Supplementary Information (SI) for Journal of Materials Chemistry C.

Supplementary Information

Anion-induced chiral assembly: construction of Ag(I) coordination polymers for photocatalytic degradation of organic dyes

Chao Huang*, Jin-Xia Liang and Bi-Xue Zhu*

Key Laboratory of Macrocyclic and Supramolecular Chemistry of Guizhou Province, Guizhou University, Guiyang 550025, China

*E-mail: chuang1@gzu.edu.cn (C. Huang); bxzhu@gzu.edu.cn (B.-X. Zhu)

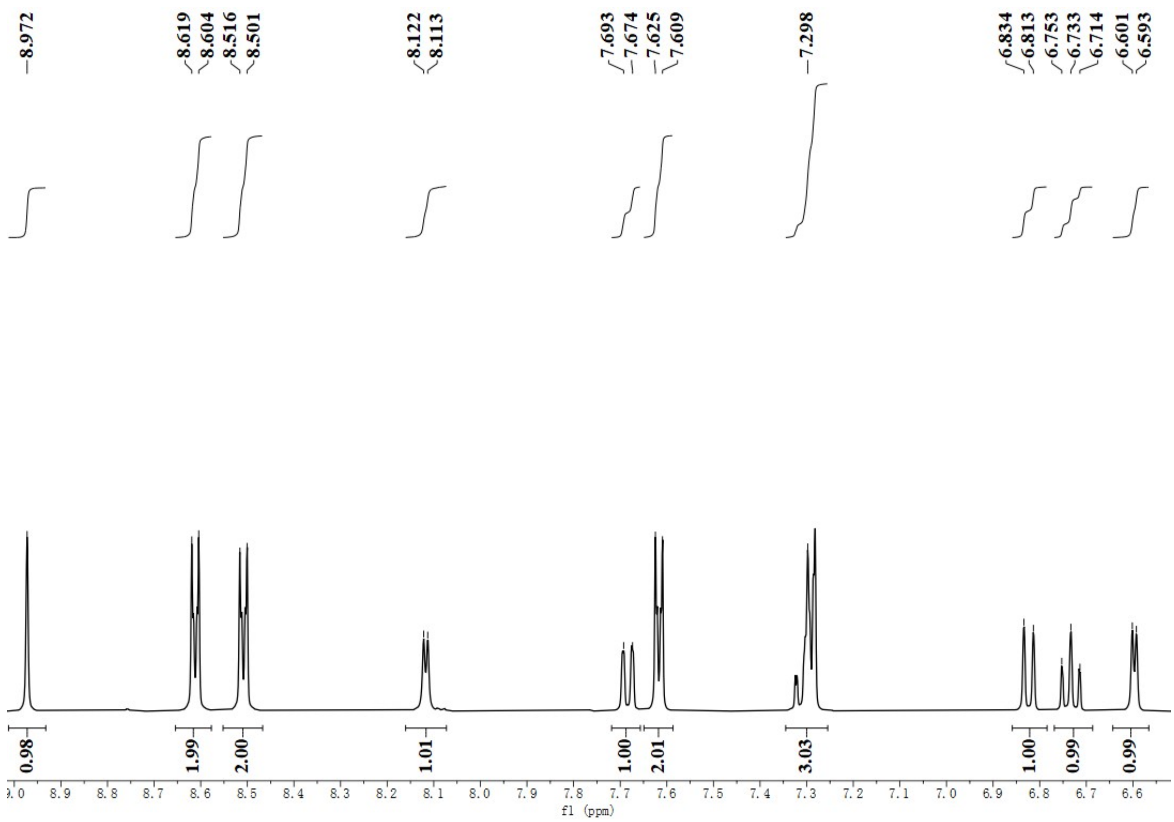

Fig. S1. ^{1}H NMR for **L**.

