Supporting information

A Highly Efficient Composite Catalyst (Au/Ta_3N_5)/CdS for Photocatalytic Hydrogen Production

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This supporting information includes:

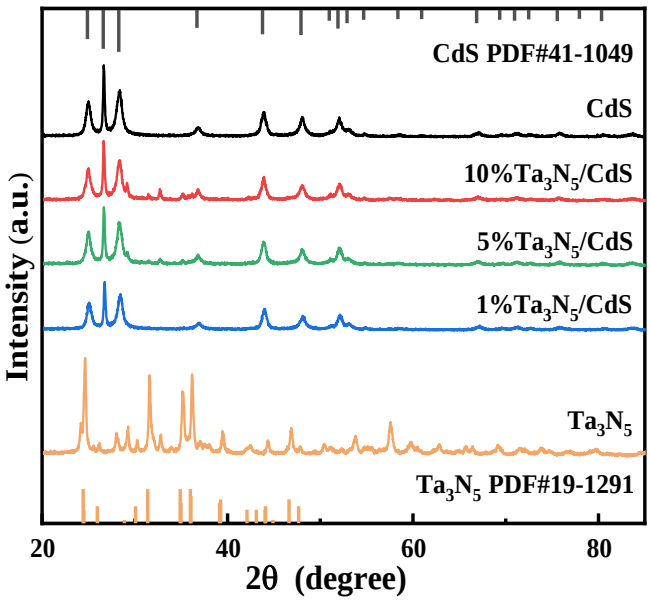

Figure S1. XRD patterns of different samples. The loading amounts of Au are 1%. The loading amounts of Ta_3N_5 in (Au/Ta_3N_5)/CdS are 1%. The loading amount of Ta_3N_5 both in (Au/Ta_3N_5)/CdS and Ta_3N_5/CdS is 10%.

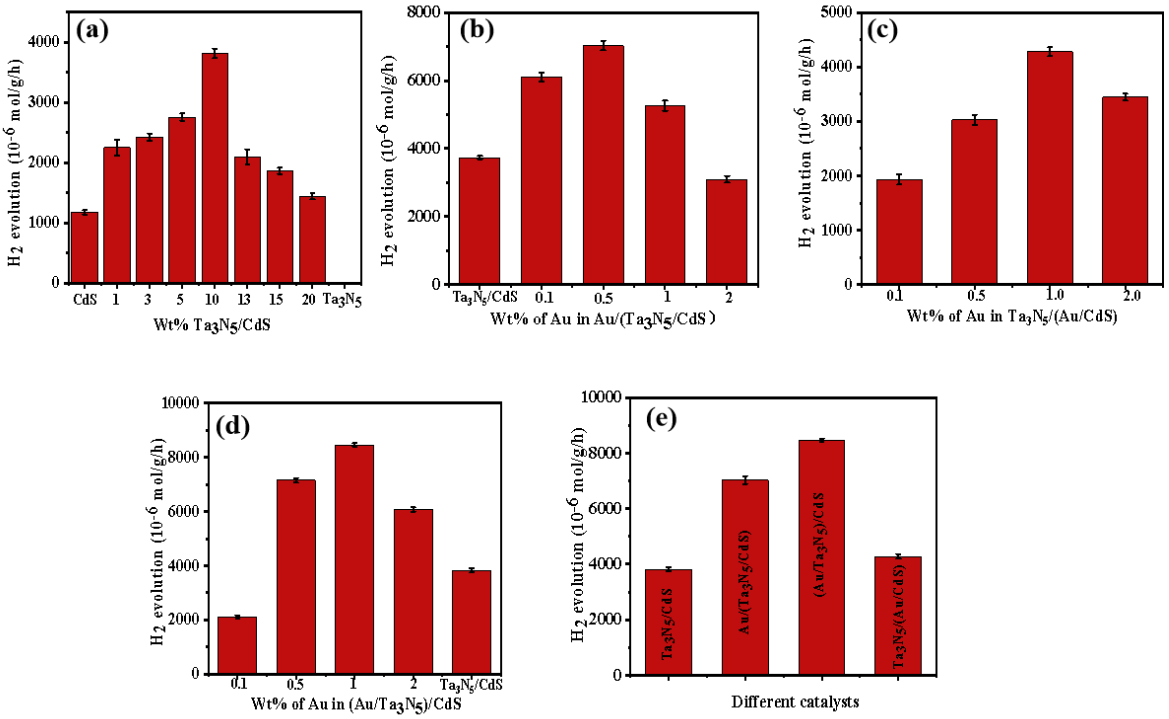

Figure S2. Photocatalytic H_2 evolution on different amount of Ta_3N_5 loaded on CdS (a), different amount of Au loaded on Ta_3N_5/CdS (b), different amount of Au in Ta_3N_5(Au/CdS) (c), different amount of Au in (Au/Ta_3N_5)/CdS (d) and comparison of activity of composite catalysts (d).

