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Electronic Supplementary Information

Curved Aromatic Corannulene as an Efficient Enhancer for n-Type Thermoelectric Single-walled Carbon Nanotubes

Mihoko Yamada, Chigusa Goto, Hiroyo Aoki, Yoshiyuki Nonoguchi and Tsuyoshi Kawai**

Division of Materials Science, Nara Institute of Science and Technology (NAIST)

Ikoma 630-0192, Japan

Corresponding Authors: tkawai@ms.naist.jp

Table of Contents

Table S1. The evaluated values of the films n-type-doped with/without corannulene.

Table S2. The evaluated values of the films n-type-doped with/without pyrene.

Figure S1. UV-vis-NIR of the films before and after n-type doping with corannulene.

Figure S2. UV-vis-NIR of the films before and after n-type doping with pyrene.

Figure S3. EPR spectra of the films n-type-doped with corannulene or pyrene.

Table S1. The evaluated values of the films n-type-doped with/without corannulene. The n-type doping conditions are [benzo-18-crown-6-ether] = 10 mM, [KOH] = 10 mM, in *n*-BuOH (3 mL) at 298 K for 2 h. The values of Abs_{1660} were evaluated from UV-vis-NIR spectra.

Entry	[corannulene] / mM	Thickness / μm	Electrical conductivity σ / S cm^{-1}	Seebeck coefficient α / μV K^{-1}	PF / μW m^{-1} K^{-2}	ΔPF / μW m^{-1} K^{-2}	Abs_{1660} before doped	Abs_{1660} after doped	n-type-doped level ΔAbs_{1660}	Differential n-type-doped level $\Delta\Delta abs_{1660}$
1-1	0	0.30	14.4	-285	117		1.596	1.422	0.174	
1-2	0.1	0.30	30.4	-233	164	47	1.420	1.130	0.29	0.116
2-1	0	0.34	22.9	-230	121		1.343	1.179	0.164	
2-2	0.4	0.34	41.1	-187	143	22	1.645	1.322	0.323	0.159
3-1	0	0.33	22.6	-167	62.8		1.226	1.104	0.122	
3-2	0.7	0.33	40.8	-193	151	88.2	1.163	0.937	0.226	0.104
4-1	0	0.40	6.32	-307	59.5		1.130	0.916	0.214	
4-2	1	0.40	21.8	-224	109	49.5	1.172	0.868	0.304	0.09

Table S2. The evaluated values of the films n-type-doped with/without pyrene. The n-type doping conditions are [benzo-18-crown-6-ether] = 10 mM, [KOH] = 10 mM, in *n*-BuOH (3 mL) at 298 K for 2 h. The values of Abs_{1660} were evaluated from UV-vis-NIR spectra.

Entry	[pyrene] / mM	Thickness / μm	Electrical conductivity σ / S cm^{-1}	Seebeck coefficient α / μV K^{-1}	PF / μW m^{-1} K^{-2}	ΔPF / μW m^{-1} K^{-2}	Abs_{1660} before doped	Abs_{1660} after doped	n-type-doped level ΔAbs_{1660}	Differential n-type-doped level $\Delta\Delta abs_{1660}$
1-1	0	0.42	7.75	-273	57.9		1.341	1.218	0.123	
1-2	0.1	0.42	6.7	-276	50.9	-7	1.169	0.799	0.37	0.247
2-1	0	0.38	10.4	-238	58.5		1.18	1.125	0.055	
2-2	0.4	0.38	3.55	-215	16.4	-42.1	1.066	0.933	0.133	0.078
3-1	0	0.30	4.92	-319	50.1		1.235	1.048	0.187	
3-2	0.7	0.30	9.2	-282	73.3	23.2	1.171	1.079	0.092	-0.095
4-1	0	0.40	5.17	-324	54.2		1.513	1.273	0.24	
4-2	1	0.40	1.52	-411	25.6	-28.6	1.513	1.330	0.183	-0.057

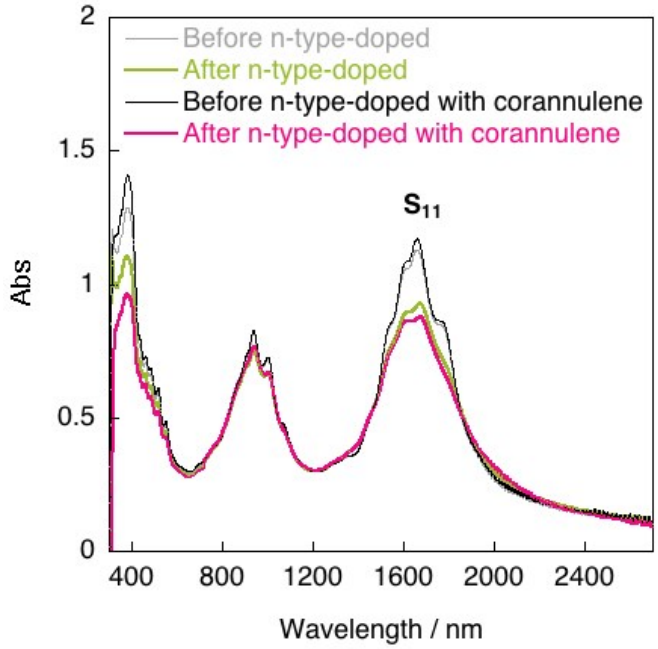

Figure S1. UV-vis-NIR absorption spectra of the films before and after n-type-doped with/without corannulene (1.0 mM). The n-type doping conditions are [benzo-18-crown-6-ether] = 10 mM, [KOH] = 10 mM, in *n*-BuOH (3 mL) at 298 K for 2 h.

