

## Supporting information

# Photocatalytic Reactivity of {121} and {211} Facets of Brookite TiO<sub>2</sub> Crystals

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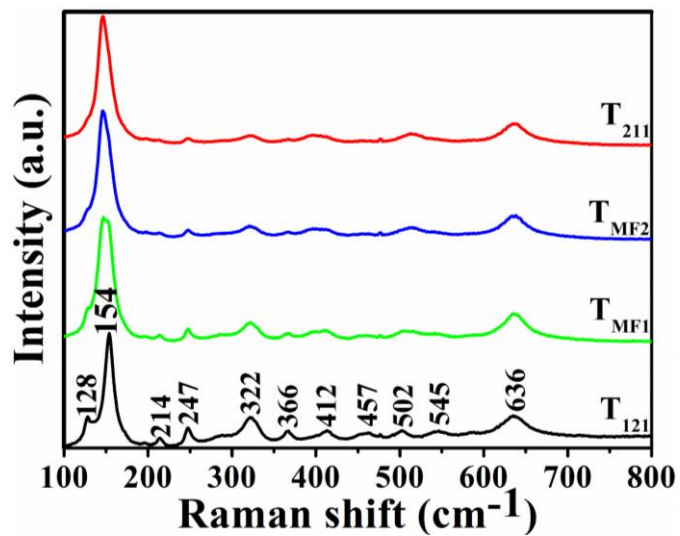
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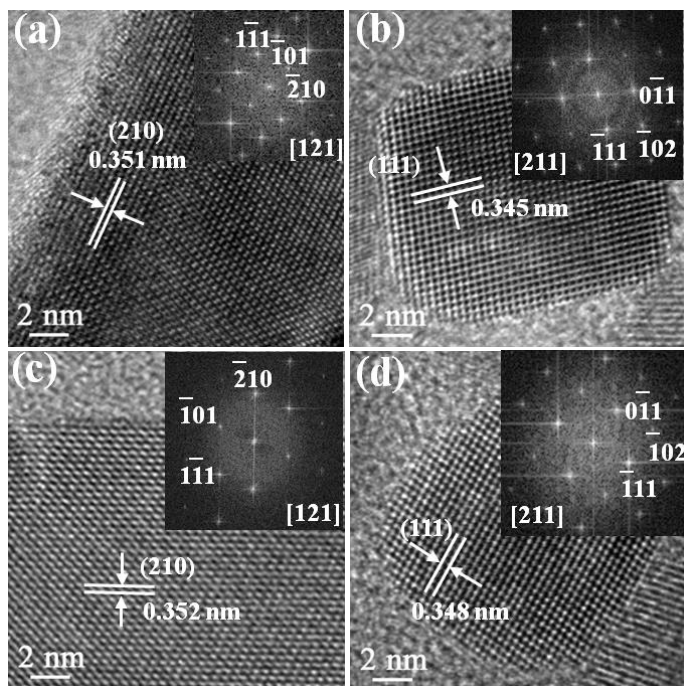
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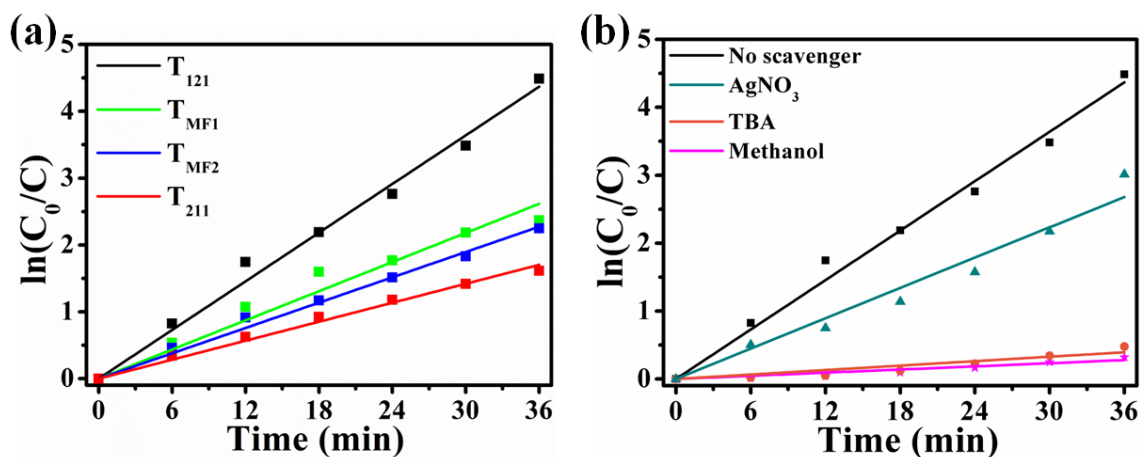
## Supporting Figures



