

Supporting Information

The enhancement of CdS ultrathin nanosheets photocatalytic activity for water splitting via activate (001) polar facet by hydrogenation and its charge separation mechanism

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†Electronic supplementary information (ESI) available. See DOI:
<https://doi.org/xxxxxx>.

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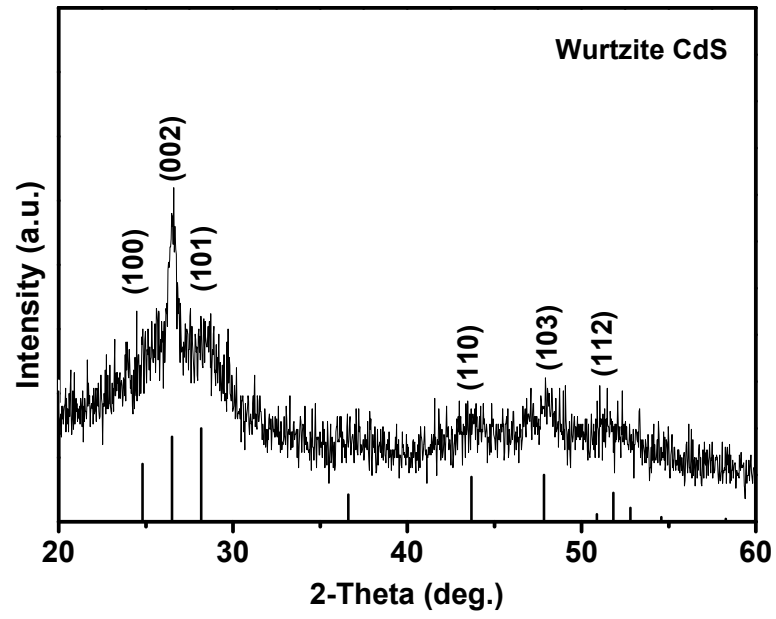


Fig. S1. XRD pattern of CdS samples after 5 cycles test.

Measurement of Mott–Schottky curve. The Mott–Schottky plots were measured in the conventional three-electrode glass cell mode on the CHI 760E electrochemical station. The concentration of Na_2SO_4 electrolyte solution is 0.5 M.

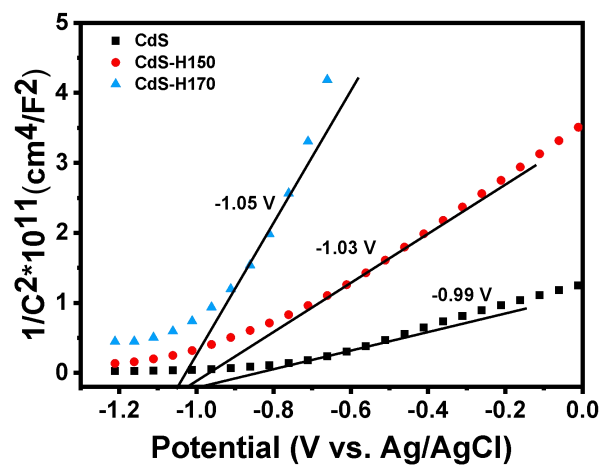
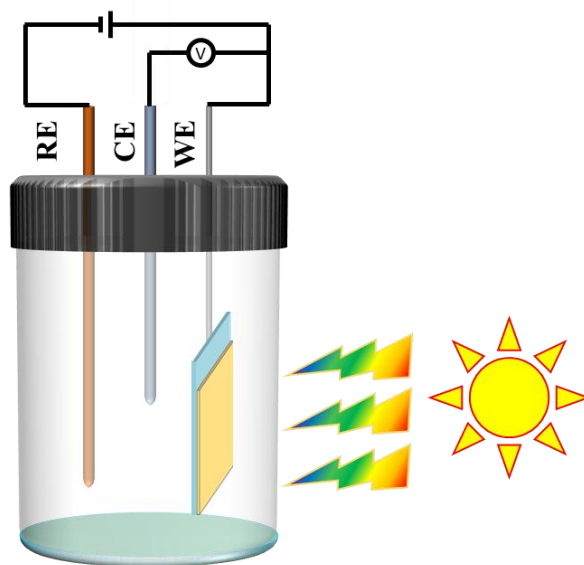


Fig. S2. Mott-Schottky plot of CdS, CdS-H150 and CdS-H170 nanosheet film.



Counter Electrode (CE) : Ag/AgCl
Reference Electrode (RE) : Calomel Electrode
Working Electrode (WE) : CdS/ITO
Electrolyte Solutions : 0.1 M Na₂SO₄

Fig. S3. Schematic diagram of photocurrent measurement device.

Table S1 The average electron emission lifetime for the CdS, CdS-H150 and CdS-H170 nanosheets.

Sample	τ_1	τ_2	τ_{av}
CdS	0.61	5.78	6.84
CdS-H150	0.79	6.17	7.05
CdS-H170	0.99	9.66	12.58