

## Supplementary Information

### **Novel yet simple strategy to fabricate visible light responsive C,N-TiO<sub>2</sub>/g-C<sub>3</sub>N<sub>4</sub> heterostructures with significantly enhanced photocatalytic hydrogen generation**

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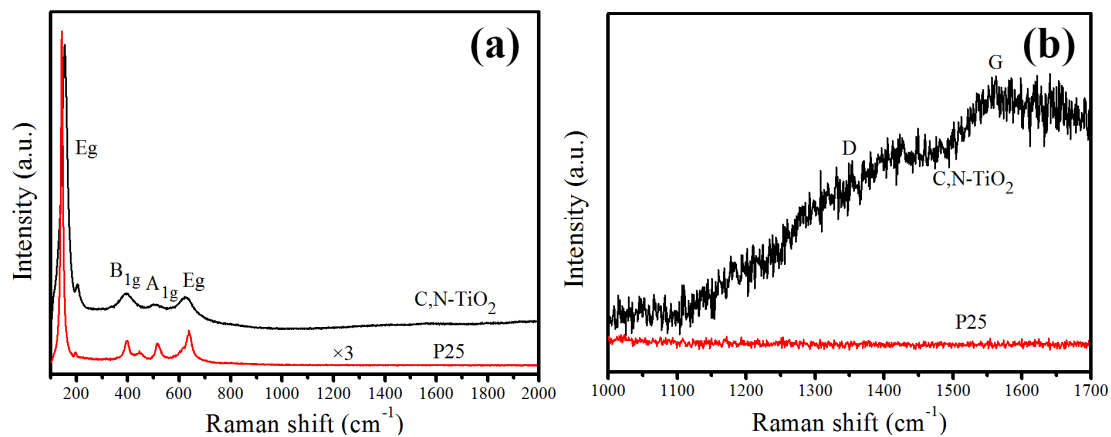
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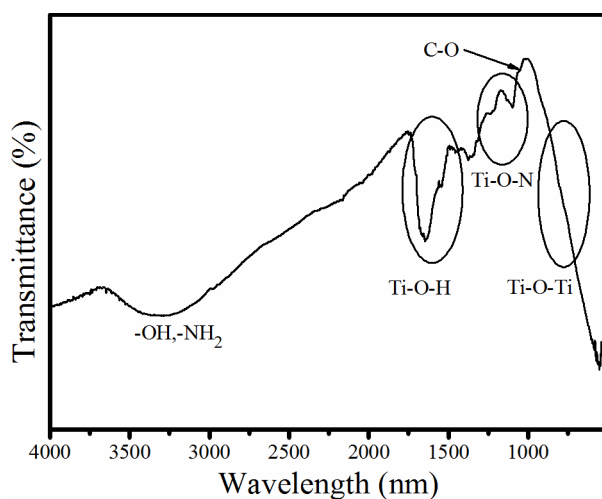
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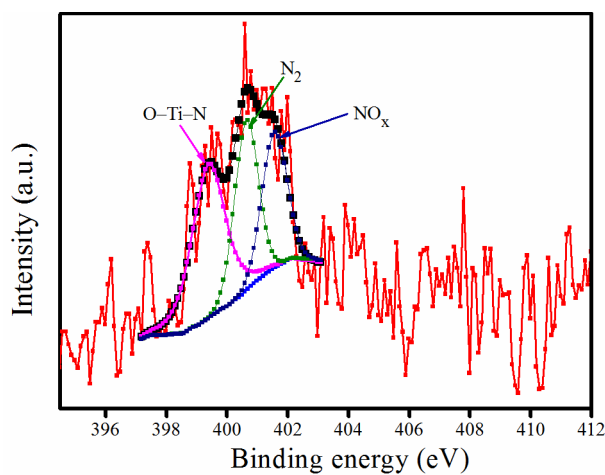
smchen78@ms15.hinet.net(S.M. Chen;)



