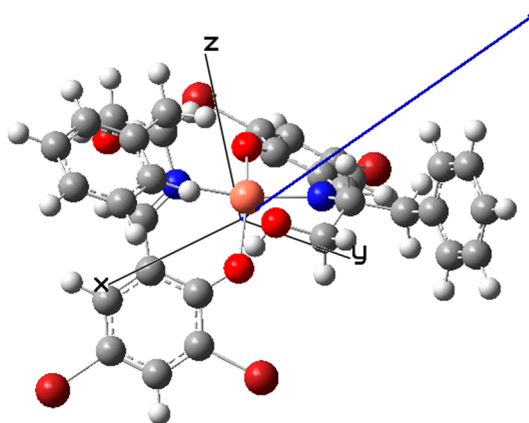
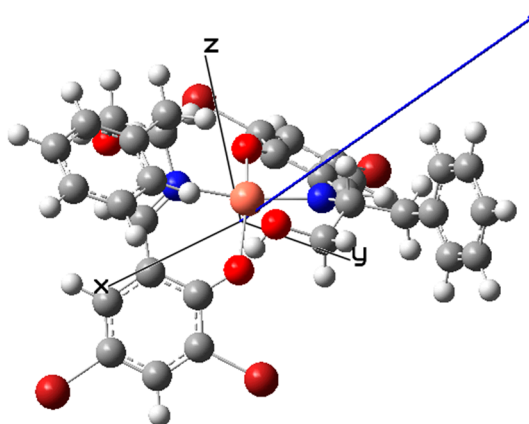


# Supplementary Materials: The Viscosity and Intermolecular Interaction of Organic and Inorganic Hybrid Systems Composed of Chiral Schiff Base Ni(II), Cu(II), and Zn(II) Complexes with Long Ligands, Azobenzene, and PMMA

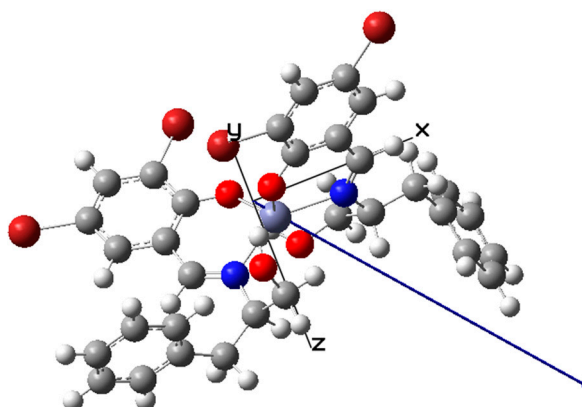
Hiroshi Takano, Masahiro Takase, Nobumitsu Sunaga, Maiko Ito and Takashiro Akitsu



**Figure S1.** Optimized structure of Ni with dipole moment (arrow). (Atom color for Figures S1–S3; orange: metal, gray: H, black: C, blue: N, red: O, brown: Br.)



