

## Supplementary Information

### Photocatalytic degradation of PET microfibers and hydrogen evolution by the $\text{Ni}_5\text{P}_4/\text{TiO}_2/\text{C}$ NFs

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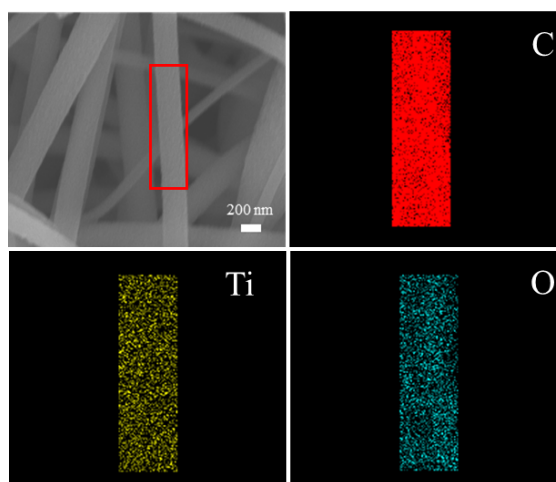


Fig. S1 The corresponding element mapping of the marked area in  $\text{TiO}_2/\text{C}$  NFs.

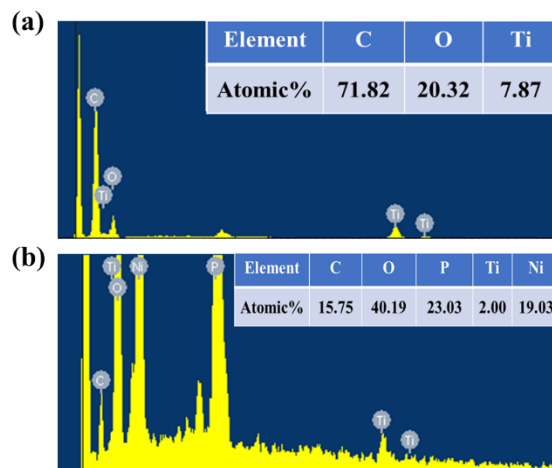


Fig. S2 EDX analysis of (a) TiO<sub>2</sub>/C NFs and (b) Ni<sub>5</sub>P<sub>4</sub>/TiO<sub>2</sub>/C NFs

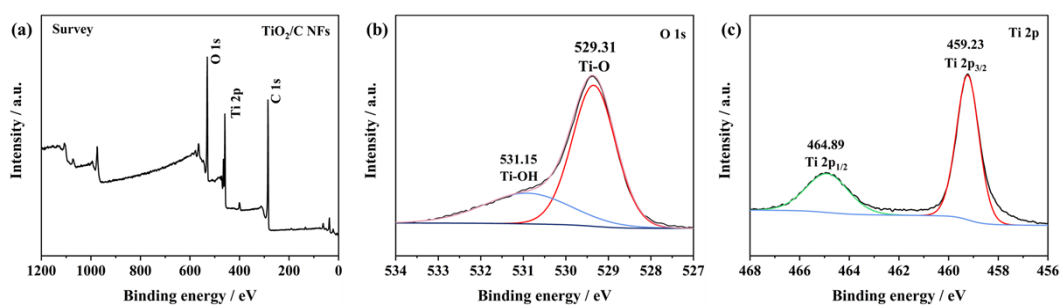


Fig. S3 XPS characterization of TiO<sub>2</sub>/C NFs: (a) survey spectrum, (b) O 1s region and (c) Ti 2p region.

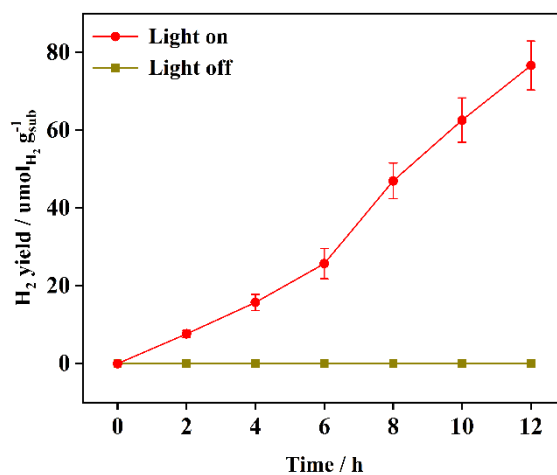


Fig. S4 Photocatalysis of PET microfibers with Ni<sub>5</sub>P<sub>4</sub>/TiO<sub>2</sub>/C NFs under light and no-light conditions.

