Supporting Information

Composition-graded Zn$_x$Cd$_{1-x}$Se@ZnO Core-shell Nanowire Array Electrodes for Photoelectrochemical Hydrogen Generation

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Figure S1 Photocurrent versus voltage curve of the pristine ZnO nanowire photoanode.
The ZnSe@ZnO and CdSe@ZnO nanowire arrays were synthesized in a similar growth as that of composition-gradient structure except that only one precursor was placed inside the tube in order to obtain pure ZnSe and CdSe shell nanolayers. The Zn\textsubscript{x}Cd\textsubscript{1-x}Se@ZnO nanocable array with x about 0.5 was synthesized by a vertical deposition method by placing the substrate (near T2 in Figure 1 where the local temperature is about 500 °C) facing the incoming flux of the carrier gas with ZnCdSe vapor, similar to the Ref [1]. Their Photocurrent density-voltage characteristics are shown in Fig. S2.

![Figure S2](image)

**Figure S2** Photocurrent density-voltage characteristics of the PEC photoanodes based on the ZnSe@ZnO, Zn\textsubscript{x}Cd\textsubscript{1-x}Se@ZnO (x~0.5), and CdSe@ZnO nanowire arrays.