

Supporting Information

Enhanced performance of PbS-sensitized solar cells via controlled successive ionic layer adsorption and reaction

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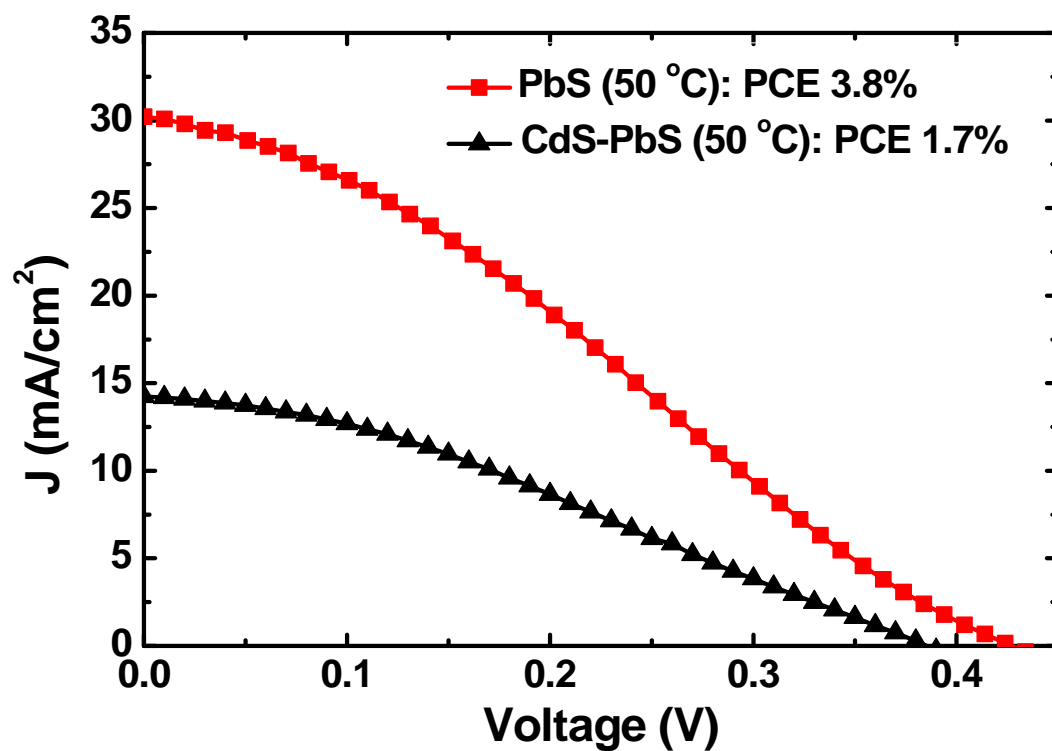


Fig. S1 *J-V* curves of PbS and CdS-PbS-sensitized solar cells when PbS deposition was performed at 50 °C by SILAR.

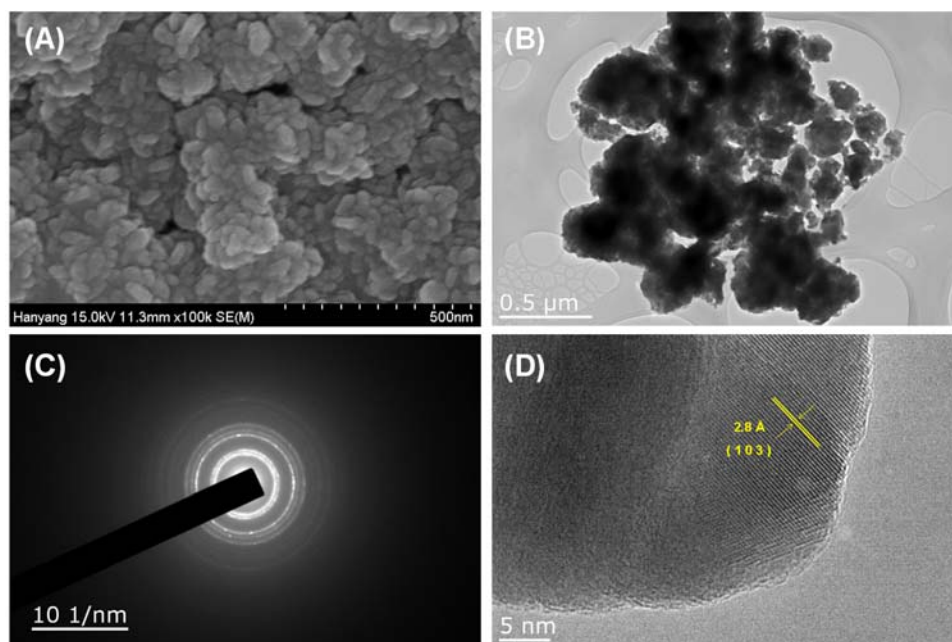


Fig. S2 (A) SEM, (B) low-resolution TEM, (C) selected area electron diffraction pattern, and (D) high-resolution TEM images of CuS counter electrode.

