

Electronic Supplementary Material (ESI) for RSC Advances.

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Supporting information

**The Flower-like hydrogen titanate nanosheets: preparation,  
characterization and their photocatalytic hydrogen production  
performance in the presence of Pt cocatalyst**

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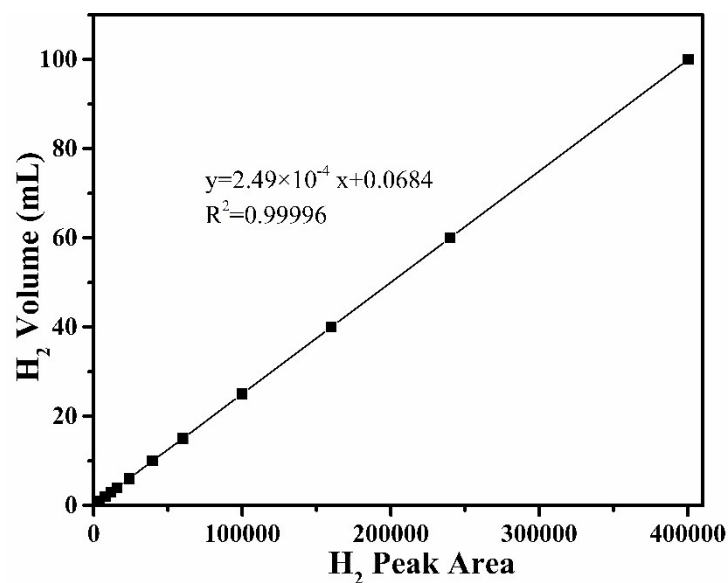


Figure S1. H<sub>2</sub> standard curve of HTO.

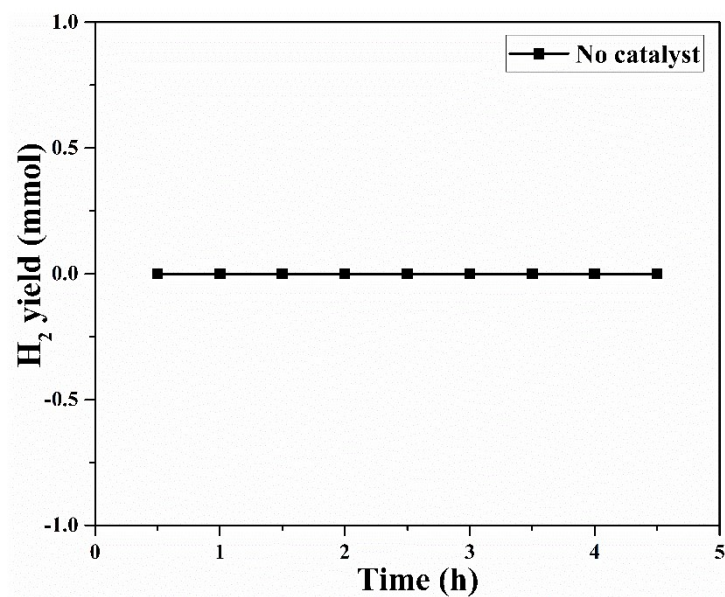


Figure S2. Control experiments for photocatalytic H<sub>2</sub> production in the absence of photocatalyst.

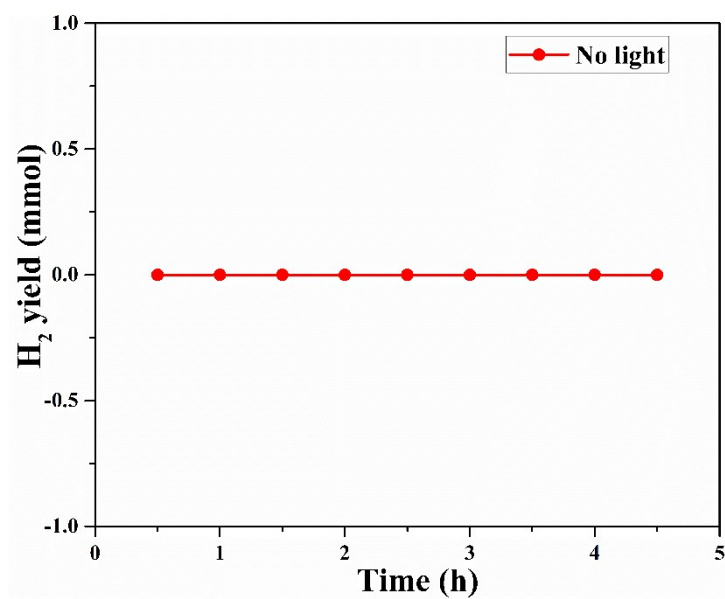


Figure S3. Control experiments for photocatalytic H<sub>2</sub> production in the absence of irradiation.

