Supporting Information

Controlled Synthesis of CdS Micro/nano Leaves with (0001) Facets Exposed: Enhanced Photocatalytic Activity Toward Hydrogen Evolution

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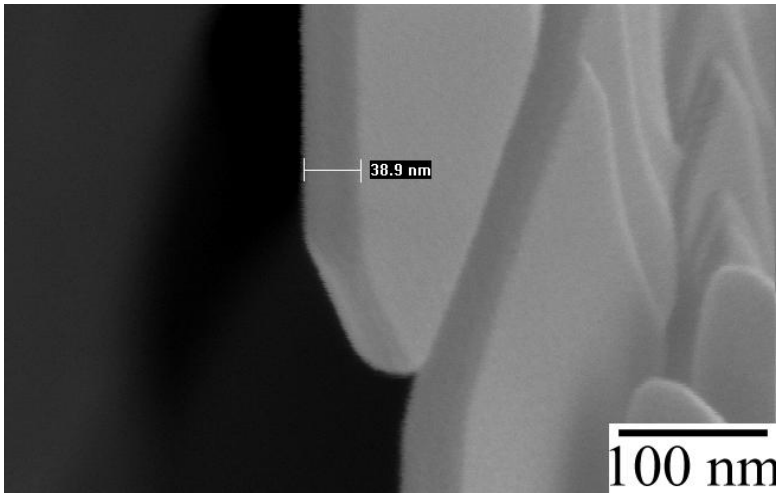

Figure S1. High-magnification SEM image of the CdS micro/nano leaves shown in Figure 1.

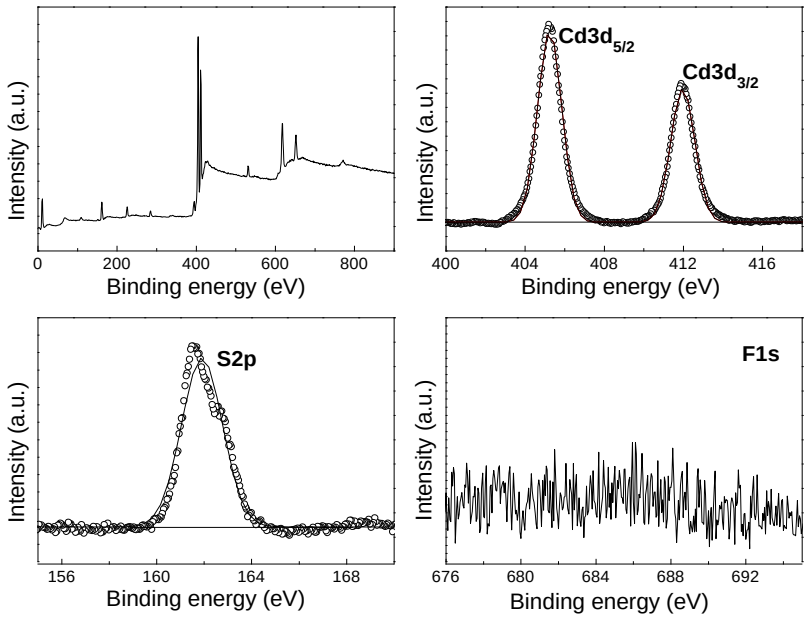

Figure S2. XPS patterns of the CdS dendrite shown in Figure 1. a) Survey spectrum. b-d) High-resolution spectra of Cd 3d5/2 and Cd 3d3/2, S 2p, F 1s.

The peaks of XPS spectra appeared at 405.1, 412.0, and 161.9 eV were corresponding to C 3d5/2, Cd 3d3/2 and S 2p, respectively. The F 1s peak was not found. This confirms that the product was pure CdS.

