# Supplementary Information

# Color-Tunable Fluorescent-Magnetic Core/Shell Multifunctional Nanocrystals

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Synthesis of CoPt nanoparticles. CoPt nanoparticles were synthesized via co-reduction of metal salts.[1,2] 50 mg of platinum (II) acetylacetonate, 65 mg of cobalt (II) acetylacetonate, 130 mg of 1,2-hexadecandiol and 5mL of oleylamine (OAm) were mixed in a 25 mL three-necked flask, and the mixture was heated to 140 °C under argon flow, followed by keeping at 140 °C for 20 min and subsequently at 210 °C for 40 min. The resulting CoPt nanoparticles were precipitated by adding 10 mL of ethanol into the cooled solution and washed with n-hexane and ethanol three times. The as-prepared CoPt nanoparticles were dispersed in n-hexane.

Synthesis of CoPt/CdSe core/shell NCs. The mixture containing CdO (40 mg) and stearic acid (SA, 350 mg)[3] was kept at 160 °C for 20 min, cooled down to RT and added with 15 mL of OAm and 10 mL of n-hexane solution containing 20 mg of CoPt nanoparticles. Under argon atmosphere, the temperature was raised to 85 °C to remove n-hexane. Once the mixture was heated to 300 °C, TOPSe (79 mg of Se powder in 2.5 mL of TOP) was injected swiftly, and CoPt/CdSe NCs with different photoluminescence wavelengths could be produced by changing reaction time. After cooling down to RT, the products were purified by washing with ethanol and subsequent centrifuging. The precipitate was dispersed in n-hexane, which was further separated by size-selective precipitation to obtain purified CoPt/CdSe NCs.

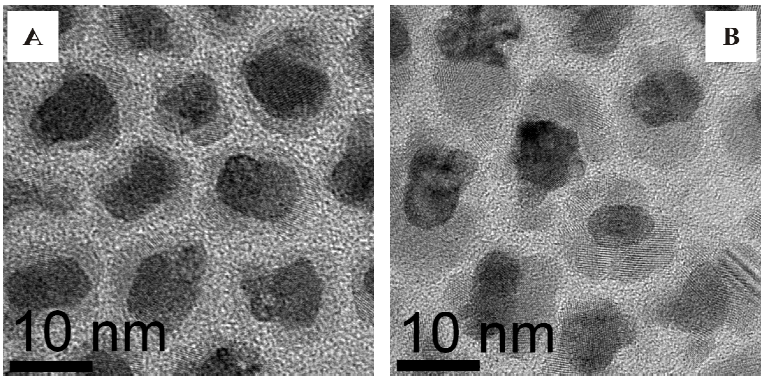


Fig. S1 TEM of the as-prepared CoPt/CdSe NCs with an average shell thickness of (A) 2.5 nm and (B) 4.5 nm.

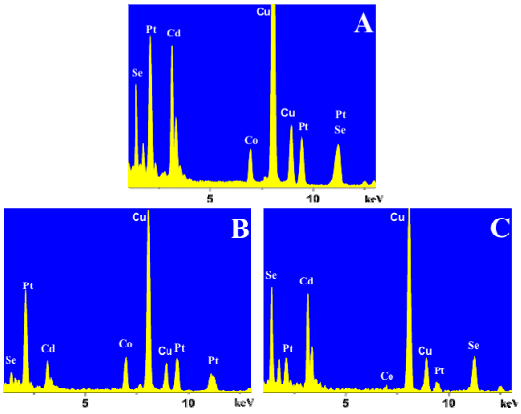


Fig. S2 EDX Spectra of the as-prepared CoPt/CdSe. (A) The whole particle, (B) the core and (C) the shell.

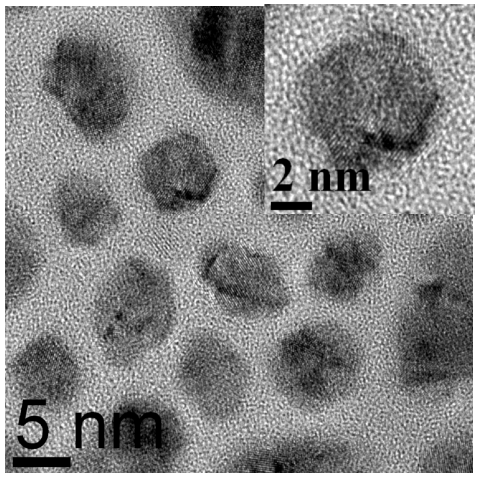


Fig. S3 A part of the reaction mixture was removed before injecting TOPSe, then washed three times with ethanol and n-hexane and characterized by HRTEM(Inset: amplified).

