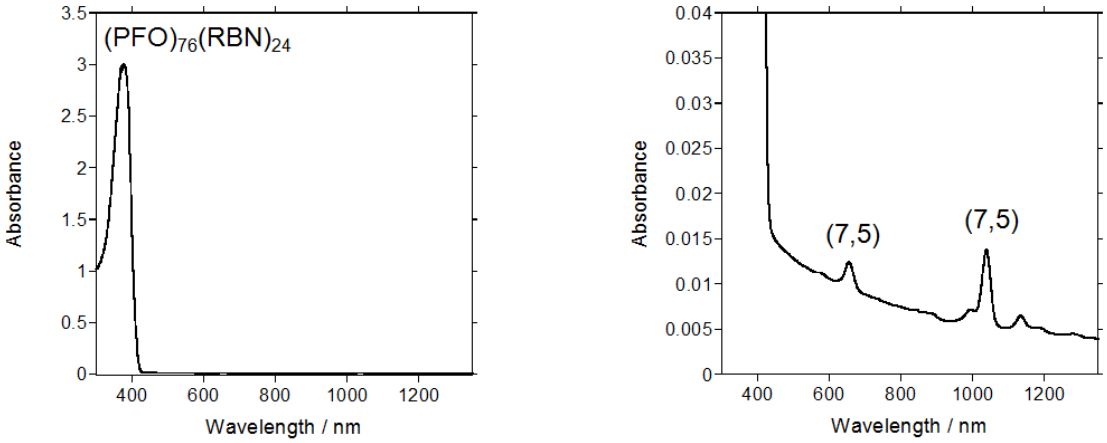


Figure S3. Absorption spectra of SWNTs solubilized by **$(PFO)_{76}(RBN)_{24}$** (1 mm cell).

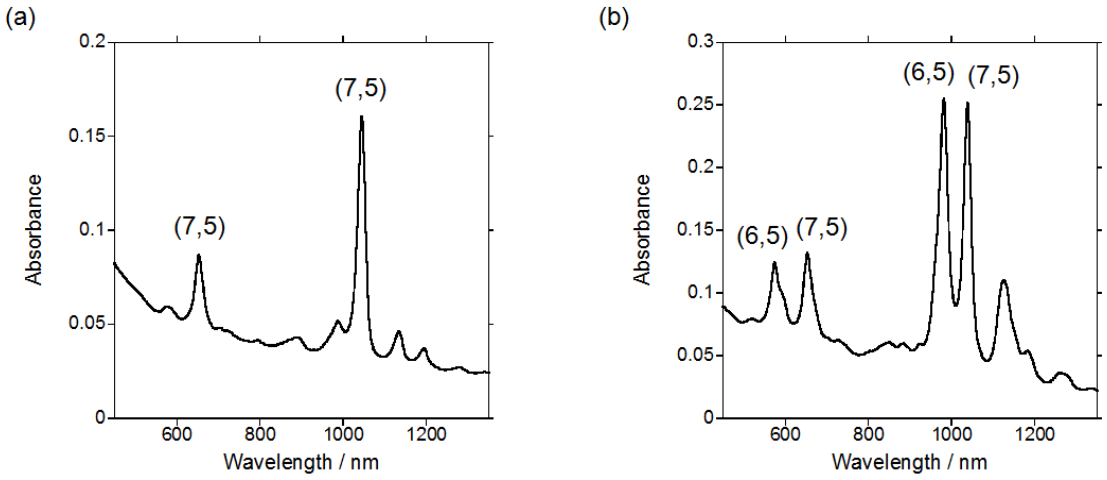


Figure S4. Absorption spectra of SWNTs solubilized by **PFO** (a) and **$(PFO)_{61}(RBN)_{39}$** (b).

