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Supercritical Solvothermal Preparation of $Zn_xCd_{1-x}S$ Visible Photocatalyst with Enhanced Activity

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Supporting Information

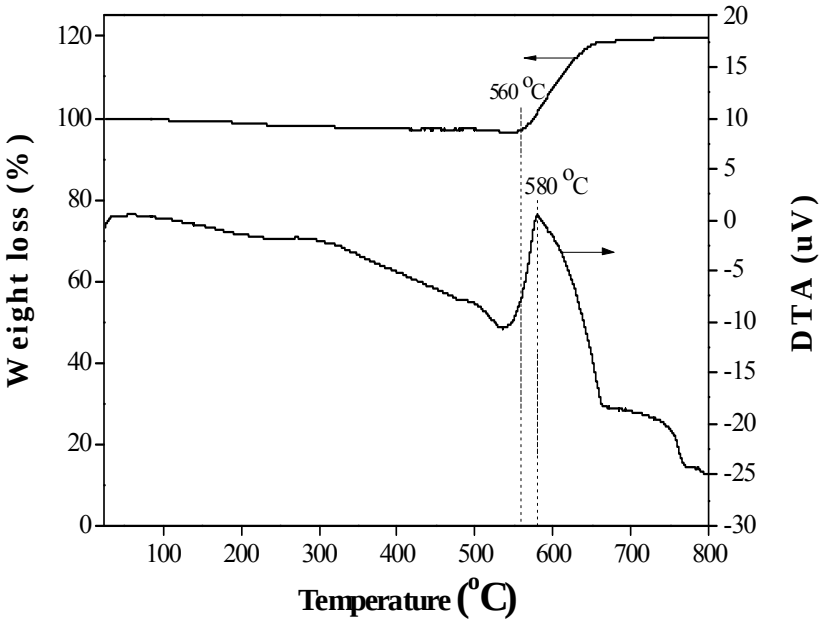

Fig. S1 TG-DTA curve of $Zn_{0.21}Cd_{0.79}S$ sample.

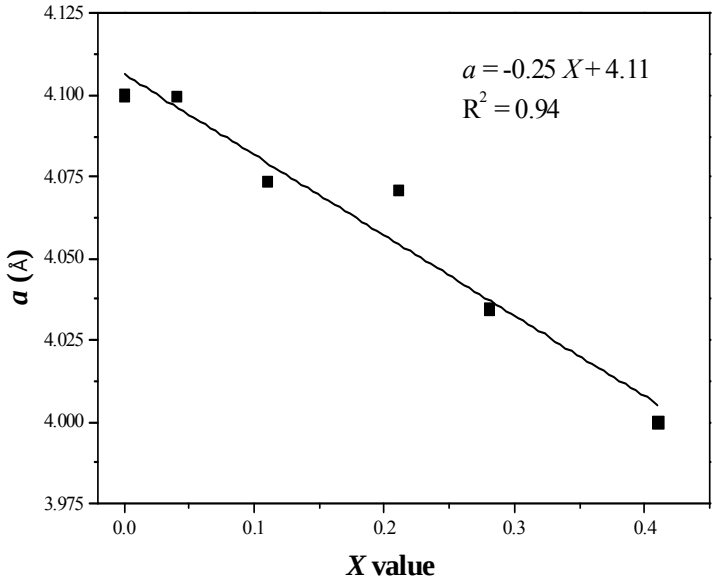

Fig. S2 Linear relationship of the lattice parameter (a) of $Zn_xCd_{1-x}S$ as a function of X value.

