

## Supporting Information

### Metallic 1T Phase MoS<sub>2</sub> Nanosheets as Highly Efficient Co-catalyst for the Photocatalytic Hydrogen Evolution of CdS Nanorods

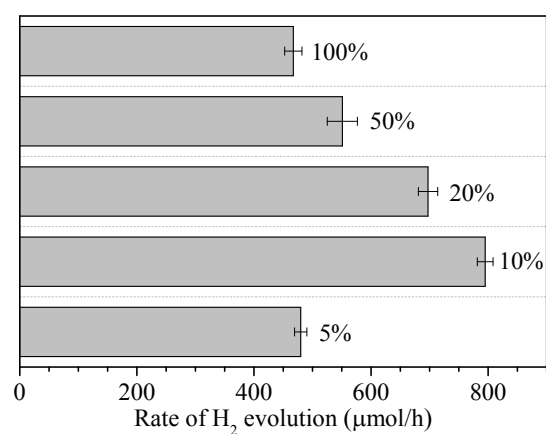


Figure S1. H<sub>2</sub> evolution rate over photocatalysts with different weight ratio of 1T-MoS<sub>2</sub> to CdS NRs.

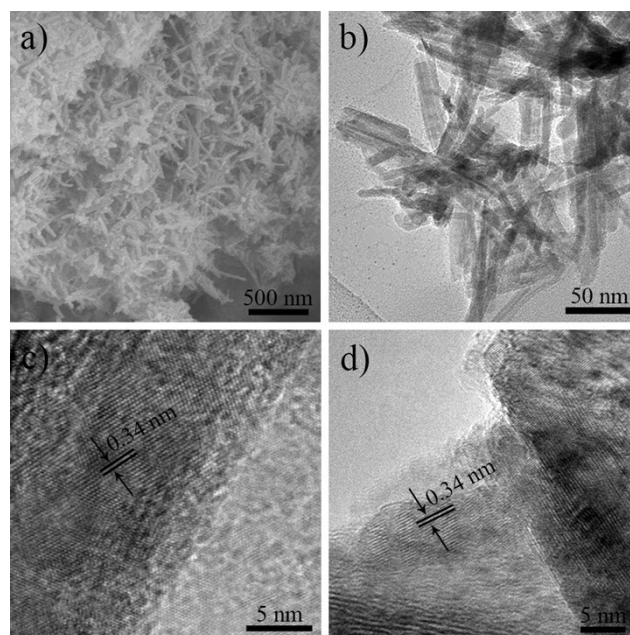


Figure S2. (a) SEM image of CdS NRs and (b) TEM image of CdS NRs. HRTEM images of (c) 1T-MoS<sub>2</sub>/CdS NRs and (d) 2H-MoS<sub>2</sub>/CdS NRs.

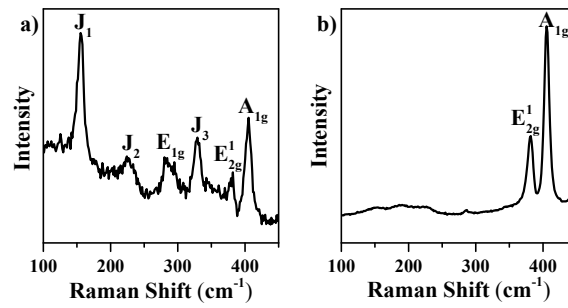


Figure S3. Raman spectra of (a) 1T-MoS<sub>2</sub> and (b) 2H-MoS<sub>2</sub>.

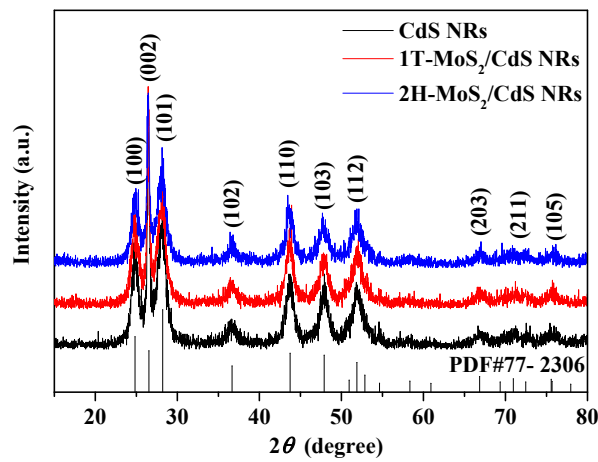


Figure S4. XRD patterns of CdS NRs, 1T-MoS<sub>2</sub>/CdS NRs and 2H-MoS<sub>2</sub>/CdS NRs.

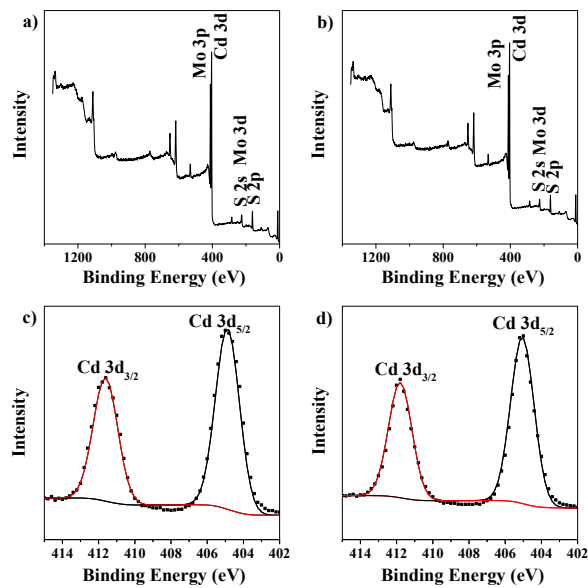


Figure S5. XPS survey spectra of (a) 1T-MoS<sub>2</sub>/CdS NRs and (b) 2H-MoS<sub>2</sub>/CdS NRs. The high-resolution XPS spectra of Cd (3d) of (c) 1T-MoS<sub>2</sub>/CdS NRs and (d) 2H-MoS<sub>2</sub>/CdS NRs.