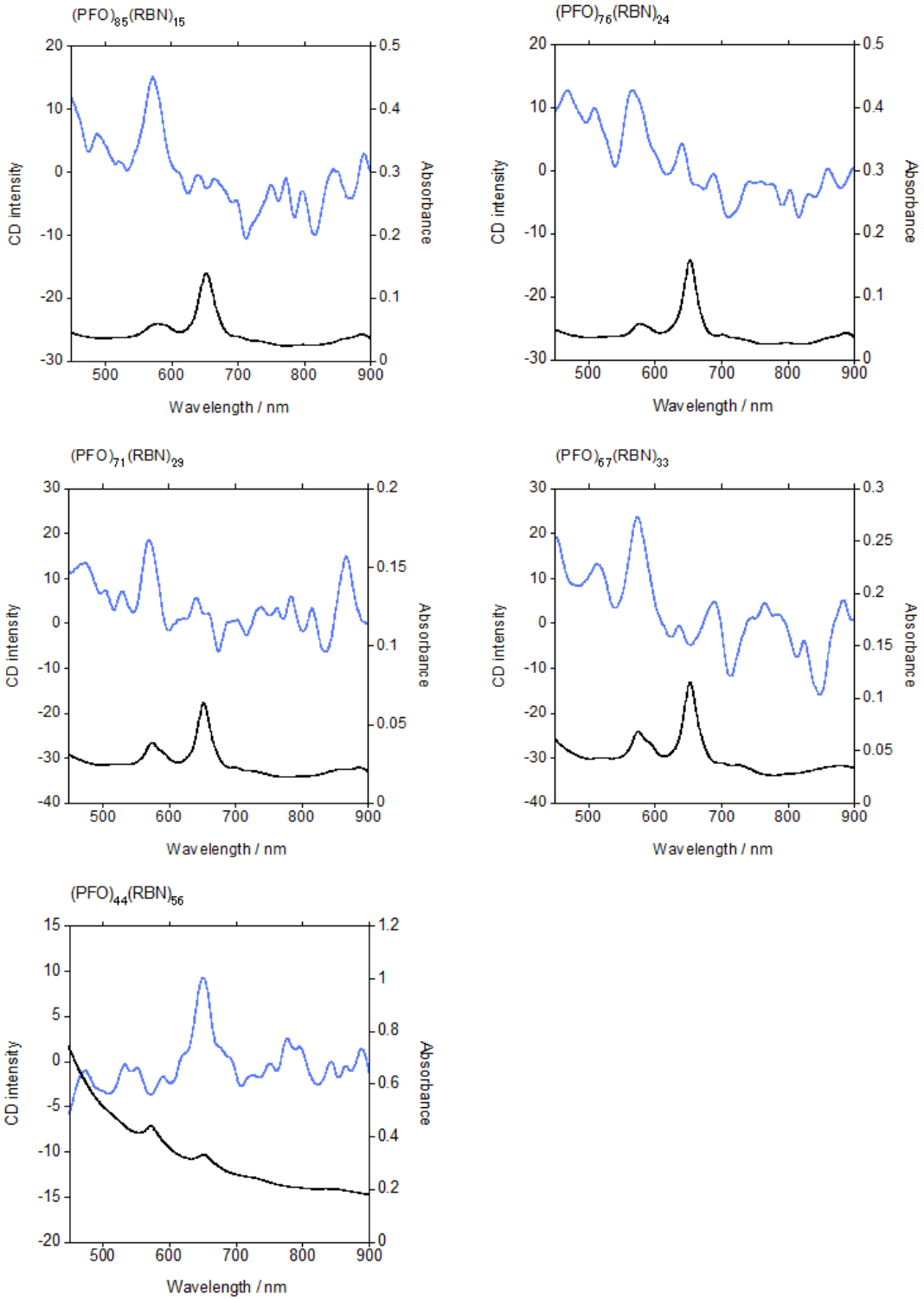


Figure S5. Visible absorption (black lines) and CD (blue lines) spectra of SWNTs extracted with (PFO)x(RBN)y (x: y ＝85: 15, 76: 24, 71 : 29, 67 : 33 and 44: 56). The CD spectra are normalized based on the absorbance intensity of the SWNTs at 574 nm.