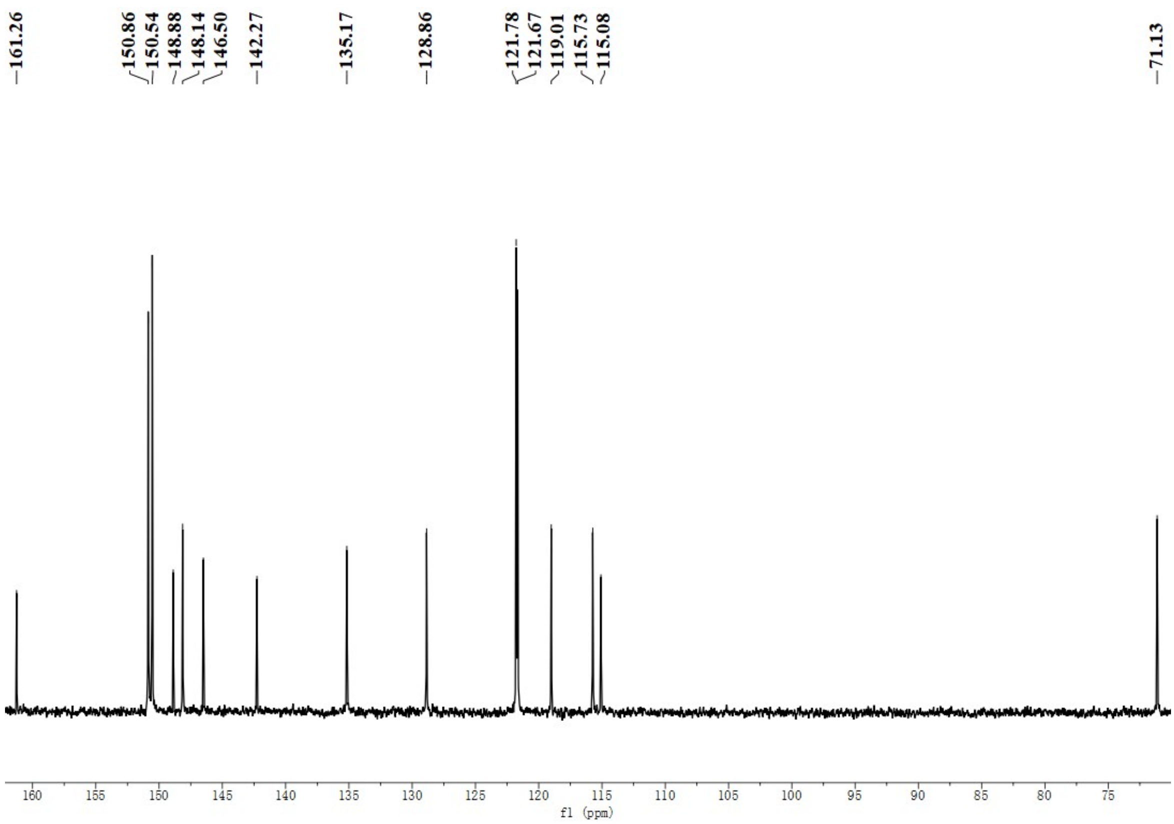

Fig. S2. ^{13}C NMR for **L**.

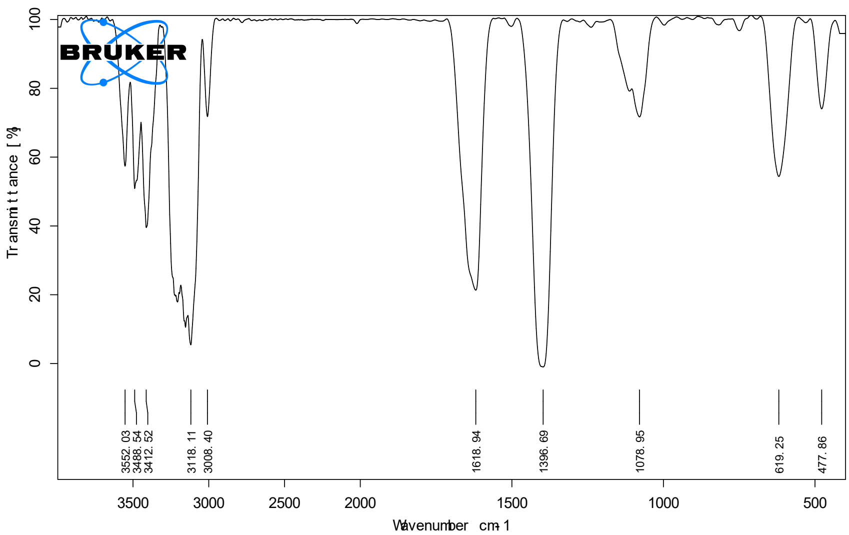

Fig. S3. IR spectra for CP **2**.

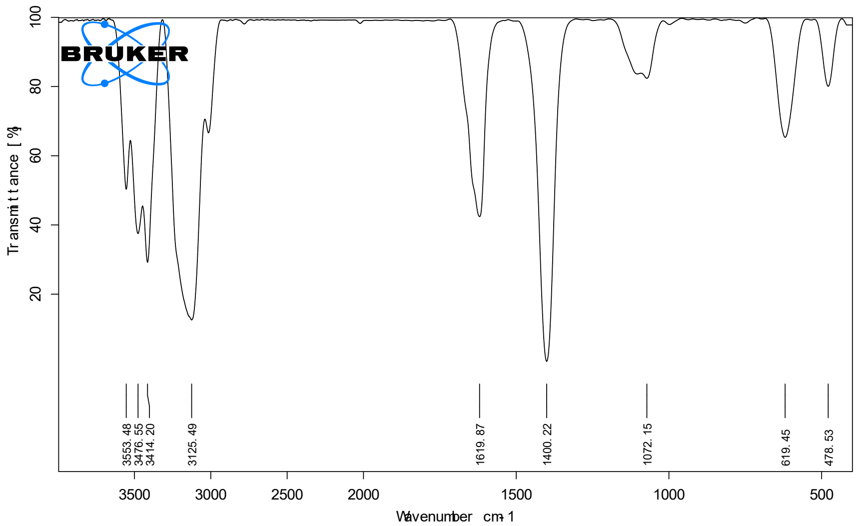

Fig. S4. IR spectra for CP **3**.

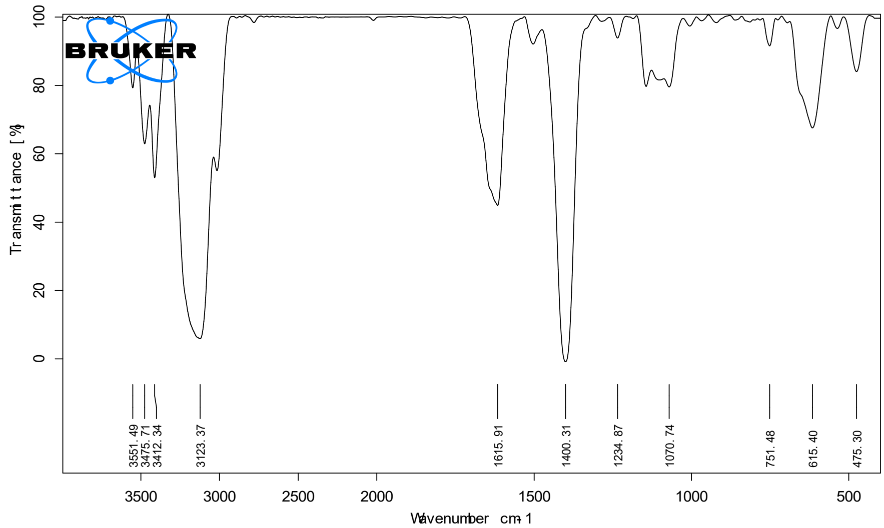

Fig. S5. IR spectra for CP **4**.