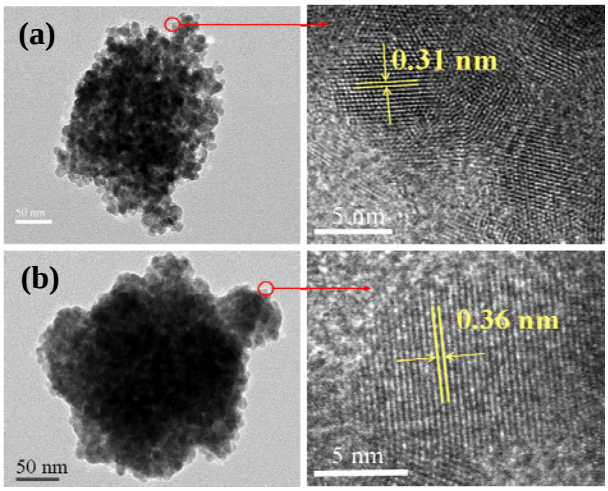

Fig. S3 TEM and HRTEM images of (a) ZnS and (b) CdS catalysts.

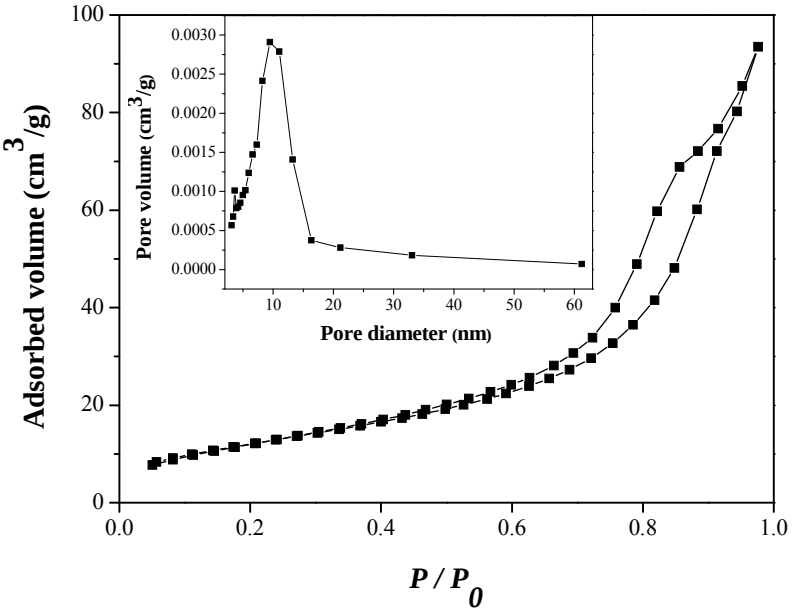

Fig. S4 N_2 adsorption-desorption isotherm and pore size distribution (insert) of $Zn_{0.21}Cd_{0.79}S$ sample.

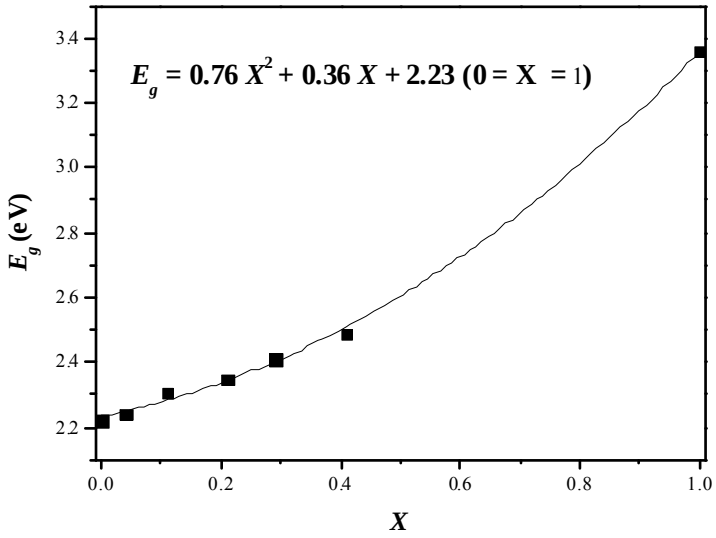

Fig. S5 Variation of E_g with X value.