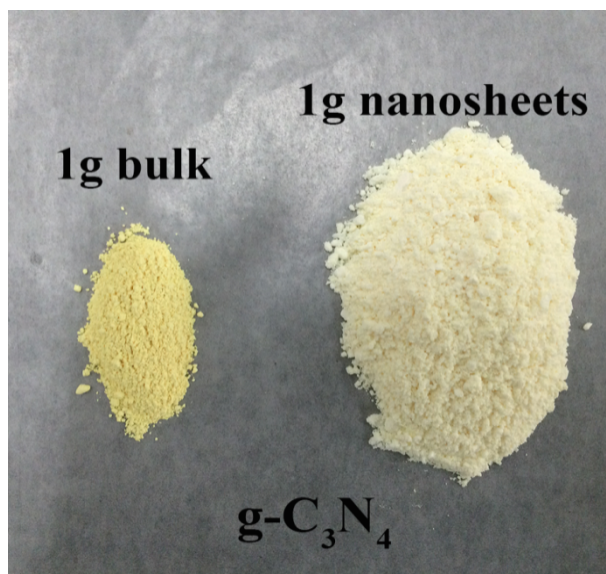
**Figure S1.** (a) Raman profiles of the C<sub>3</sub>N-TiO<sub>2</sub> NPs sample and P25 sample, (b) D and G bands in the higher frequency region.



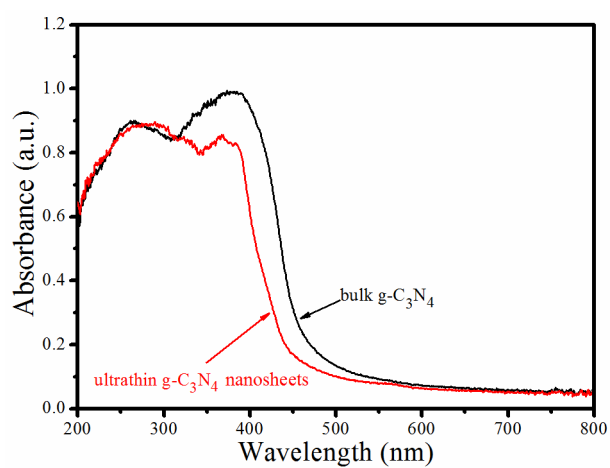
**Figure S2.** Typical FT-IR spectra of C<sub>3</sub>N-TiO<sub>2</sub> NPs sample.



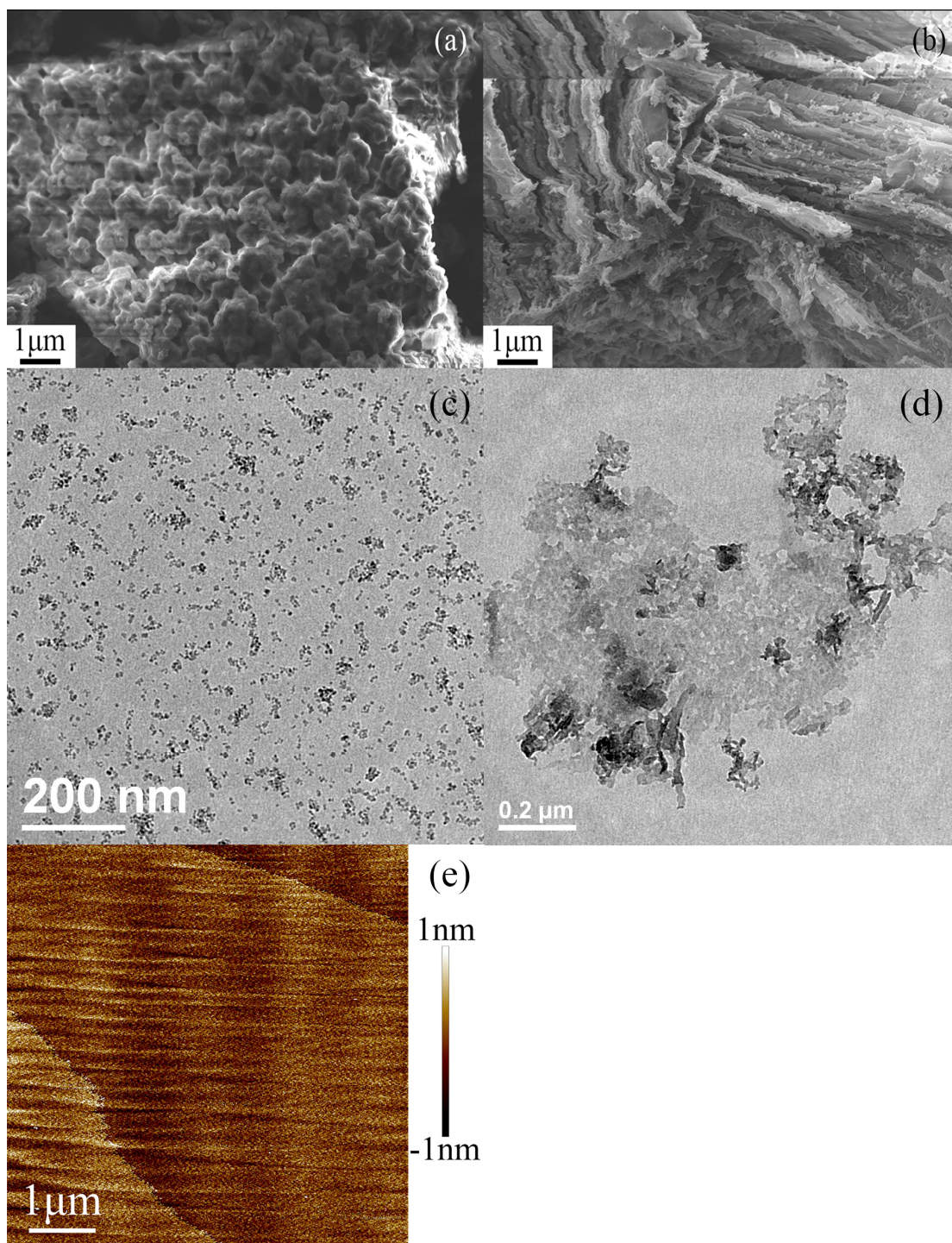
**Figure S3.** XPS spectra of C<sub>3</sub>N-TiO<sub>2</sub> NPs at the N 1s region.