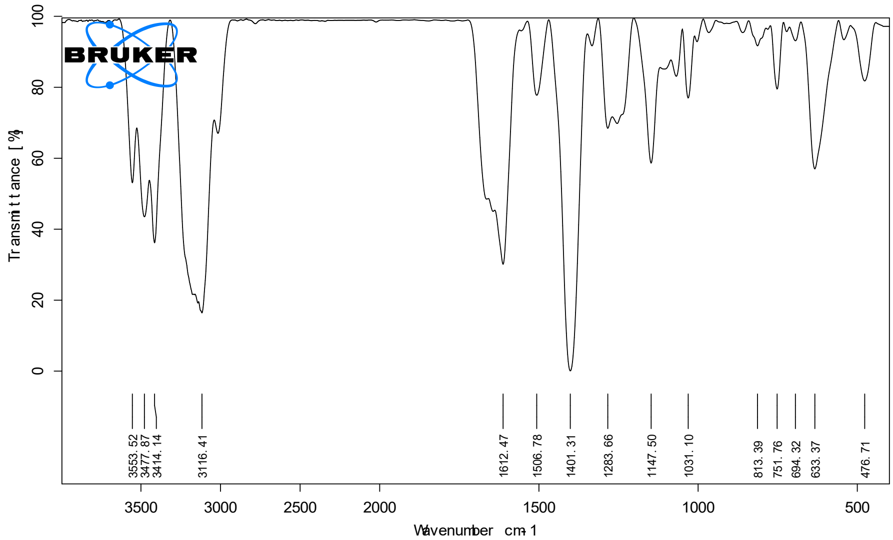

Fig. S6. IR spectra for CP **5**.

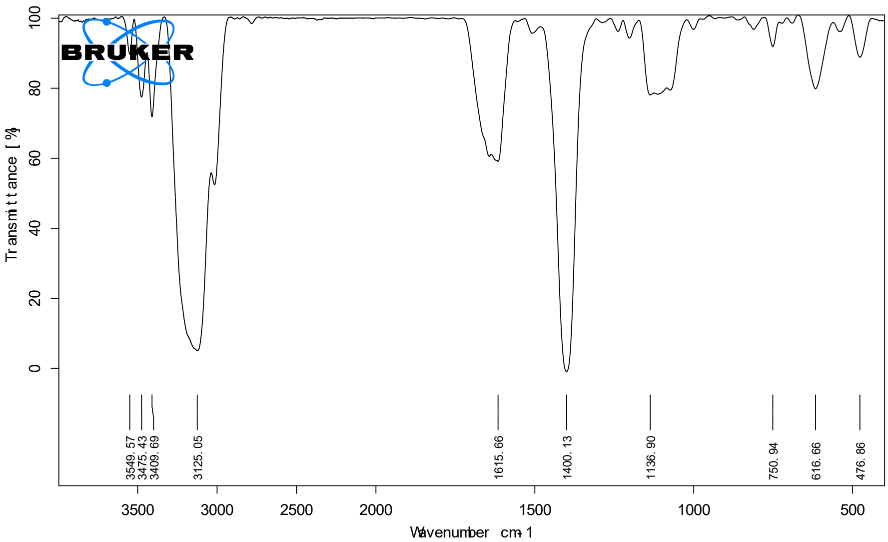

Fig. S7. IR spectra for CP **6**.

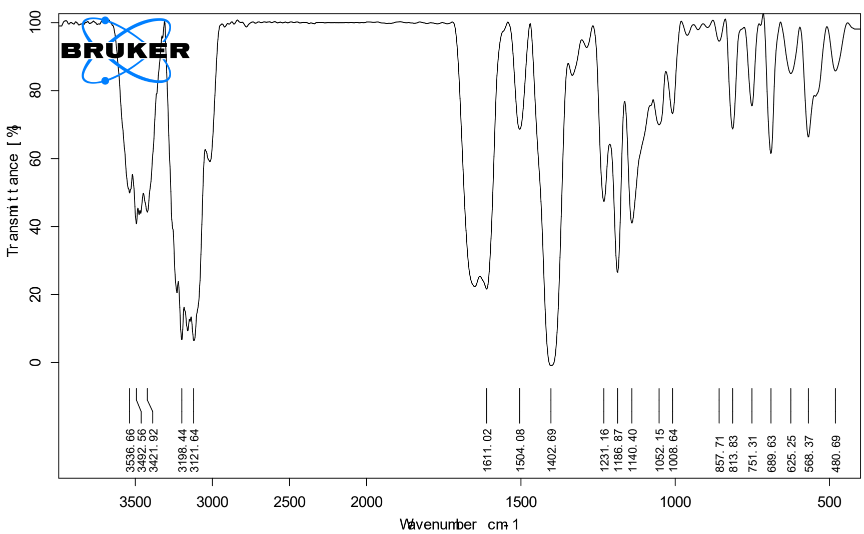

Fig. S8. IR spectra for CP **7**.

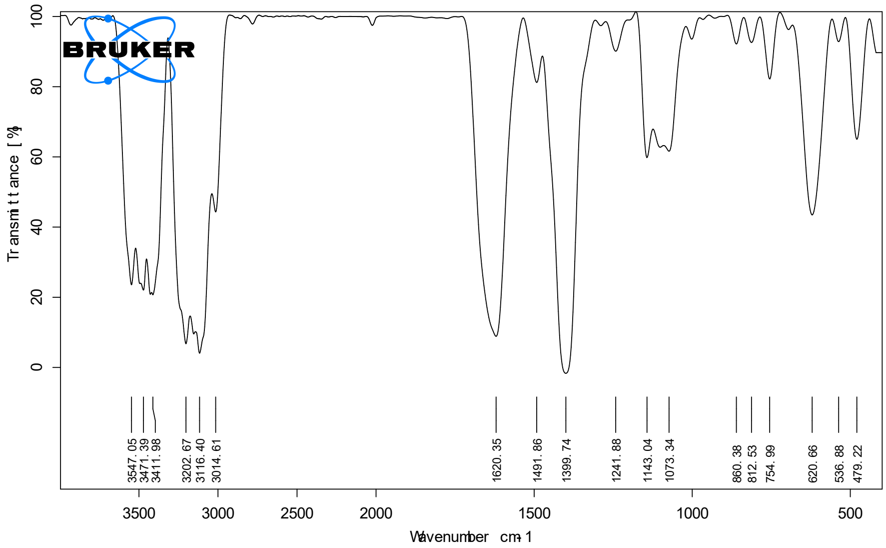

Fig. S9. IR spectra for CP **8**.