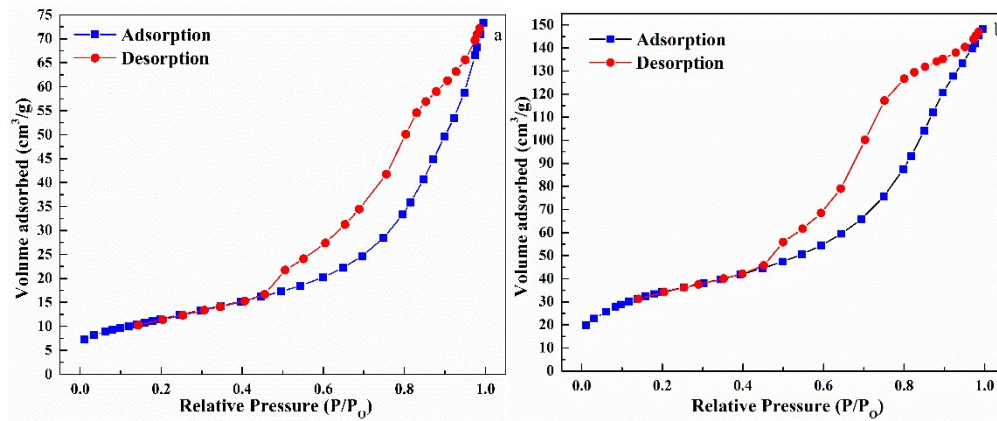


Figure S4. N<sub>2</sub> adsorption-desorption isotherms of HTO\* (a) and HTO (b).

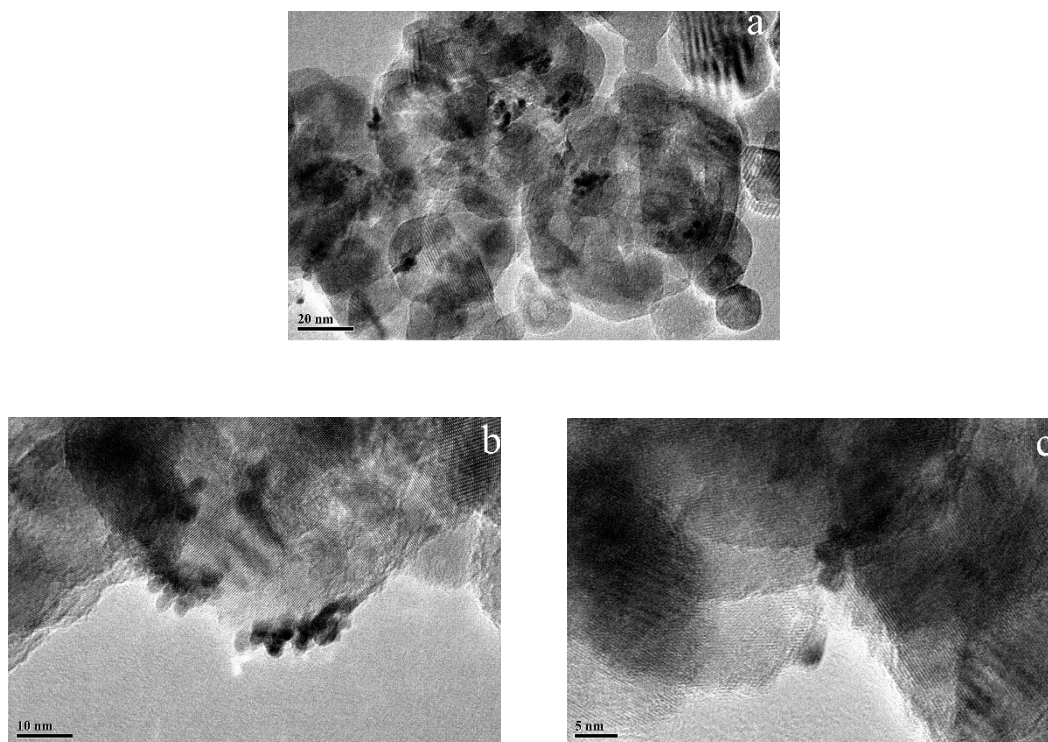


Figure S5. TEM images of commercial P25 with 0.5 wt.% Pt cocatalyst (a-c).