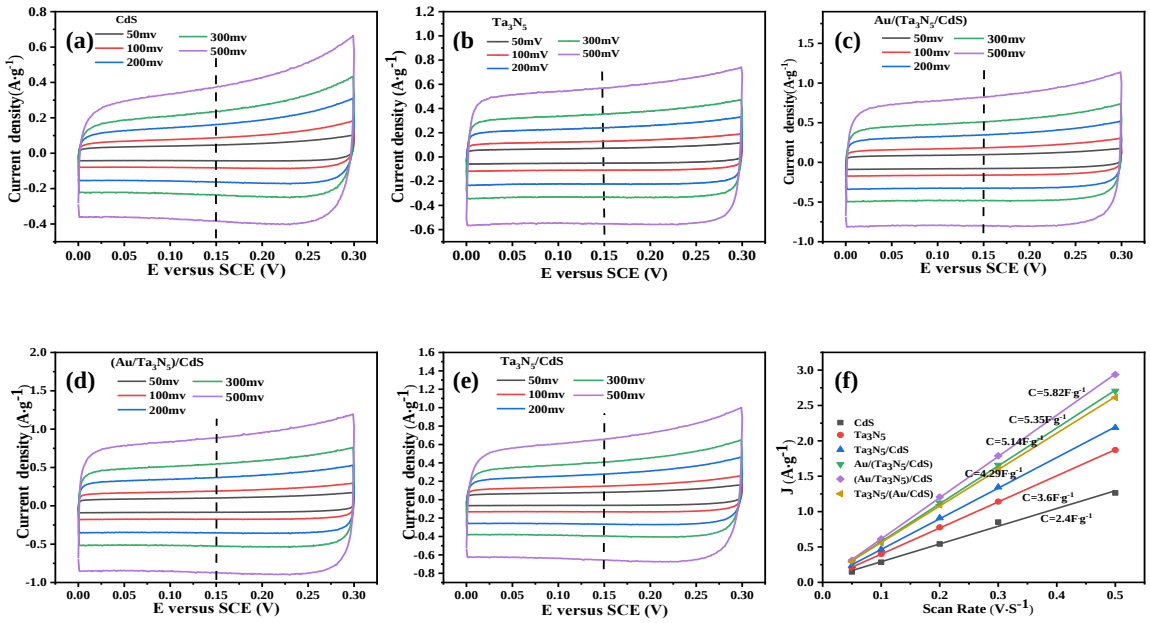

Figure S3. Plot of CV curves of CdS (a), Ta_3N_5 (b), Au/(Ta_3N_5/CdS) (c), (Au/Ta_3N_5)/CdS (d), Ta_3N_5/CdS (e), plot of the capacitance density from the CV curves (f).