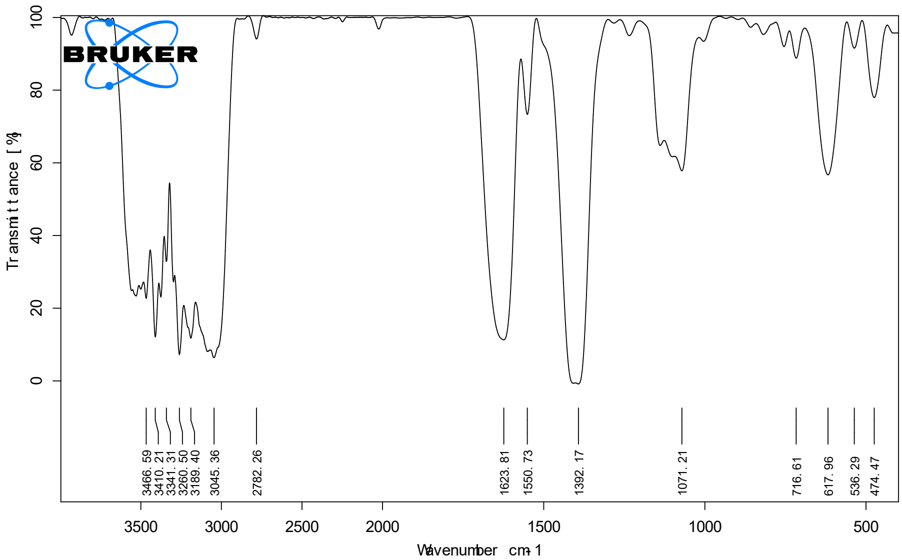

Fig. S10. IR spectra for CP **9**.

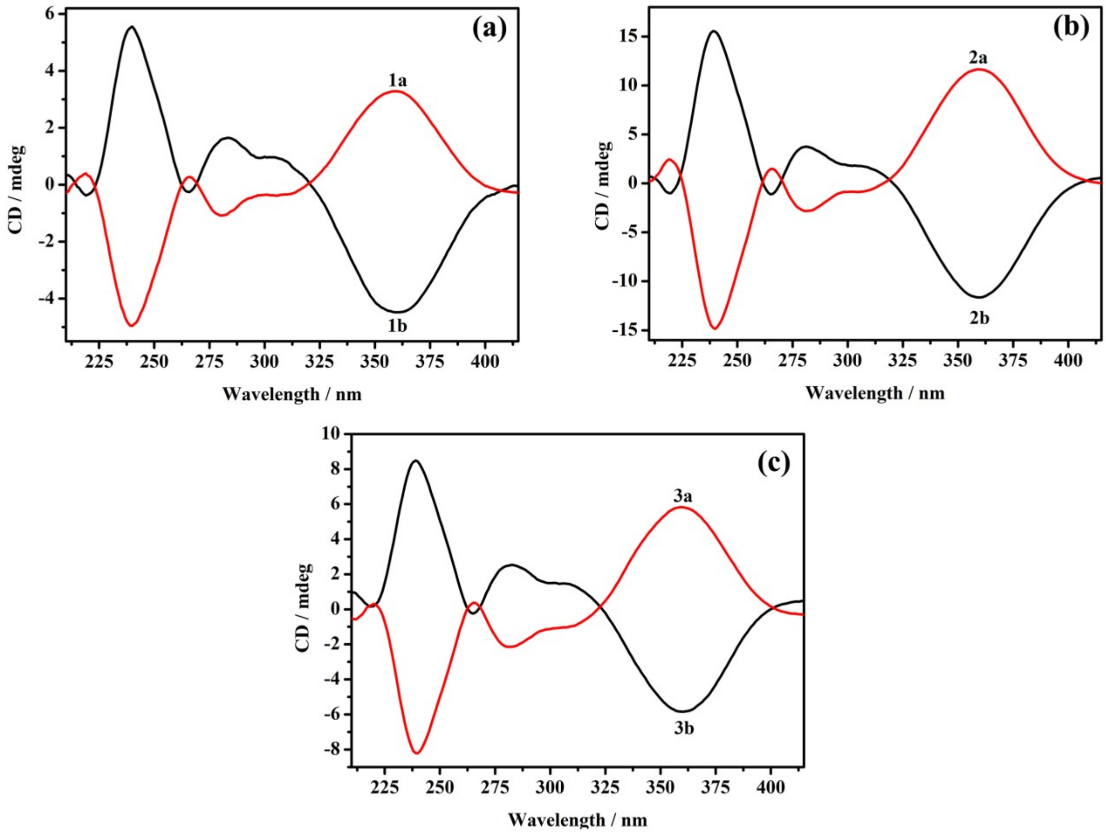

Fig. S11. CD spectra of CPs **1a** and **1b** (a), **2a** and **2b** (b), and **3a** and **3b** (c) in MeCN solution.

