Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information

Gold Nanorods Coated by Oxygen-Deficient TiO_2 as an Advanced Photocatalyst for Hydrogen Evolution

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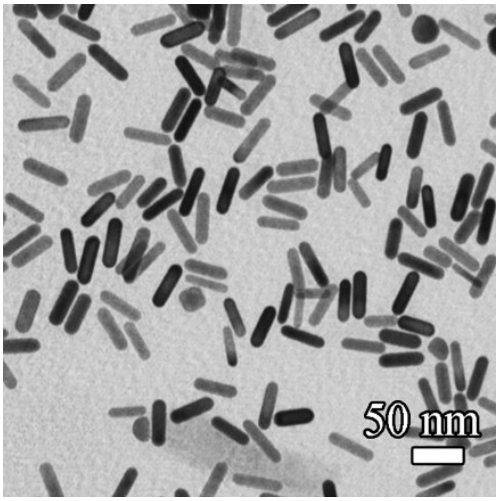


Fig. S1 TEM image of Au nanorods.

Sample	Au@TiO_2	Au@A-TiO_2	Au@H-TiO_2
Surface area/($m^2 \cdot g^{-1}$)	366.077	57.325	56.830

Table. S1 Specific surface area of different samples.

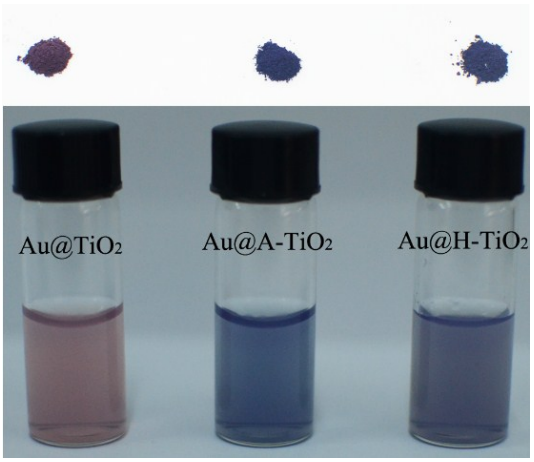


Fig. S2 Real-color picture of the powders (upper panel) and suspensions (bottom panel) of Au@TiO_2, Au@A-TiO_2, and Au@H-TiO_2.

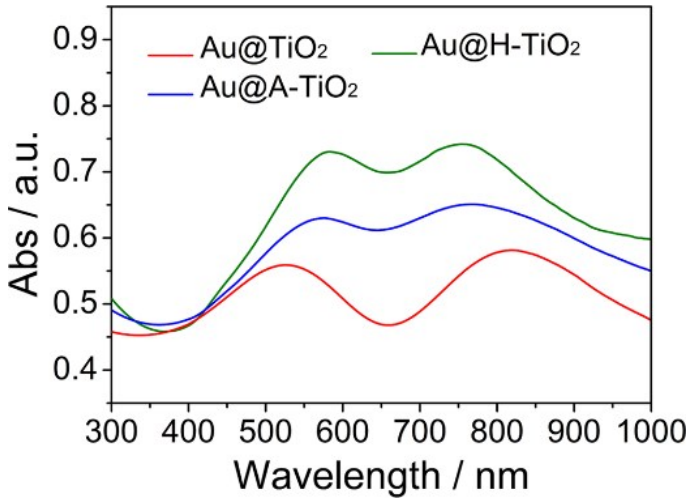


Fig. S3 UV-Vis diffuse reflectance spectra (DRS) of Au@TiO_2, Au@A-TiO_2, and Au@H-TiO_2 nanorods.

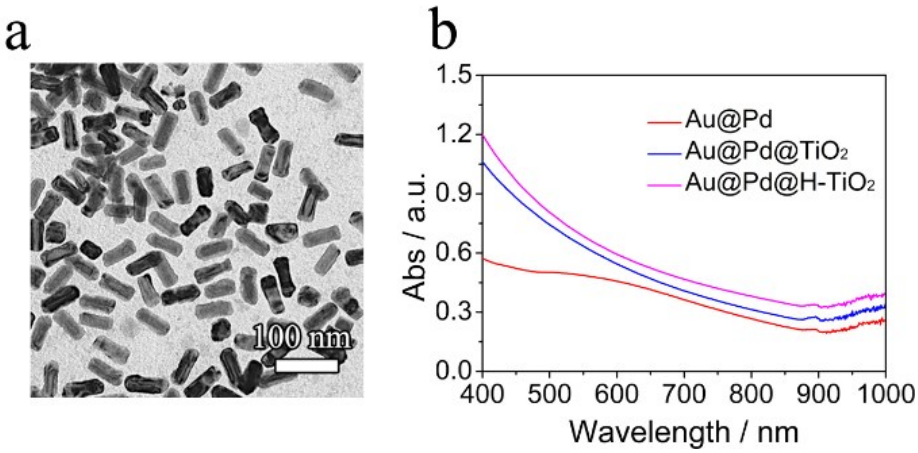


Fig. S4 TEM images of (a) Au@Pd nanorods, and (b) the absorption spectra of Au@Pd, Au@Pd@TiO_2 and Au@Pd@H-TiO_2 nanorods.