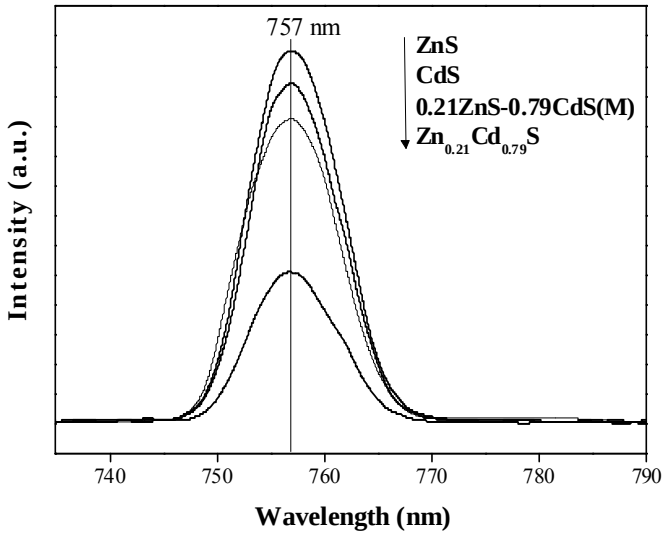

Fig. S6 PL spectra of different samples. Excitation wavelength = 380 nm.

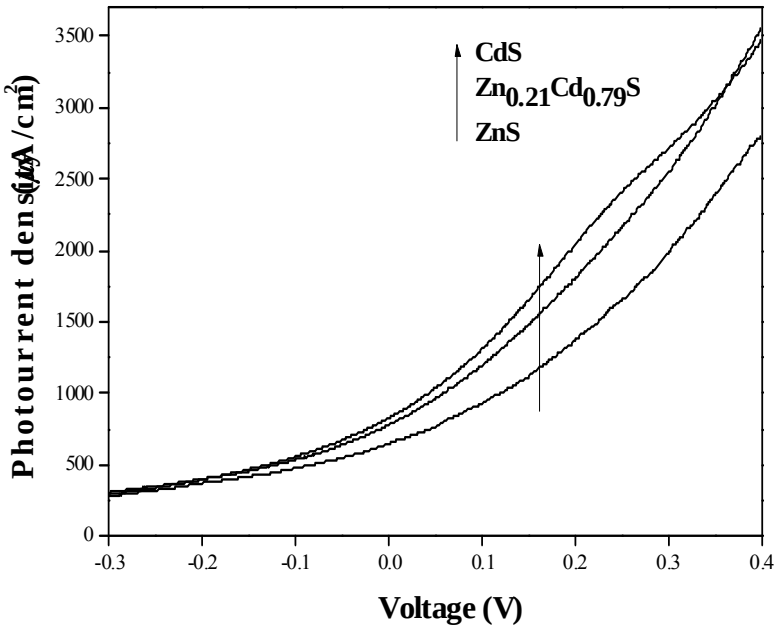

Fig. S7 Photocurrent response tests of different samples under visible light irradiation (300 W Xe lamp, $\lambda \geqslant 400$ nm).

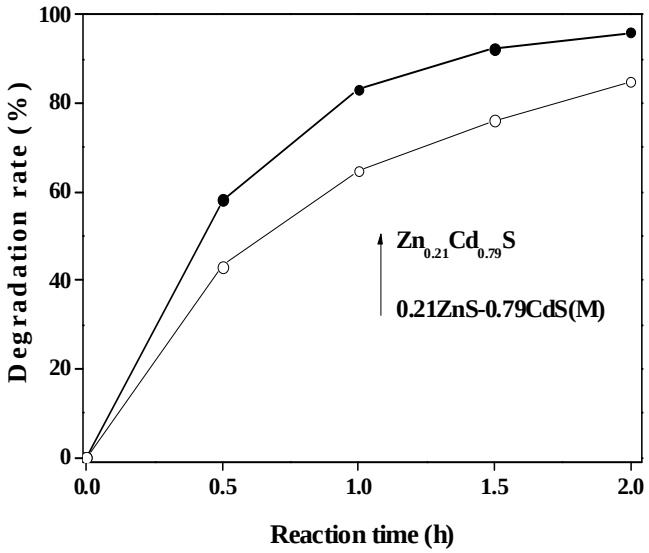

Fig. S8 RhB photocatalytic degradation on $Zn_{0.21}Cd_{0.79}S$ and 0.21ZnS-0.79CdS(M). Reaction conditions were given in Figure 6.