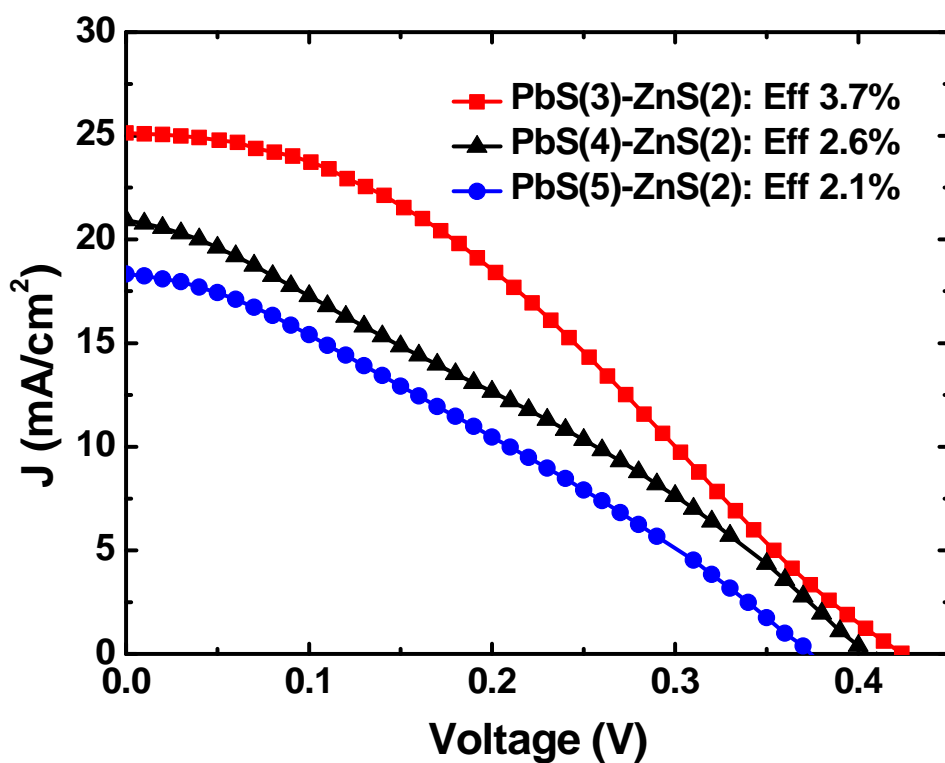


Fig. S3 J - V curves of PbS sensitized solar cells as a function of PbS SILAR cycles.

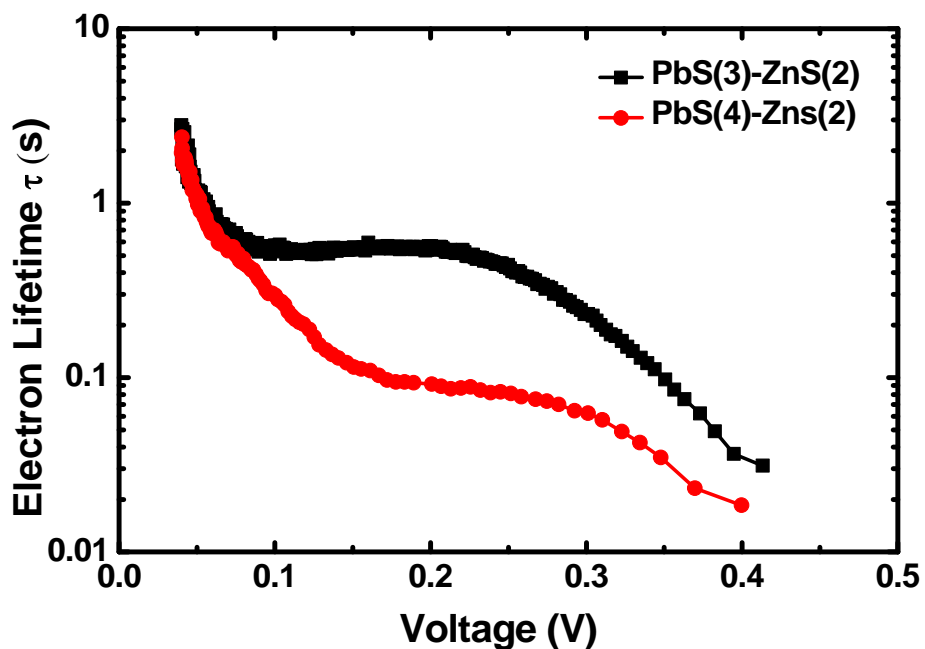


Fig. S4 Electron Lifetime calculated from open-circuit voltage decay of PbS-sensitized solar cells prepared with 3 and 4 SILAR cycles.