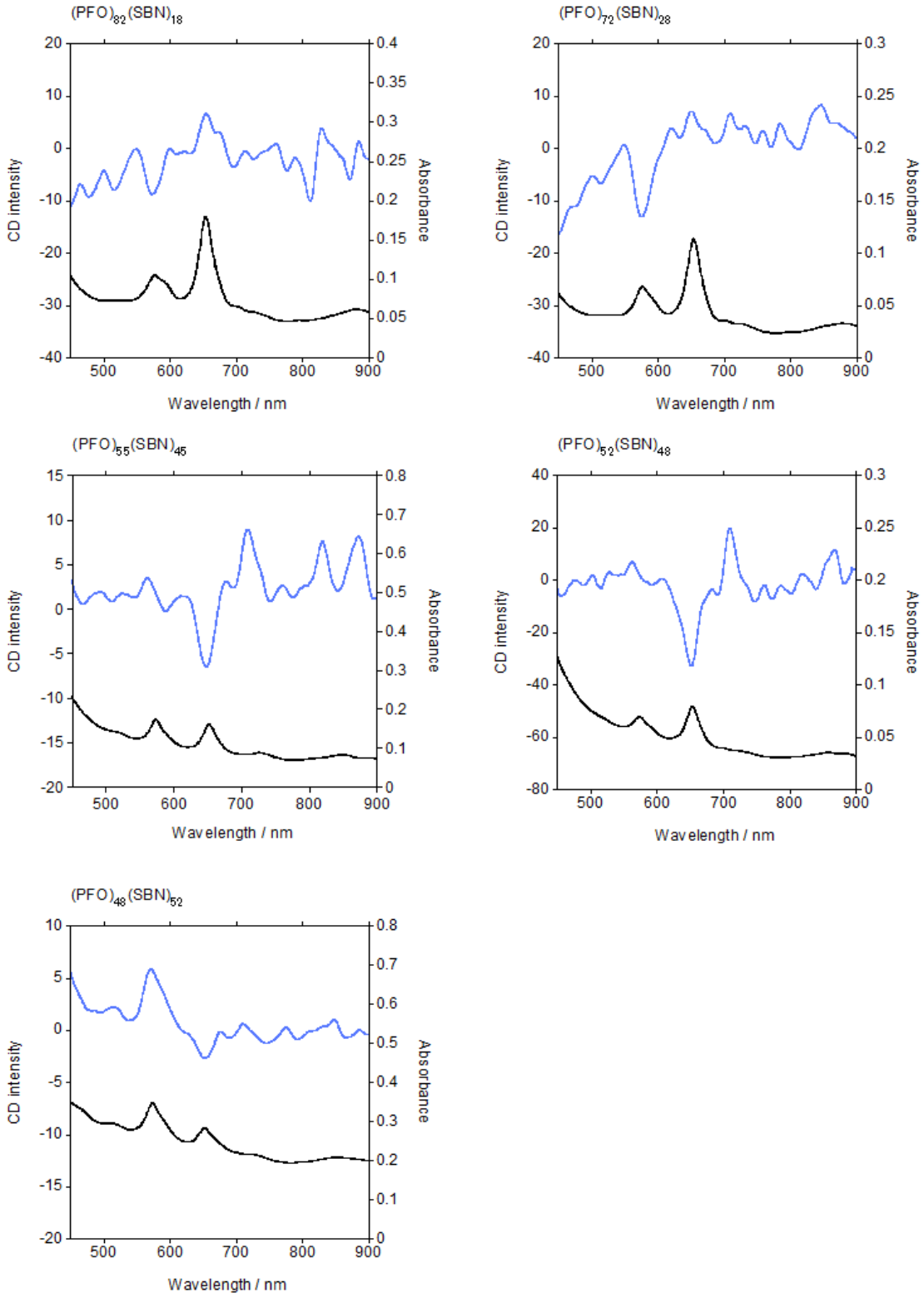
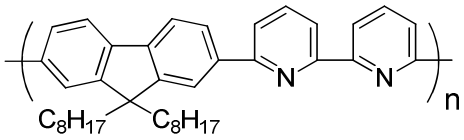