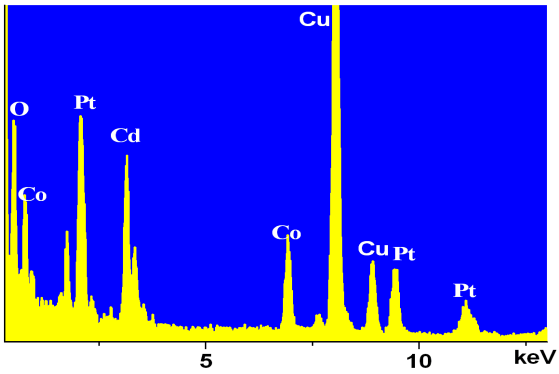


Fig. S4 A part of the reaction mixture was removed before injecting TOPSe, then washed three times with ethanol and n-hexane and characterized by EDX.

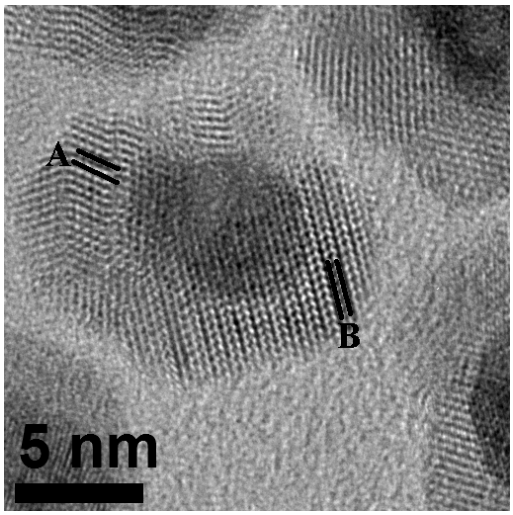


Fig. S5 HRTEM of CoPt/CdSe NCs with clear shell lattice fringes with d-spacings of 0.37 nm (A) and 0.33 nm (B).

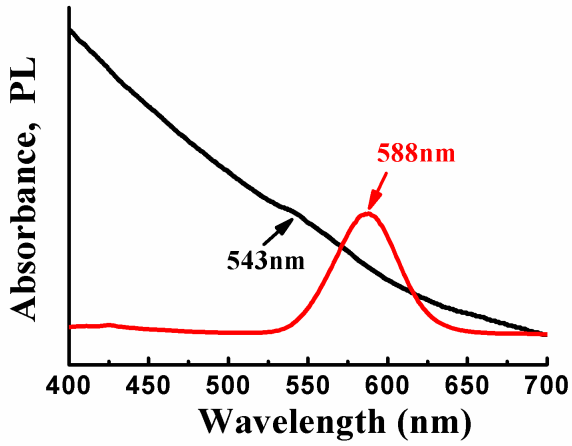


Fig. S6 Absorption and emission spectra of CoPt/CdSe NCs with an emission peak at 588 nm.

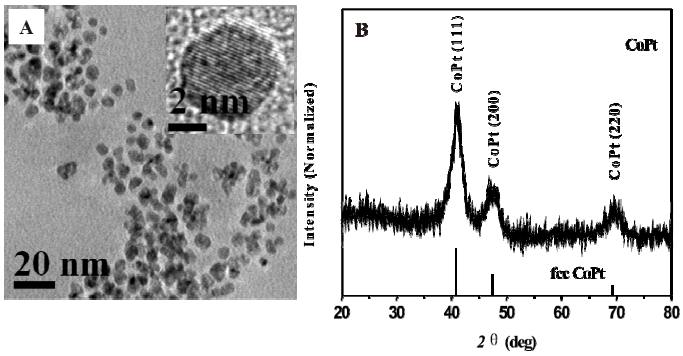


Fig. S7 (A) TEM of the as-prepared CoPt nanoparticles (Inset: HRTEM image ) and (B) XRD patterns of the as-prepared CoPt nanoparticles.

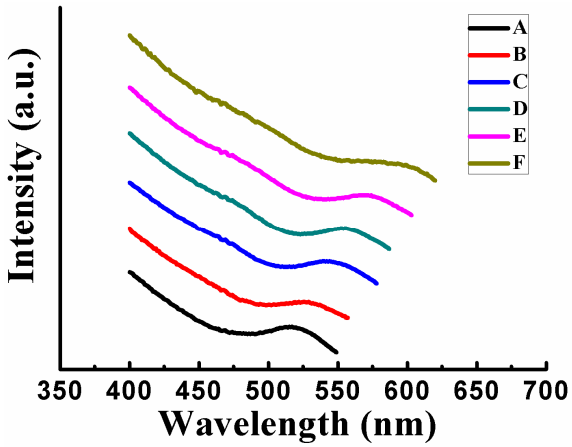


Fig. S8 Photoluminescence excitation (PLE) spectra of CoPt/CdSe NCs with an emission peak at (A) 559 nm, (B) 567nm, (C) 588 nm, (D) 597 nm, (E) 613 nm, (F) 630 nm.

1 K. E. Elkins, T. S. Vedantam, J. P. Liu, H. Zeng, S. Sun, Y. Ding, Z. L. Wang, *Nano Lett.* 2003, **3**, 1647.
2 C. N. Chinnasamy, B. Jeyadevan, K. Shinoda, K. Tohji, *J. Appl. Phys*. 2003, **93**, 7583.
3 Z. A. Peng, X. Peng, *J. Am. Chem. Soc.* 2001, **123**, 183.