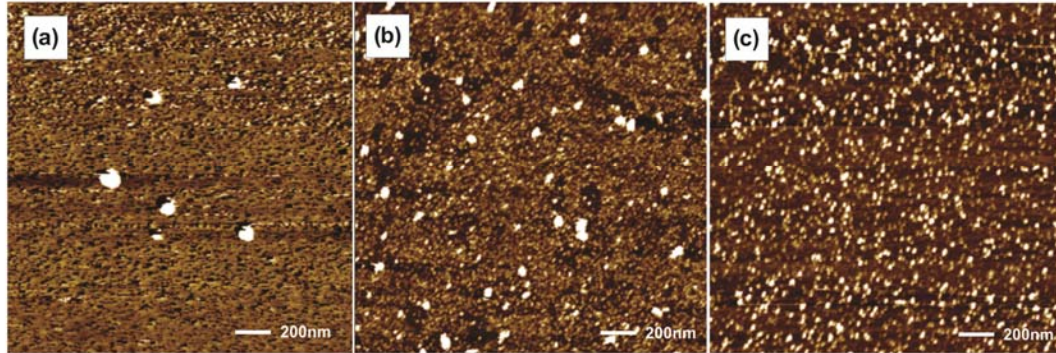


Fig. S5 AFM images of PbS (3 cycles) and ZnS (2 cycles) films deposited by SILAR at (a) 10 °C, (b) 30 °C, and (c) 50 °C. Quantum dots were deposited on thin TiO₂ film formed on HF-etched Si wafer by atomic layer deposition. The area of images is 2×2 μm.

Table S1 Maximum peak-to-valley height of films deposited at different temperature

Sample	R _{pv} (maximum peak-to-valley height)
10 °C	101.001 nm
30 °C	34.801 nm
50 °C	15.280 nm

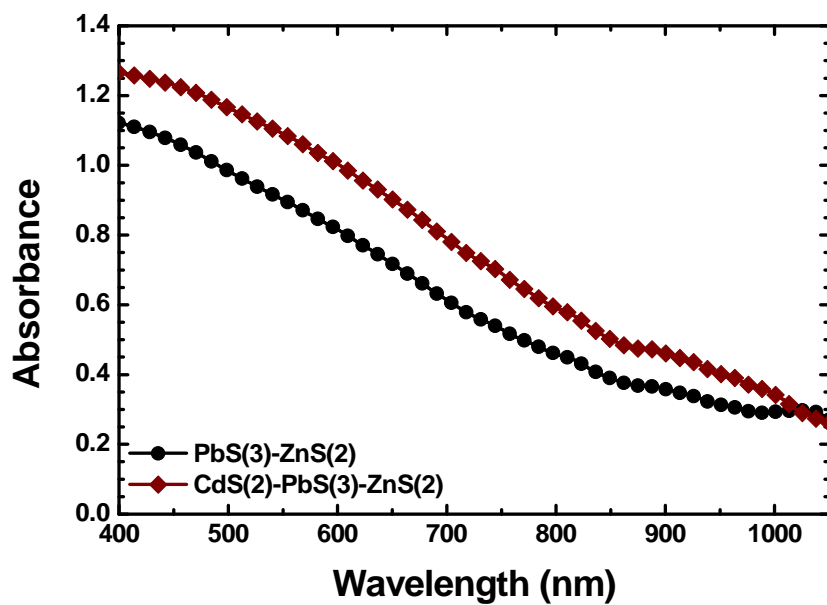


Fig. S6 UV-Vis absorption spectra of optimized PbS and CdS-PbS co-sensitized solar cells.

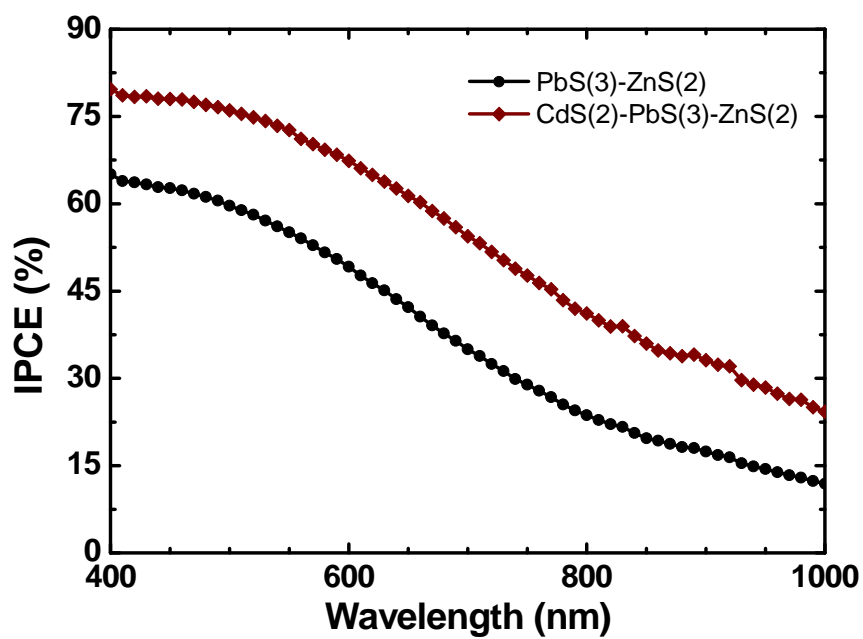


Fig. S7 IPCE spectra of optimized PbS and CdS-PbS co-sensitized solar cell.