

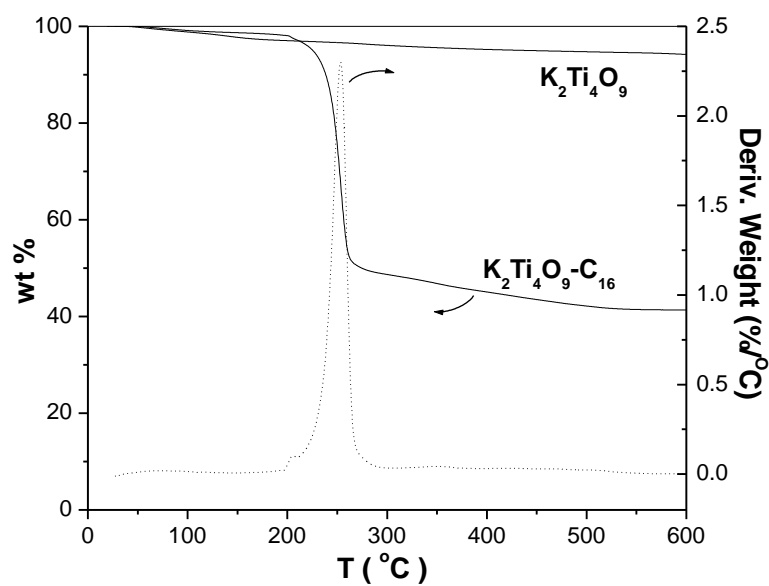
# Supporting Information

## Titanate@TiO<sub>2</sub> core-shell nanobelts with an enhanced photocatalytic activity

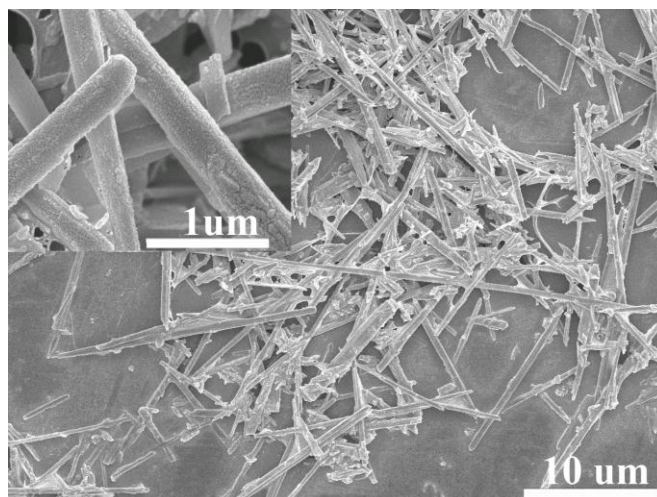
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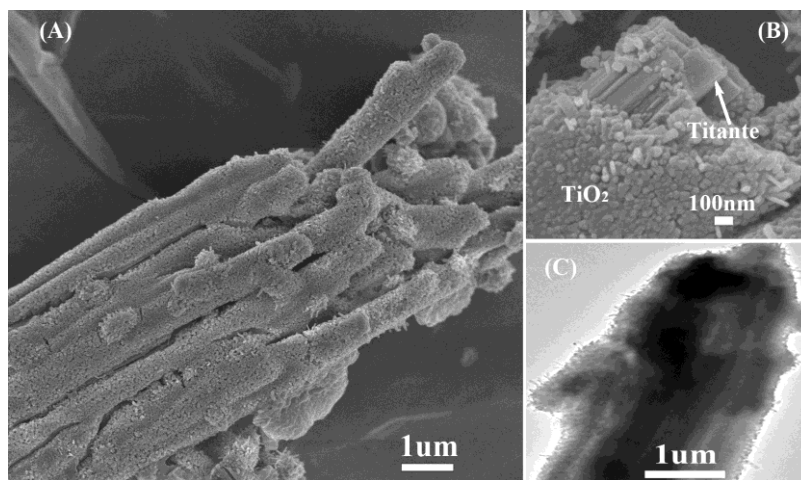
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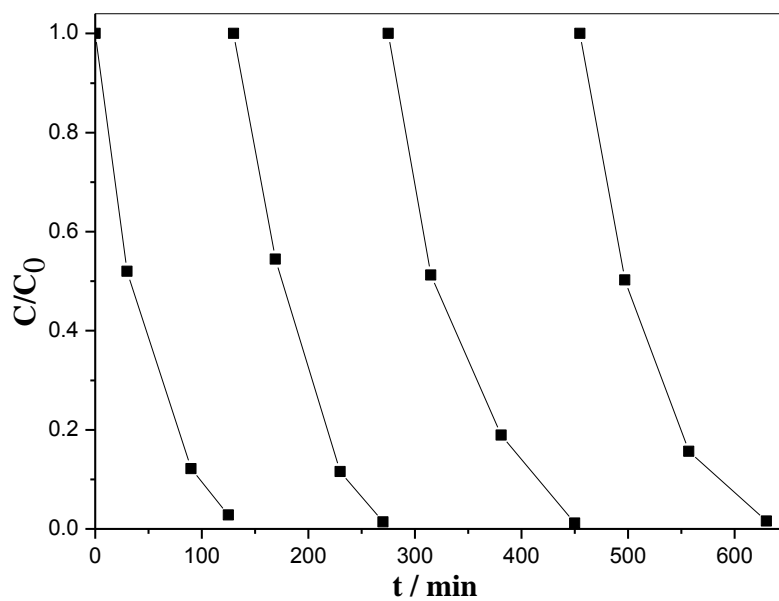
**Fig. S1** TGA of K<sub>2</sub>Ti<sub>4</sub>O<sub>9</sub> and CTAB-pillared K<sub>2</sub>Ti<sub>4</sub>O<sub>9</sub>. The dash line is the DrTGA curve of CTAB-pillared K<sub>2</sub>Ti<sub>4</sub>O<sub>9</sub>.