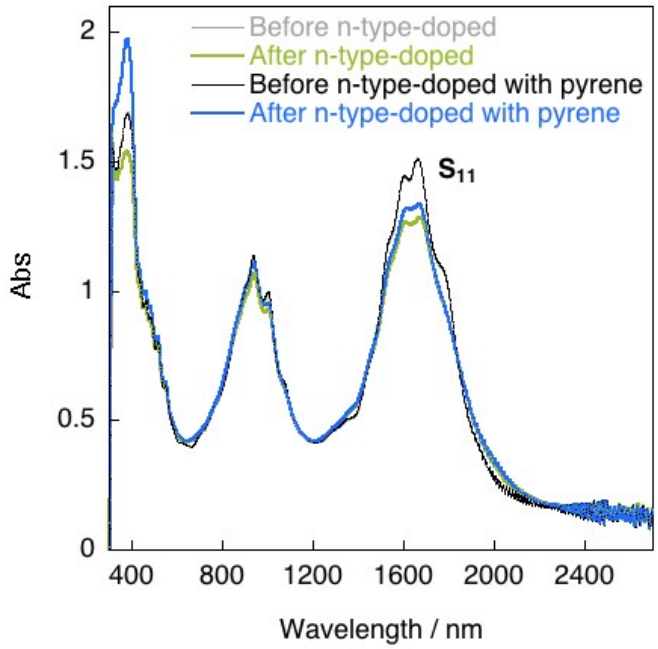

Figure S2. UV-vis-NIR absorption spectra of the films before and after n-type-doped with/without pyrene (1.0 mM). The n-type doping conditions are [benzo-18-crown-6-ether] = 10 mM, [KOH] = 10 mM, in *n*-BuOH (3 mL) at 298 K for 2 h.

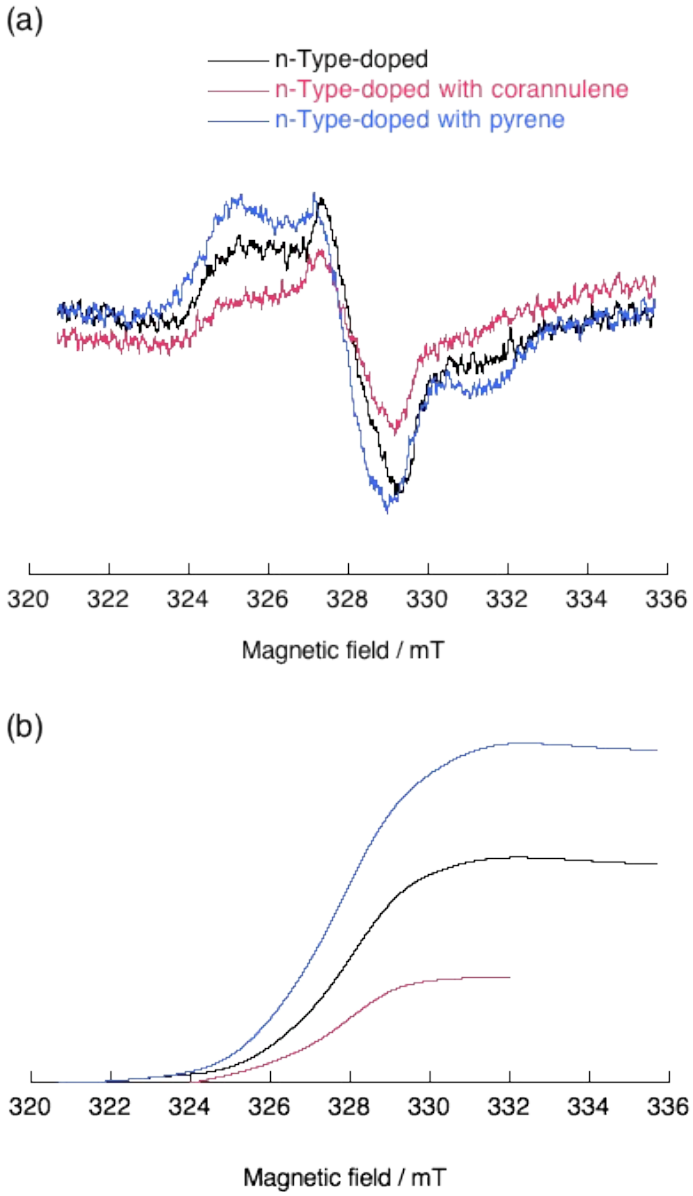

Figure S3. (a) EPR spectra and (b) their double integration of the film n-type doped with corannulene (1 mM), pyrene (1 mM), or none of them. The n-type doping conditions are [benzo-18-crown-6-ether] = 10 mM, [KOH] = 10 mM, in *n*-BuOH (3 mL) at 298 K for 5 min. The films were sunk in the 0.2 M DMPO *n*-BuOH solution under N_2 atmosphere and observed by EPR.