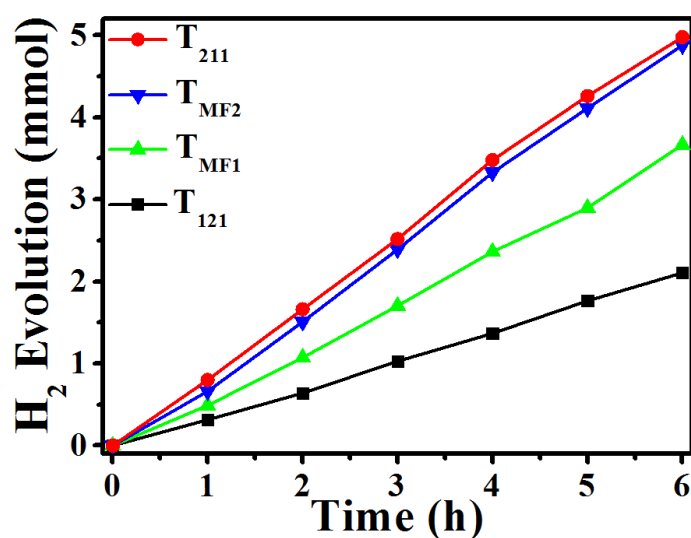
**Fig. S1** Raman spectra of  $T_{121}$ ,  $T_{MF1}$ ,  $T_{MF2}$  and  $T_{211}$ .



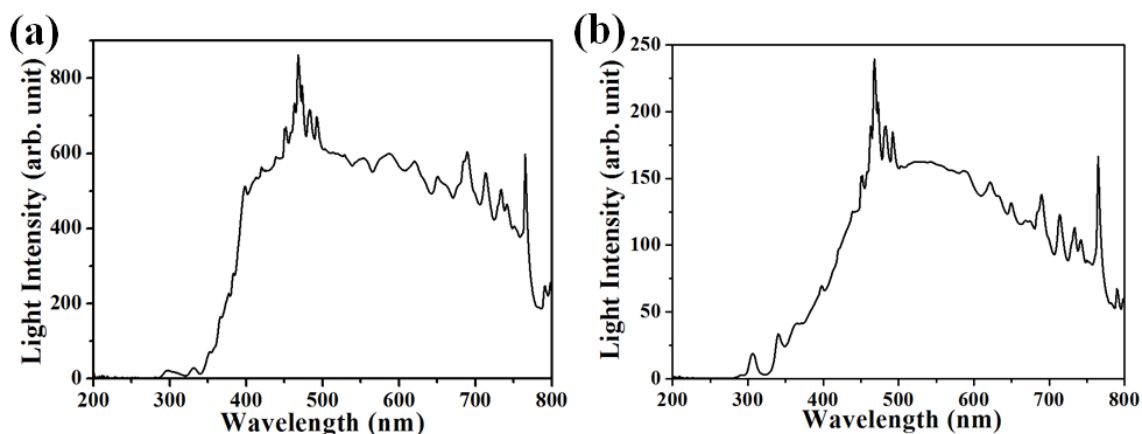
**Fig. S2** (a, b) HRTEM image and FFT pattern (inset) of  $T_{MF1}$ . (c, d) HRTEM image and FFT pattern (inset) of  $T_{MF2}$ .



**Fig. S3** (a) The pseudo-first-order degradation rate constants of RhB over the brookite  $\text{TiO}_2$  samples under UV-visible light irradiation ( $\lambda > 300$  nm). (b) The pseudo-first-order degradation rate constants of RhB over  $\text{Ti}_{121}$  in the presence of various scavengers under UV-visible light irradiation ( $\lambda > 300$  nm).



**Fig. S4** Comparison of photocatalytic activities of  $\text{H}_2$  evolution over 0.5% Pt-loaded  $\text{TiO}_2$  samples with the same mass of 100 mg under UV-visible light irradiation ( $\lambda > 300$  nm).



**Fig. S5** Light spectra of the Xe lamp (a) and AM 1.5 solar simulation (b).