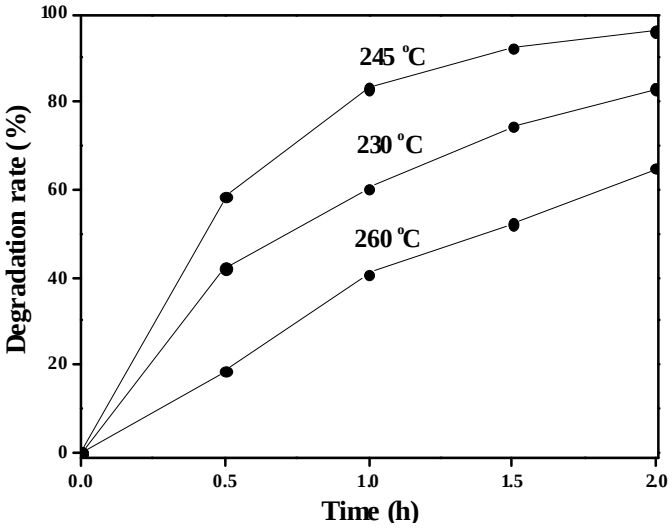

Fig. S9 RhB photocatalytic degradation on $Zn_{0.21}Cd_{0.79}S$ samples obtained at different solvothermal temperature. Reaction conditions were given in Figure 6.

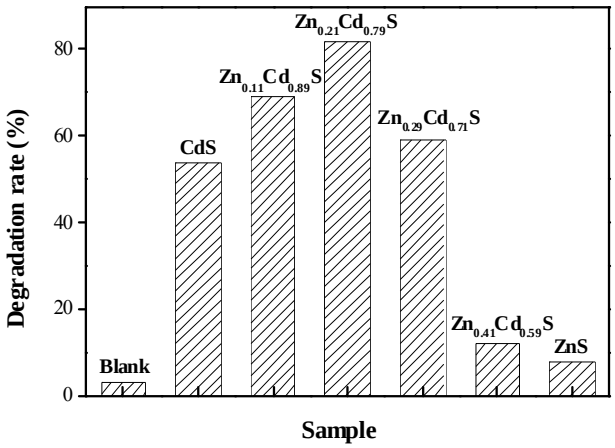

Fig. S10 4-CP photocatalytic degradation on different samples. Reaction conditions: 50 mg catalyst, 50 mL 10 mg/L 4-CP solution, $\lambda \geq 420$ nm, $T = 30\,^{o}C$, reaction time = 4 h.

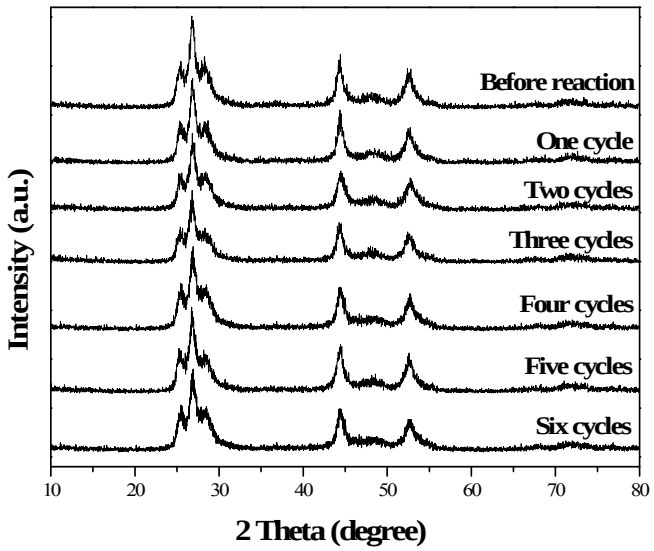

Fig. S11 XRD patterns of $Zn_{0.21}Cd_{0.79}S$ photocatalyst after each photocatalytic reaction cycle.