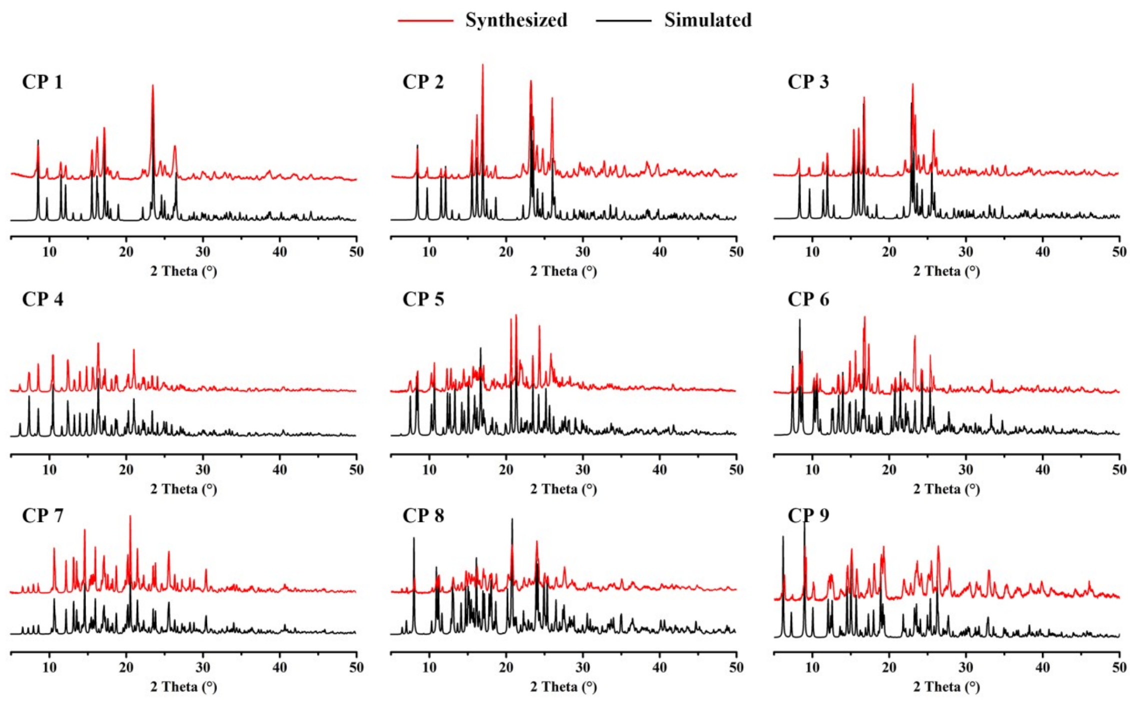

Fig. S12. PXRD patterns: synthesized and simulated from the single-crystal diffraction data.

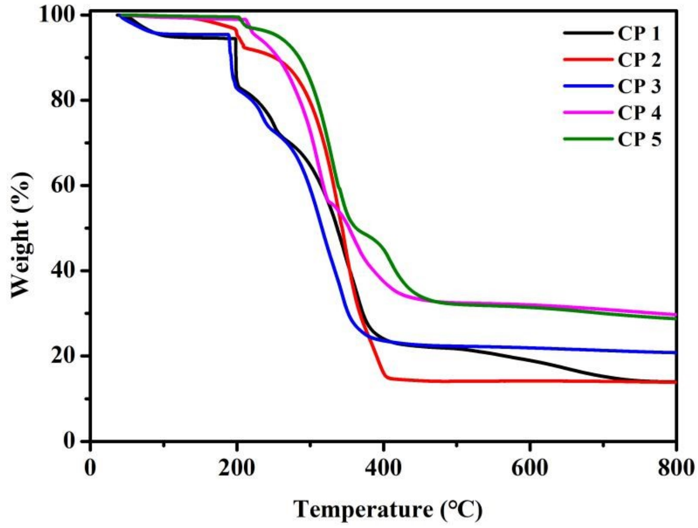

Fig. S13. TGA curves for CPs **1**–**5**.

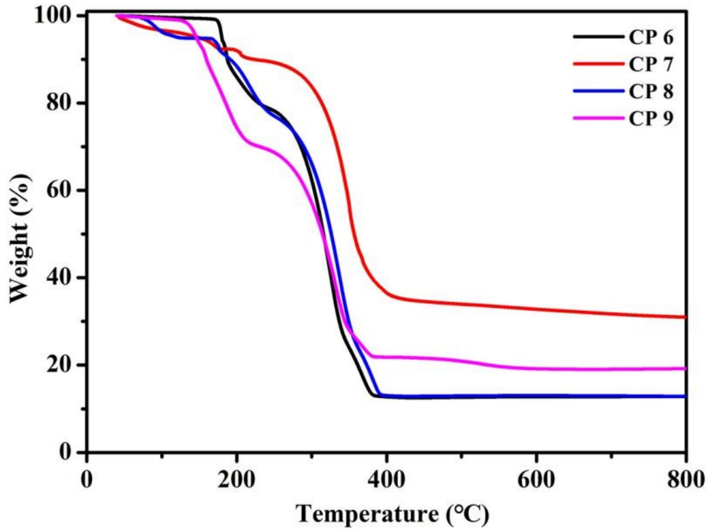

Fig. S14. TGA curves for CPs **6**–**9**.

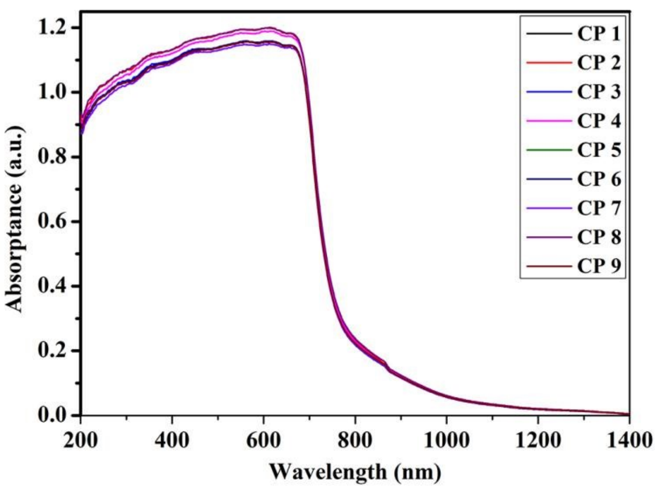

Fig. S15. The solid-state UV−Vis spectra of CPs **1**−**9**.