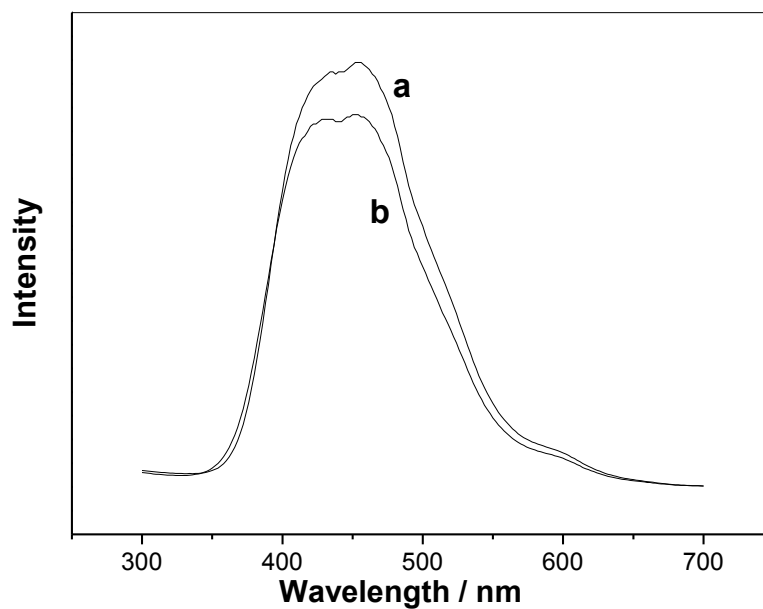
**Fig. S2** FESEM image of  $K_2Ti_4O_9$ .



**Fig. S3** (A)-(B) FESEM and (C) HRTEM images of  $K_2Ti_4O_9@TiO_2$ -R2 catalyst.



**Fig. S4** Repeated photocatalytic degradation of benzoic acid (BA) over  $\text{K}_2\text{Ti}_4\text{O}_9@\text{TiO}_2\text{-R1}$ .  
[BA] =  $4.0 \times 10^{-2}$  mM.



**Fig. S5** Photoluminescence spectra of (a)  $\text{TiO}_2$  and (b)  $\text{K}_2\text{Ti}_4\text{O}_9@\text{TiO}_2\text{-R1}$  composite with the excitation wavelength at 300 nm.