Figure S6. Visible absorption (black lines) and CD (blue lines) spectra of SWNTs extracted by (PFO)x(SBN)y (x: y= 82: 18, 72: 28, 55 : 45, 52: 48 and 48: 52). The CD spectra are normalized based on the absorbance intensity of the SWNTs at 574 nm.

a)



b)

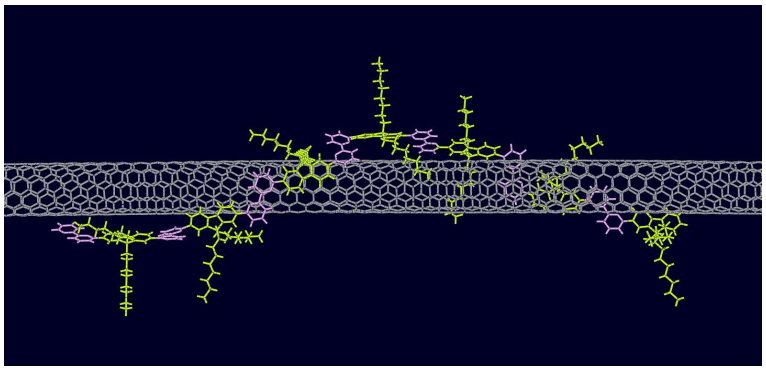


Figure S7. a) Chemical structure of PFO-BPy b) optimized calculated structure of complex of PFO-BPy and (6,5)SWNT.

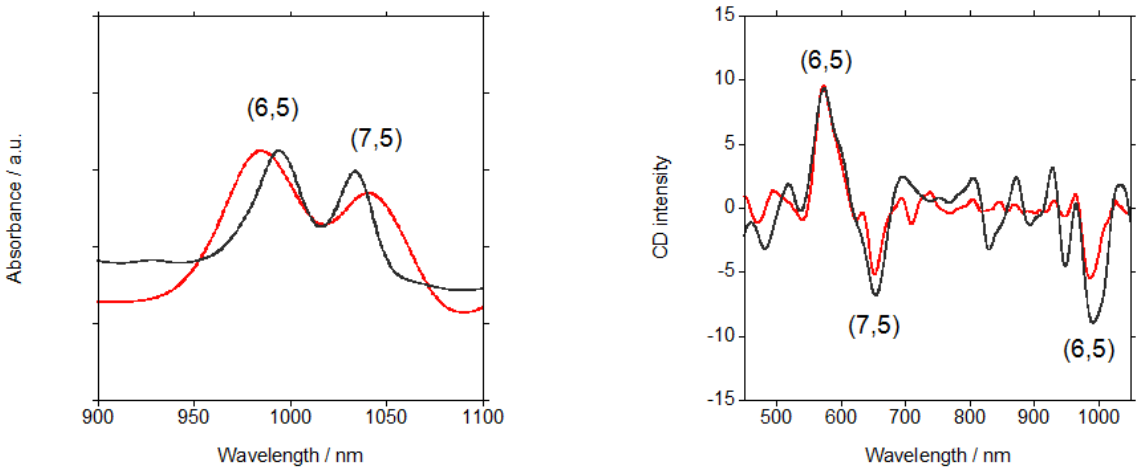


Figure S8. Near-IR absorption (left) and CD (right) spectra of the SWNTs extracted by $(PFO)_{61}(RBN)_{39}$ before (red lines) and after (black lines) the addition of PFO-BPy. The absorption spectra are normalized at their maximum absorption wavelength. The CD spectra are normalized based on the absorbance intensity of the SWNTs at 574 nm.