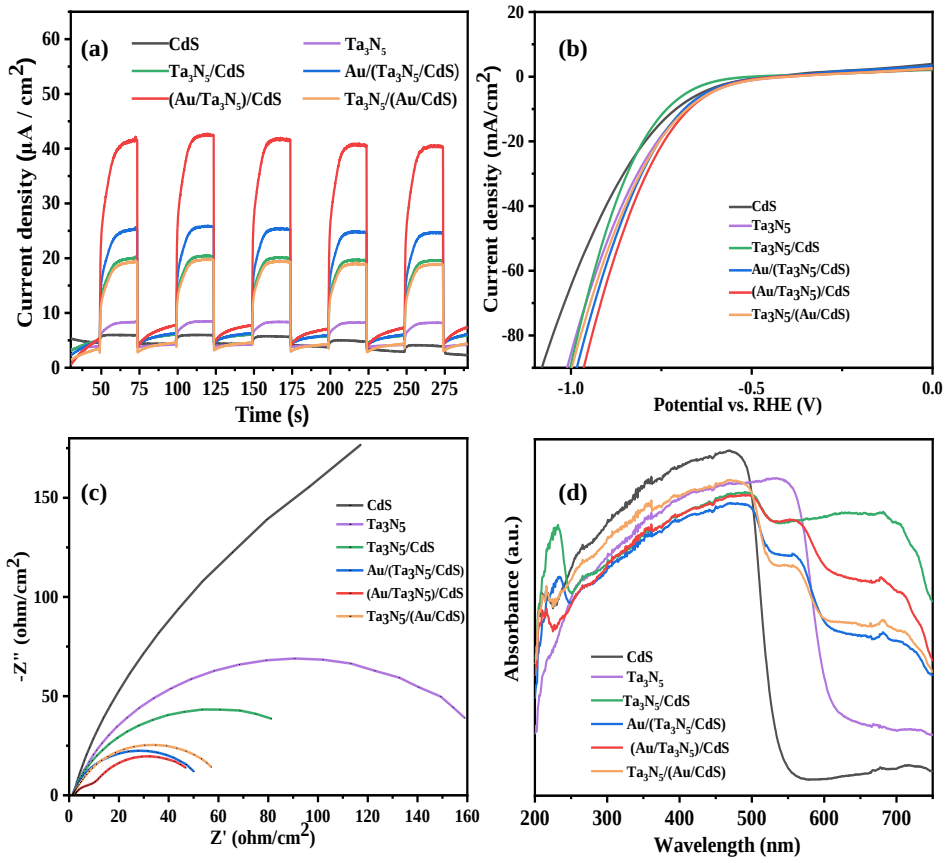

Figure S4. Transient photocurrent responses (a), linear sweep voltammetry curves (b), electrochemical impedance spectra (c) and UV-vis DRS (d) of CdS, Ta_3N_5, Ta_3N_5/CdS, Au/(Ta_3N_5/CdS), (Au/Ta_3N_5)/CdS and (Au/Ta_3N_5)/CdS. The loading amounts of Au is 1%. The loading amounts of Ta_3N_5 is 10%.

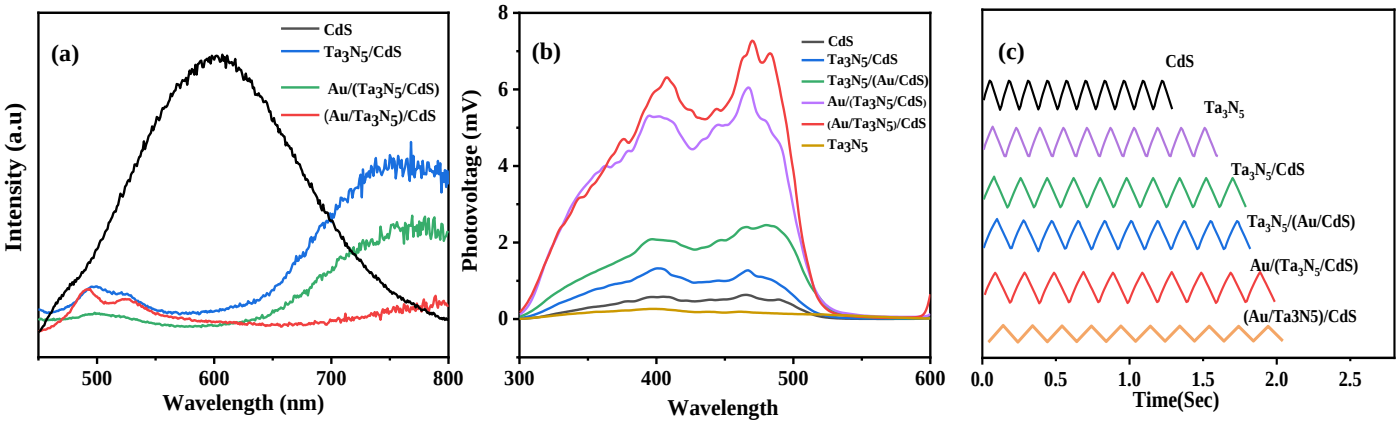

Figure S5. PL spectra of CdS, Ta_3N_5/CdS, Au/(Ta_3N_5/CdS) and (Au/Ta_3N_5)/CdS (a), surface photovoltage spectra (b) and CV curves (c) of CdS, Ta_3N_5,Ta_3N_5/CdS, Ta_3N_5/(Au/CdS), (Au/Ta_3N_5)/CdS and (Au/Ta_3N_5)/CdS.