**Figure S2.** Optimized structure of Cu with dipole moment (arrow).



**Figure S3.** Optimized structure of Zn with dipole moment (arrow).

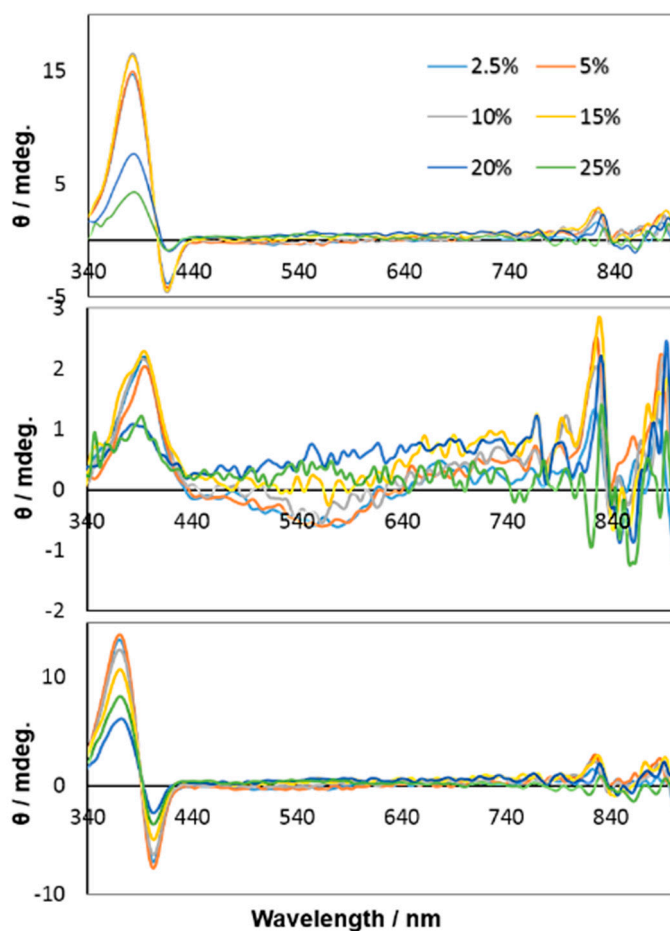


Figure S4. PMMA concentration dependence of acetone solutions of Ni, Cu, and Zn.

Table S1. The *R* and *S* values of polarized IR spectra for Ni+AZ+PMMA.

UV Time/min	C=N (1634 cm <sup>-1</sup> )	
	<i>R</i>	<i>S</i>
0	1.2815	0.0857
0.5	1.2924	0.0888
1	1.2921	0.0887
3	1.2874	0.0874
5	1.2836	0.0864
10	1.2887	0.0878

Table S2. The *R* and *S* values of polarized IR spectra for Cu+AZ+PMMA.

UV Time/min	C=N (1628 cm <sup>-1</sup> )	
	<i>R</i>	<i>S</i>
0	1.32152	0.096799
0.5	1.307033	0.0928
1	1.302422	0.0916
3	1.305267	0.92358
5	1.3134	0.094574
10	1.32158	0.0970

**Table S3.** The *R* and *S* values of polarized IR spectra for Zn+AZ+PMMA.

UV Time/min	C=N(1617 cm <sup>-1</sup> )	
	<i>R</i>	<i>S</i>
0	1.305153	0.092326
0.5	1.306421	0.092674
1	1.299042	0.090645
3	1.288431	0.087711
5	1.288055	0.087607
10	1.29481	0.089477

**Table S4.** The *R* and *S* values of polarized UV-Vis spectra for Ni+AZ+PMMA.

UV Time/min	$\pi-\pi^*$ (318 nm)		$n-\pi^*$ (440 nm)		d-d (610 nm)	
	<i>R</i>	<i>S</i>	<i>R</i>	<i>S</i>	<i>R</i>	<i>S</i>
0	1	0	1	0	1	0
0.5	0.9990	-0.0003	1.0173	0.0057	1.1003	0.0324
1	0.9922	-0.0026	1.0039	0.0013	1.0506	0.0166
3	0.9799	-0.0067	1.018	0.006	1.0818	0.0266
5	0.9716	-0.0096	1.0132	0.0044	1.0710	0.0231
10	0.9579	-0.0142	1.0235	0.0078	1.0830	0.0269

**Table S5.** The *R* and *S* values of polarized UV-Vis spectra for Cu+AZ+PMMA.

UV Time/min	$\pi-\pi^*$ (318 nm)		$n-\pi^*$ (440 nm)		d-d (610 nm)	
	<i>R</i>	<i>S</i>	<i>R</i>	<i>S</i>	<i>R</i>	<i>S</i>
0	1	0	1	0	1	0
0.5	0.9990	-0.0003	1.0173	0.0057	1.1003	0.0324
1	0.9922	-0.0026	1.0039	0.0013	1.0506	0.0166
3	0.9799	-0.0067	1.018	0.006	1.0818	0.0266
5	0.9716	-0.0096	1.0132	0.0044	1.0710	0.0231
10	0.9579	-0.0142	1.0235	0.0078	1.0830	0.0269

**Table S6.** The *R* and *S* values of polarized UV-Vis spectra for Zn+AZ+PMMA.

UV Time/min	$\pi-\pi^*$ (318 nm)		$n-\pi^*$ (440 nm)	
	<i>R</i>	<i>S</i>	<i>R</i>	<i>S</i>
0	1	0	1	0
0.5	0.9943	-0.0019	1.0330	0.01090
1	0.9928	-0.0024	1.0435	0.01429
3	0.9741	-0.0087	1.0444	0.01459
5	0.9716	-0.0095	1.0410	0.01348
10	0.9689	-0.0105	1.0461	0.01515