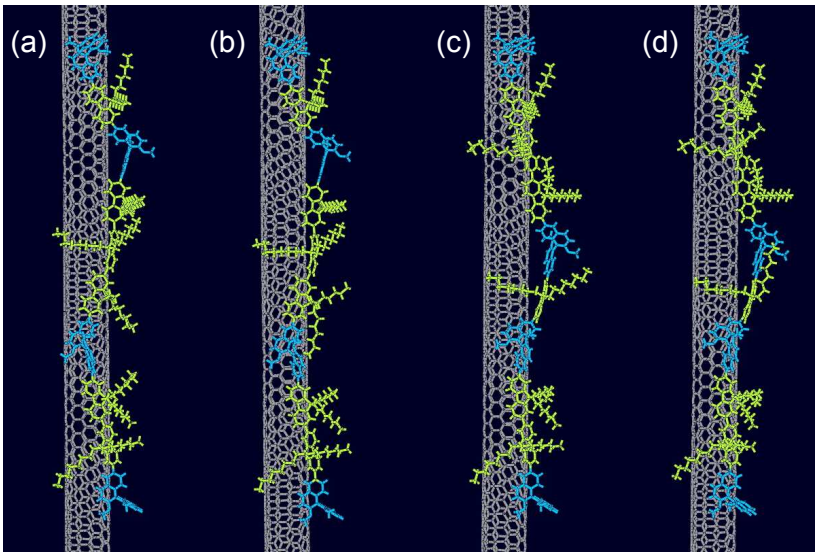


Figure S9. Modeled structures of left-handed SWNT with $(PFO)_{60}(RBN)_{40}$-2 (a), right-handed SWNT with $(PFO)_{60}(SBN)_{40}$-2 (b), left-handed SWNT with $(PFO)_{60}(RBN)_{40}$-3 (c), and right-handed SWNT with $(PFO)_{60}(SBN)_{40}$-3 (d).

Table S1. Calculated Potential and Binding Energies Between (6,5)SWNT Enantiomers with PFO-Bpy.

(6,5)SWNTs	potential energy of SWNT (E_{SWNT}) / kcal mol^{-1}	potential energy of **PFO-BPy** ($E_{polymer}$) / kcal mol^{-1}	total potential energy ($E_{polymer} + E_{SWNT}$) / kcal mol^{-1}	potential energy of complex ($E_{complex}$) / kcal mol^{-1}	binding energy $E_{bind} = E_{complex} - (E_{polymer} + E_{SWNT})$ / kcal mol^{-1}
Left-handed	88163	491	88654	87795	-859

Table S2. Calculated Potential and Binding Energies Between (6,5)SWNT Enantiomers with $(PFO)_{60}(RBN)_{40}$-2.

(6,5)SWNTs	potential energy of SWNT (E_{SWNT}) / kcal mol^{-1}	potential energy of **$(PFO)_{60}(RBN)_{40}$-2** ($E_{polymer}$) / kcal mol^{-1}	total potential energy ($E_{polymer} + E_{SWNT}$) / kcal mol^{-1}	potential energy of complex ($E_{complex}$) / kcal mol^{-1}	binding energy $E_{bind} = E_{complex} - (E_{polymer} + E_{SWNT})$ / kcal mol^{-1}
Left-handed	88163	1380	89543	88953	-590
Right-handed	88163	1380	89543	88961	-582

Table S3. Calculated Potential and Binding Energies Between (6,5)SWNT Enantiomers with $(PFO)_{60}(RBN)_{40}$-3.

(6,5)SWNTs	potential energy of SWNT (E_{SWNT}) / kcal mol^{-1}	potential energy of **$(PFO)_{60}(RBN)_{40}$-3** ($E_{polymer}$) / kcal mol^{-1}	total potential energy ($E_{polymer} + E_{SWNT}$) / kcal mol^{-1}	potential energy of complex ($E_{complex}$) / kcal mol^{-1}	binding energy $E_{bind} = E_{complex} - (E_{polymer} + E_{SWNT})$ / kcal mol^{-1}
Left-handed	88163	1414	89577	88953	-624
Right-handed	88163	1414	89577	88956	-621