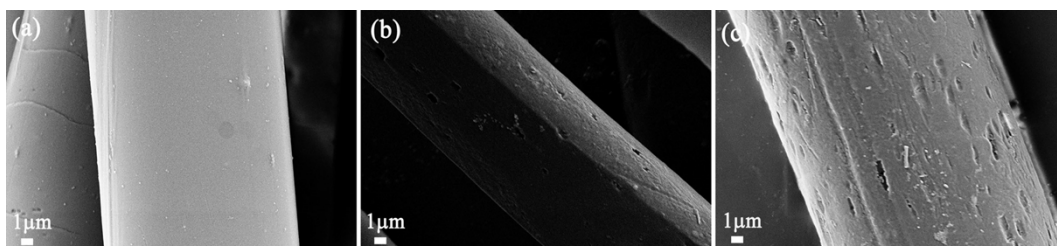


Fig. S5 SEM image of PET microfibers (a) unprocessed original, (b) pre-treated, (c) photocatalyzed

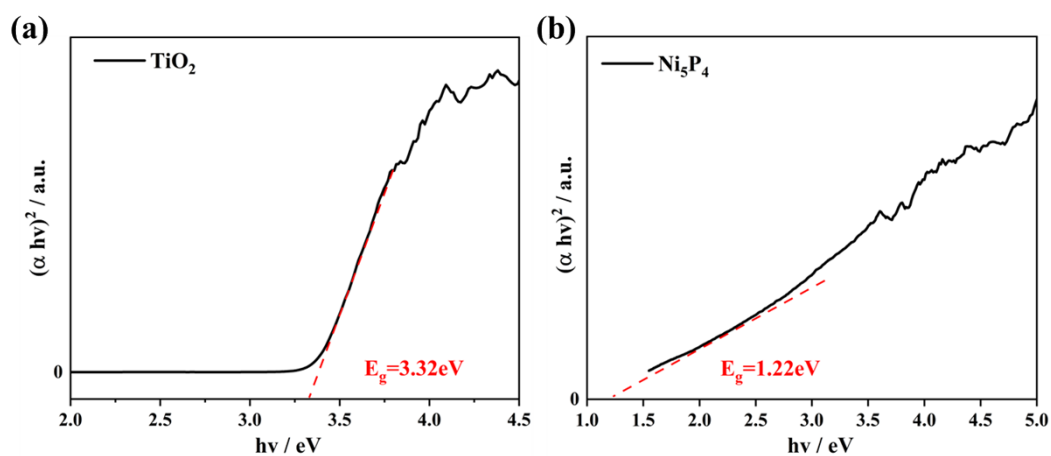


Fig. S6. The corresponding optical bandgaps  $(\alpha hv)^2$  versus  $hv$  curves for (a)  $\text{TiO}_2$  and (b)  $\text{Ni}_5\text{P}_4$ . (Tauc plots of  $(\alpha hv)^2$  against the photon energy ( $hv$ ) according to the formula of  $(\alpha hv)^2 = A(hv - E_g)$  are explored to estimate the band gap energies of  $\text{TiO}_2$  and  $\text{Ni}_5\text{P}_4$ .)