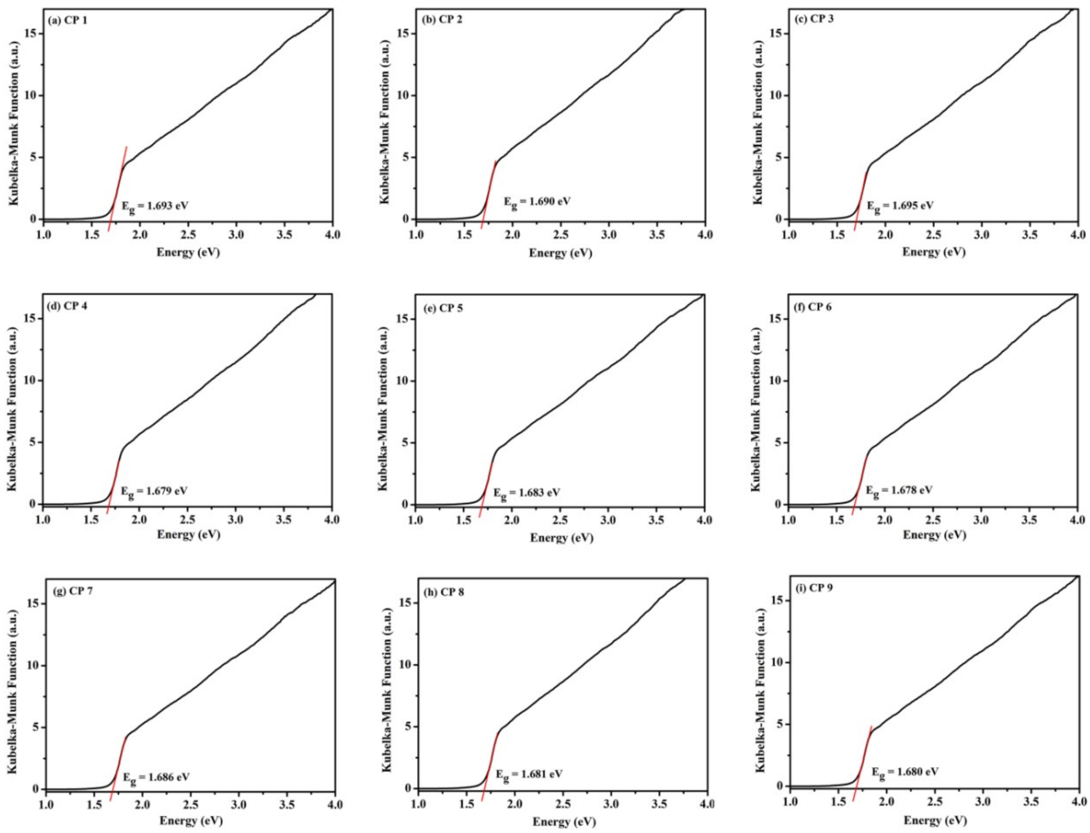

Fig. S16. UV−Vis diffuse-reflectance spectra of Kubelka-Munk functions *vs.* Energy for CPs **1**−**9**.

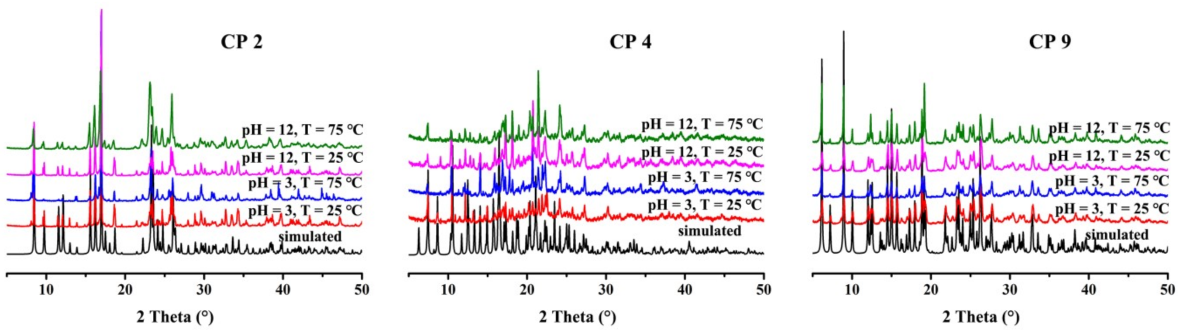

Fig. S17. PXRD patterns of CPs **2**, **4**, and **9** after immersion in different aqueous solutions.

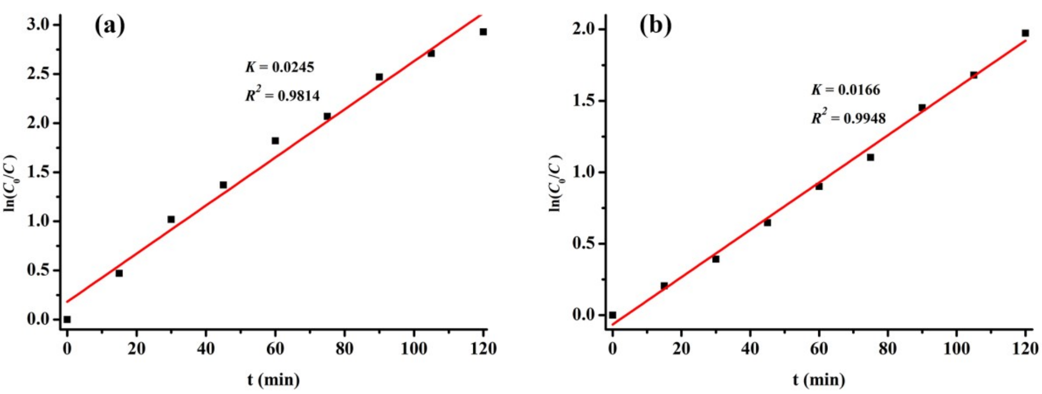

Fig. S18. Kinetic fitting curves of degradation reaction of RhB (a) and MB (b) in the presence of CP **4**.