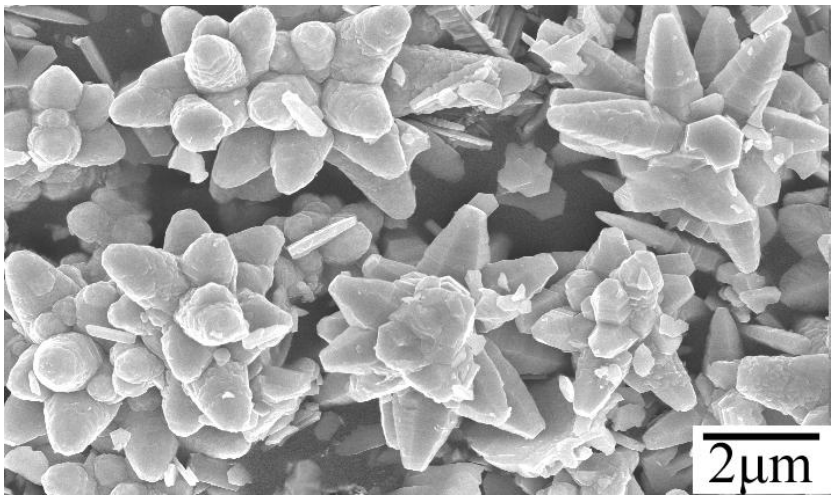

Figure S3. SEM image of CdS sample synthesized at 200 ℃ for 20 h under the concentration of 0.200 M of NH_4F, 0.0625 M of cadmium acetate and 0.075 M of thiourea.

Table S1. Specific surface area and photocatalytic activity of CdS samples ((a)-(d) were the same samples with Figure 2 a-d).

Samples	Specific surface area (m^2g^{-1})	H_2 generation rate ($\mu molh^{-1}$)
(a)	0.9	119.0
(b)	3.6	468.4
(c)	5.4	740.9
(d)	3.8	192.8
Figure S4	12.8	45.9

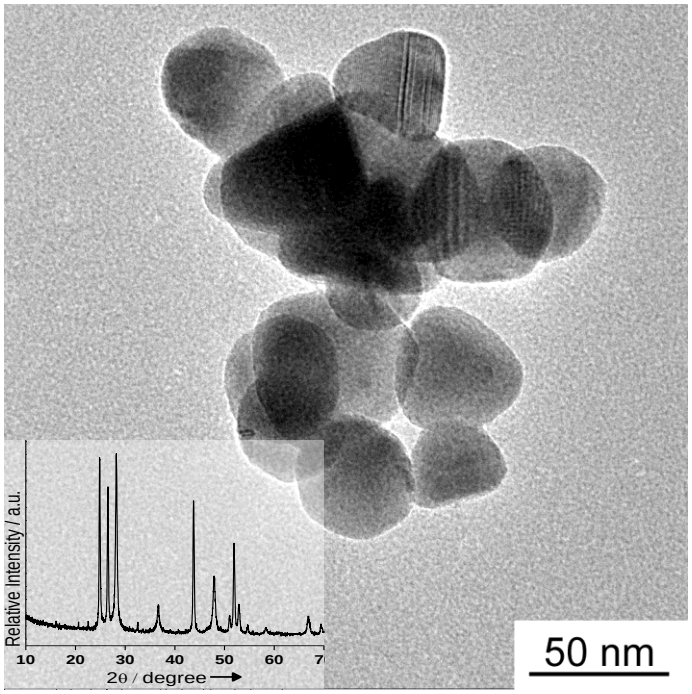

Figure S4. TEM image and XRD pattern of CdS nanoparticles.

The CdS nanoparticles were prepared as follows: an aqueous solution of Na_2S (533 ml, 0.14 M) was added slowly to $Cd(CH_3COO)_2$ solution (667 ml, 0.14 M) under vigorous stirring. The yellow mixture was stirred for 24 h and kept for an additional 24 h. The resulting yellow slurry was filtered. The wet solid was suspended in pure water (80 ml) and transferred to a 100 ml Teflon autoclave and heated at 200 ℃ for 72 h. The precipitate obtained was filtered and washed several times with water and absolute ethanol, and dried under vacuum at 95 ℃ for 24 h.