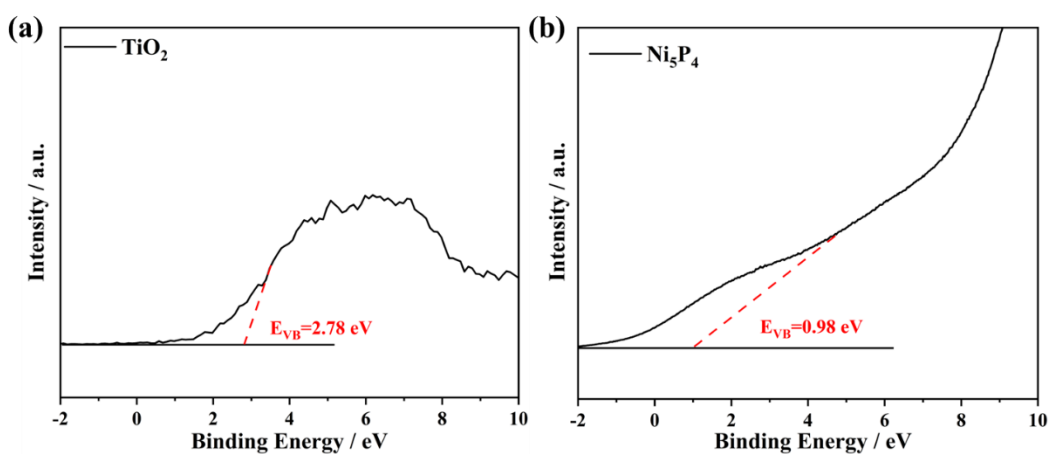


Fig. S7. XPS valence-band spectra of  $\text{TiO}_2$  and  $\text{Ni}_4\text{P}_5$

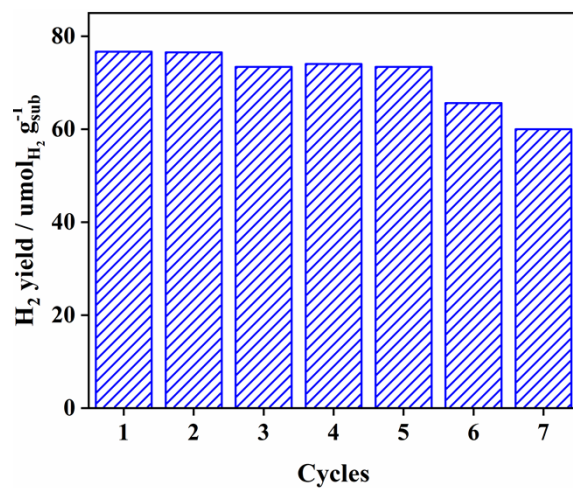


Fig. S8 Cyclic stability of PET microfibers photocatalyzed by Ni<sub>5</sub>P<sub>4</sub>/TiO<sub>2</sub>/C NFs

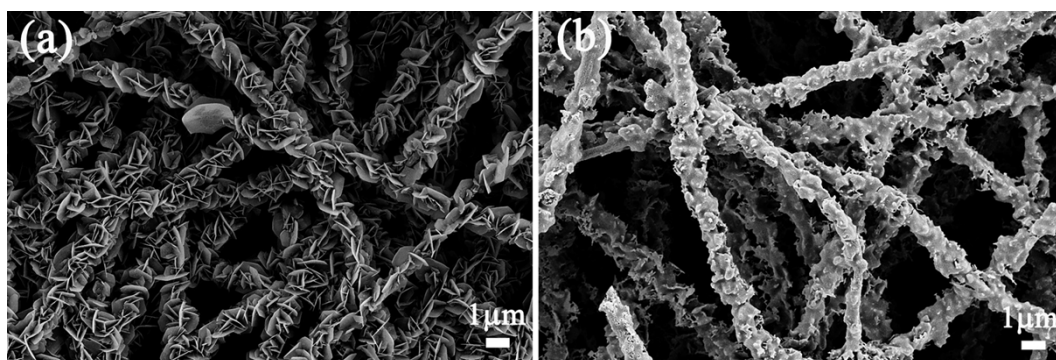


Fig. S9 SEM of Ni<sub>5</sub>P<sub>4</sub>/TiO<sub>2</sub>/C NFs before and after photocatalysis (a) before and (b) after catalysis

Table.S1 Weight loss of Ni<sub>5</sub>P<sub>4</sub>/TiO<sub>2</sub>/C NFs before and after photocatalysis

Description	1	2	3	Average value
Before catalysis (mg)	30.00	30.00	30.00	30.00
After catalysis (mg)	29.21	29.15	29.32	29.22
Weight loss (%)	2.63	2.83	2.27	2.58