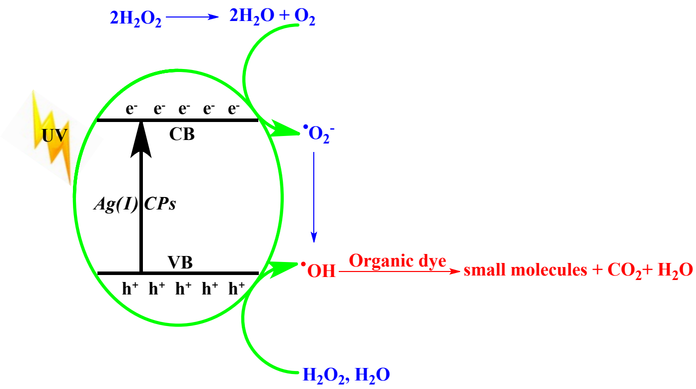

Fig. S19. Proposed mechanism for the photocatalytic degradation process of RhB and MB in water.

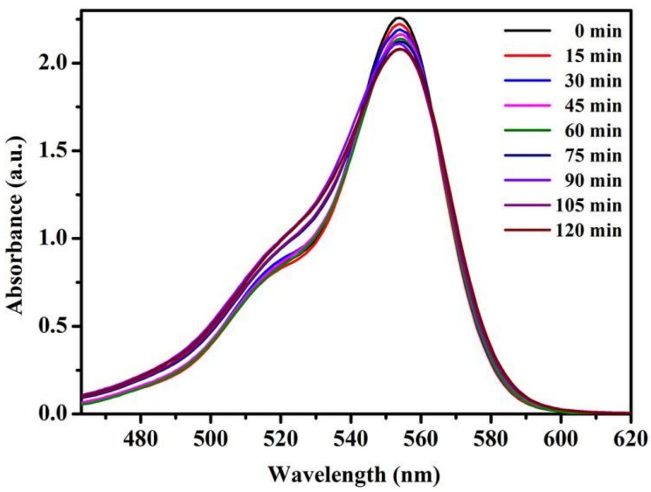

Fig. S20. UV−Vis spectra of RhB in the presence of CP **4**, H_2O_2, and 0.2 mLof TBA under UV irradiation.

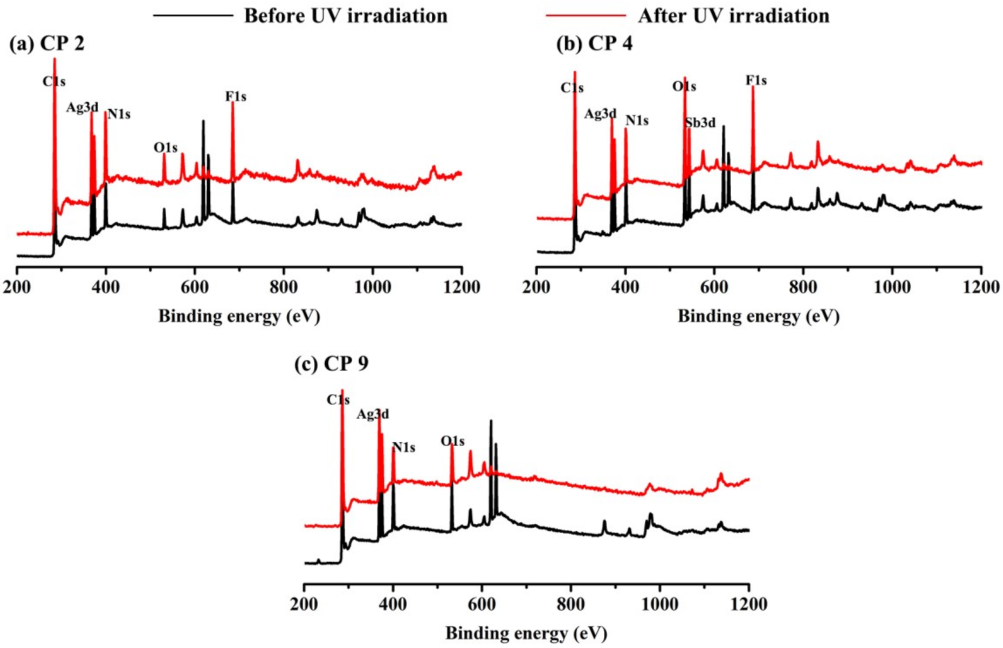

Fig. S21. Fully scanned X-ray photoelectron spectroscopy (XPS) of CPs **2** (a), **4** (b), and **9** (c) before and after the photocatalytic degradation reaction.

Table S1. Selected bond distances (Å) and angles (°) for CP **2**−**9**.