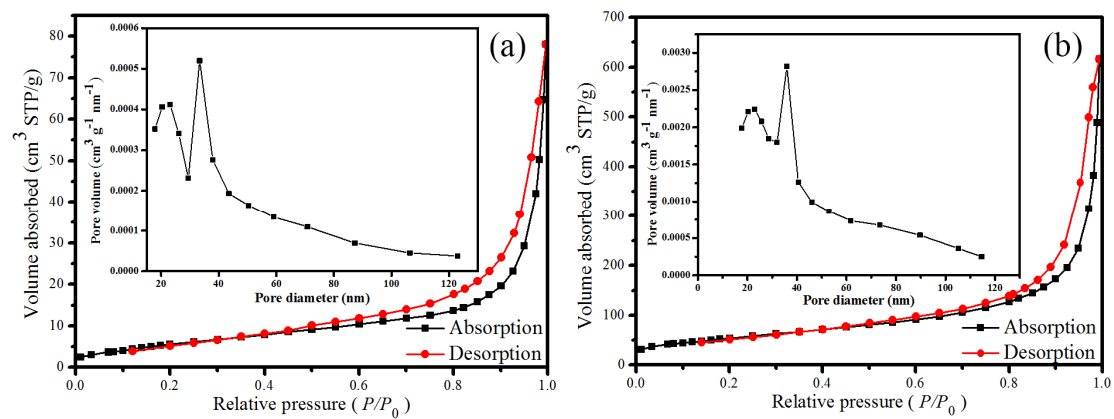
**Figure S4.** Digital photograph of bulk  $g\text{-C}_3\text{N}_4$  and porous  $g\text{-C}_3\text{N}_4$  ultrathin NSs.



**Figure S5.** UV-vis diffuse reflectance spectra of bulk  $g\text{-C}_3\text{N}_4$  and ultrathin  $g\text{-C}_3\text{N}_4$  NSs.



**Figure S6.** Typical FE-SEM images of (a) bulk  $\text{g-C}_3\text{N}_4$ , (b) ultrathin  $\text{g-C}_3\text{N}_4$  NSs, TEM images of (c)  $\text{C,N-TiO}_2$  NPs and (d)  $\text{g-C}_3\text{N}_4$  NSs, and (e) AFM of  $\text{g-C}_3\text{N}_4$  NSs.



**Figure S7.** N<sub>2</sub> adsorption-desorption isotherms and pore size distribution curves (inset) of (a) bulk g-C<sub>3</sub>N<sub>4</sub> and (b) ultrathin g-C<sub>3</sub>N<sub>4</sub> NSs.