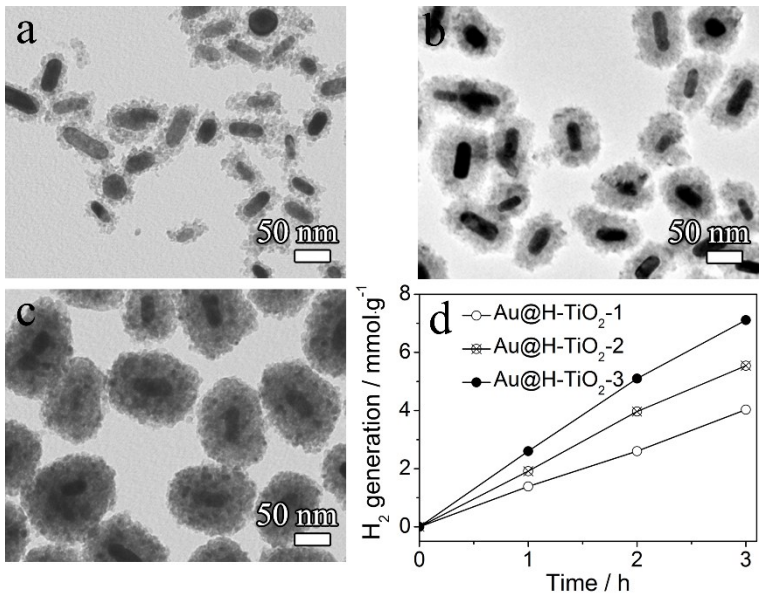
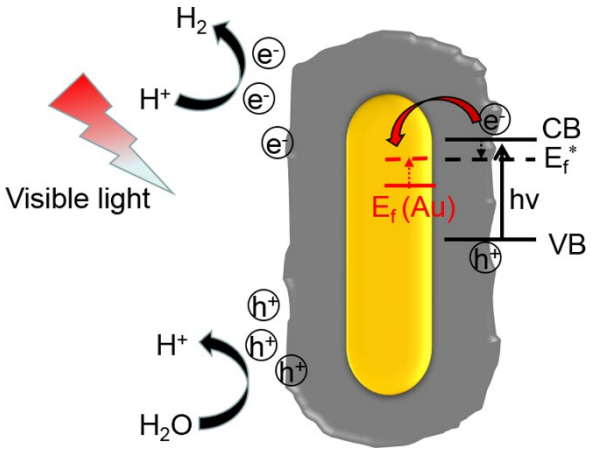


Fig. S5 TEM images of Au@H-TiO_2 samples with different shell thickness (a-c) (labeled as Au@H-TiO_2-1, Au@H-TiO_2-2, Au@H-TiO_2-3 with increasing shell thickness). (d) Generation rate of H_2 by different catalysts under visible-light irradiation (λ>400 nm).



Scheme S1 Schematic illustration of proposed mechanism for H_2 evolution and electron transfer pathways in Au@H-TiO_2.

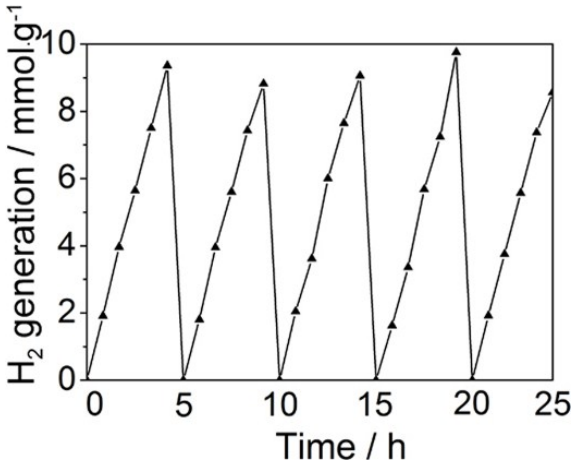


Fig. S6 Recycling measure of hydrogen generation through photocatalytic water splitting with Au@H-TiO_2 under visible irradiation.

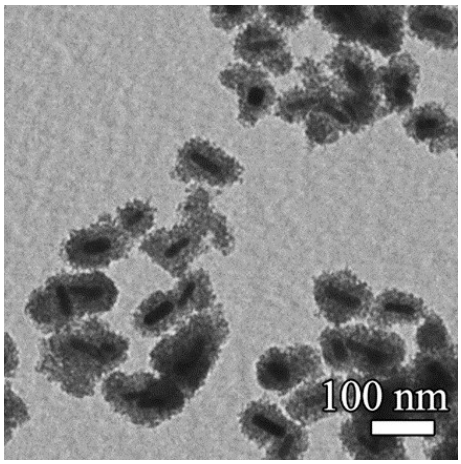


Fig. S7 TEM images of the Au@H-TiO_2 samples after Xe light illumination.