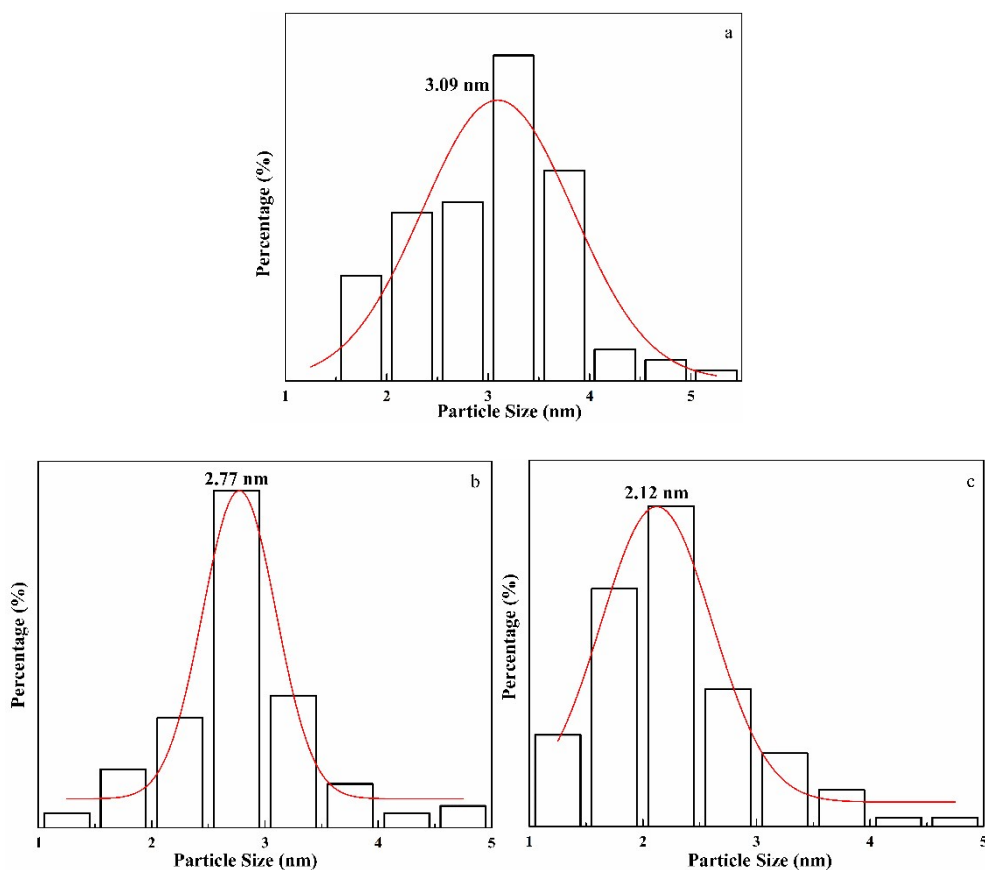


Figure S6. Pt-particle size distribution histograms of commercial P25 (a), HTO\* (b) and HTO (c).

Table S1. Comparison of the photocatalytic activity for H<sub>2</sub> evolution between HTO catalysts and other reports about TiO<sub>2</sub> catalyst.

Catalyst	Morphology	Cocatalyst	Reactant solution	H <sub>2</sub> evolution rate (mmol·g <sup>-1</sup> ·h <sup>-1</sup> )	Ref.
TiO <sub>2</sub>	Nanoparticles	Pt (2 wt.%)	Water/ethanol	0.85	[1]
TiO <sub>2</sub>	Nanosheets	Pt (4 wt.%)	Water/ethanol	1.54	[1]
TiO <sub>2</sub>	Nanotubes	Pt (5 wt.%)	Water/ethanol	14.5	[2]
TiO <sub>2</sub>	Mesoporous microspheres	Pt (1 wt.%)	Water/methano 	12.6	[3]
TiO <sub>2</sub>	Commercial P25	Pt (0.5 wt.%)	Water/methano 	6.1	[4]
TiO <sub>2</sub>	Nanocrystal	Pt (1 wt.%)	Water/methano 	0.12	[5]
TiO <sub>2</sub>	Single-crystal	Pt (1 wt.%)	Water/methano 	0.21	[6]
TiO <sub>2</sub>	Nanorods	Pt (1 wt.%)	Water/methano 	1.44	[7]
Au/TiO <sub>2</sub>	Nanoparticles	Pt (1 wt.%)	Water/methano 	3.11	[8]

HTO	Nanosheets	Pt (0.5 wt.%)	Water/methano 	9.28	This work
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**Reference:**

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