CP **2a**					
Ag1−N5	2.267(3)	N5−Ag1−N5a	142.30(18)	N5−Ag1−N1b	106.46(12)
Ag1−N5a	2.267(3)	N5a−Ag1−N1b	98.10(12)	N5−Ag1−N1c	98.10(12)
Ag1−N1c	2.423(3)	N5a−Ag1−N1c	106.46(12)	N1c−Ag1−N1b	97.92(17)
Ag1−N1b	2.423(3)				
CP **2b**					
Ag1−N1a	2.422(3)	N1a−Ag1−N1b	98.01(15)	N5c−Ag1−N1b	106.22(11)
Ag1−N1b	2.422(3)	N5−Ag1−N1a	106.22(11)	N5−Ag1−N1b	98.10(11)
Ag1−N5	2.266(3)	N5c−Ag1−N1a	98.10(11)	N5−Ag1−N5c	142.63(15)
Ag1−N5c	2.266(3)				
CP **3a**					
Ag1−N1a	2.432(3)	N1a−Ag1−N1b	97.14(16)	N5−Ag1−N1a	98.19(12)
Ag1−N1b	2.432(3)	N5−Ag1−N1b	106.29(12)	N5c−Ag1−N1a	106.29(11)
Ag1−N5	2.268(3)	N5c−Ag1−N1 b	98.19(12)	N5−Ag1−N5c	142.73(17)
Ag1−N5c	2.268(3)				
CP **3b**					
Ag1−N1a	2.433(4)	N1a−Ag1−N1b	97.06(18)	N5c−Ag1−N1b	98.37(14)
Ag1−N1b	2.433(4)	N5−Ag1−N1a	98.37(14)	N5c−Ag1−N1a	106.31(14)
Ag1−N5	2.262(3)	N5−Ag1−N1b	106.31(14)	N5−Ag1−N5c	142.4(2)
Ag1−N5c	2.262(3)				
CP **4**					
Ag1−N1a	2.411(4)	N1a−Ag1−N10b	96.43(15)	N6−Ag1−N5	135.90(14)
Ag1−N6	2.268(4)	N6−Ag1−N1a	115.44(14)	N5−Ag1−N1a	98.71(14)
Ag1−N5	2.293(4)	N6−Ag1−N10b	99.48(14)	N5−Ag1−N10b	103.68(15)

Ag1−N10	2.436(4)				
CP **5**					
Ag1−N5	2.284(3)	N5−Ag1−N1a	95.15(13)	N6−Ag1−N5	137.02(14)
Ag1−N1a	2.436(4)	N5−Ag1−N10b	102.97(15)	N6−Ag1−N1a	117.43(13)
Ag1−N6	2.255(3)	N1a−Ag1−N10b	94.76(14)	N6−Ag1−N10b	101.43(14)
Ag1−N10b	2.444(4)				
CP **6**					
Ag1−N5	2.294(4)	N5−Ag1−N10b	115.47(17)	N6−Ag1−N10b	98.58(16)
Ag1−N6	2.285(5)	N5−Ag1−N1a	98.10(17)	N6−Ag1−N1a	104.35(17)
Ag1−N10b	2.420(5)	N6−Ag1−N5	136.80(16)	N10b−Ag1−N1a	95.77(16)
Ag1−N1a	2.450(5)				
CP **7**					
Ag1−N1a	2.441(3)	N5−Ag1−N1a	101.09(11)	N5−Ag1−N10b	110.65(10)
Ag1−N5	2.269(3)	N6−Ag1−N1a	109.41(11)	N6−Ag1−N5	131.83(11)
Ag1−N6	2.259(3)	N6−Ag1−N10b	103.35(10)	N10b−Ag1−N1a	94.35(10)
Ag1−N10b	2.418(3)				
CP **8**					
Ag1−N1a	2.460(3)	N1a−Ag1−N10b	98.18(9)	N5−Ag1−N1a	97.75(10)
Ag1−N5	2.261(3)	N5−Ag1−N10b	98.07(10)	N6−Ag1−N1a	111.09(10)
Ag1−N6	2.237(3)	N6−Ag1−N5	141.68(10)	N6−Ag1−N10b	102.02(10)
Ag1−N10b	2.491(3)				
CP **9**					
Ag1−O2a	2.265(6)	O2−Ag1−O2a	122.0(4)	O2a−Ag1−N1	119.5(2)
Ag1−O2	2.265(6)	O2−Ag1−N1	101.0(3)	O2a−Ag1−N1a	101.0(3)
Ag1−N1	2.408(7)	O2−Ag1−N1a	119.5(2)	N1−Ag1−N1a	90.6(3)
Ag1−N1a	2.408(7)	N5−Ag2−N5b	180.0		
Ag2−N5	2.163(7)				
Ag2−N5a	2.163(7)				

Symmetry codes: a) 1–*x*, *y*, –1–*z*, b) –1/2+*x*, –1/2+*y*, –1+*z*, c) 3/2–*x*, –1/2+*y*, –*z* for CP **2a**; a) 3/2–*x*, 1/2+*y*, 2–*z*, b) 1/2+*x*, 1/2+*y*, 1+*z*, c) 2–*x*, *y*, 3–*z* for CP **2b**; a) –1/2+*x*, –1/2+*y*, –1+*z*, b) 3/2–*x*, –1/2+*y*, –*z*, c) 1–*x*, *y*, –1–*z* for CP **3a**; a) 1/2+*x*, 1/2+*y*, 1+*z*, b) 3/2–*x*, 1/2+*y*, 2–*z*, c) 2–*x*, *y*, 3–*z* for CP **3b**; a) *x*, 1+*y*, *z*, b) 2–*x*, 2–*y*, 1–*z* for CP **4**; a) 1+*x*, *y*, *z*, b) 2–*x*, 2–*y*, –*z* for CP **5**; a) 2–*x*, 2–*y*, –*z*, b) *x*, 1+*y*, *z* for CP **6**; a) 2–*x*, 2–*y*, 1–*z*, b) *x*, 1+*y*, *z* for CP **7**; a) –1+*x*, *y*, *z*, b) –*x*, –*y*, –*z* for CP **8**; a) 1–*x*, *y*, 3/2–*z*, b) 2–*x*, –1–*y*, 1–*z* for CP **9**.