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[Supporting Information]

UV-Visible-Light-Activated Photocatalyst Based on $Bi_2O_3/Bi_4Ti_3O_{12}/TiO_2$ Double-Heterostructured TiO_2 Nanobelts

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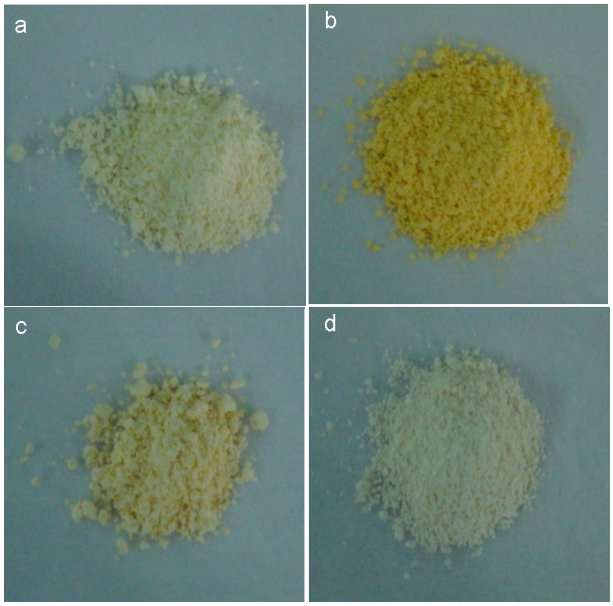

Figure S1. Photographs of products prepared by annealing TiO_2 nanobelts deposited with bismuth hydroxide at (a)

300 °C, (b) 500 °C, (c) 600 °C and (d) $Bi_4Ti_3O_{12}$.

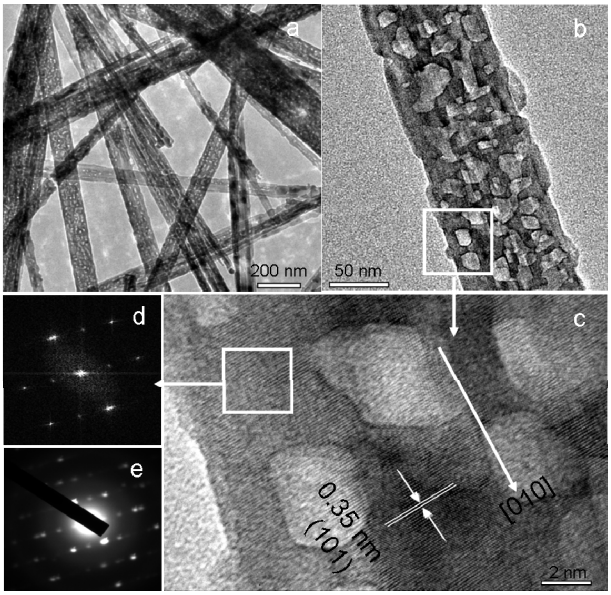

Figure S2. HRTEM images of TiO_2 nanobelts treated with acid. (a) TEM images of TiO_2 nanobelts treated with acid; (b) TEM image of a single TiO_2 nanobelt; (c) HRTEM image of the selected area in image (b); (d) FFT pattern of the selected area in image (c); (d) the corresponding SAED image.

Table 1

Sample	Specific surface area (m^2g^{-1})
TiO_2 nanobelt	32.654
TiO_2 nanobelt treated with acid corrosion	41.791
Bi_2O_3	8.619
$Bi_4Ti_3O_{12}$	6.786
$Bi_2O_3/Bi_4Ti_3O_{12}/TiO_2$ at 300 ^oC	50.617
$Bi_2O_3/Bi_4Ti_3O_{12}/TiO_2$ at 500 ^oC	47.02
$Bi_2O_3/Bi_4Ti_3O_{12}/TiO_2$ at 600 ^oC	27.589

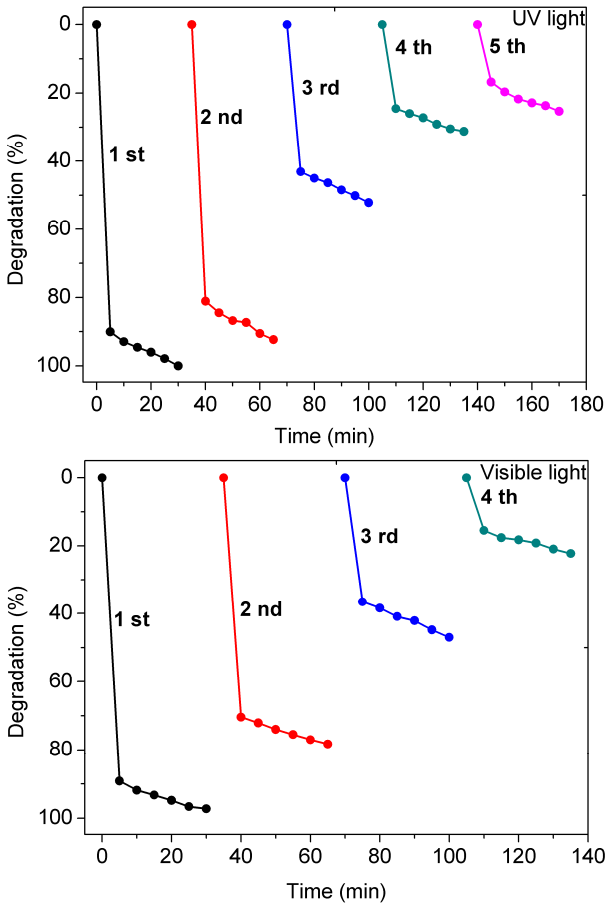

Figure S3. Photocatalytic degradation of MeO in the presence of the $Bi_2O_3/Bi_4Ti_3O_2/TiO_2$ double-heterostructred nanobelt obtained at 500 ^oC with 6:1 Bi_2O_3/TiO_2 weight ratio during repeated photocatalytic experiments under UV and visible light irradiation.

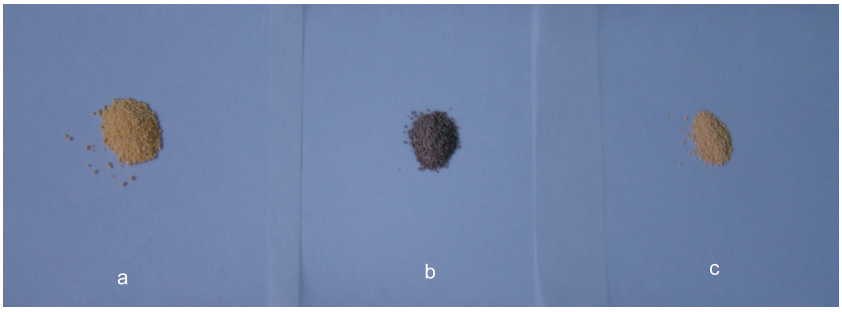

Figure S4. Photographs of (a) the $Bi_2O_3/Bi_4Ti_3O_2/TiO_2$ double-heterstructed prepared at 500 ^oC with 6:1 Bi_2O_3/TiO_2 weight ratio, (b) the above double-heterostructred nanobelt repeatedly used for four times under UV light irradiation and (c) the dark green double-heterstructured nanobelt re-annealed at 400 ^oC.

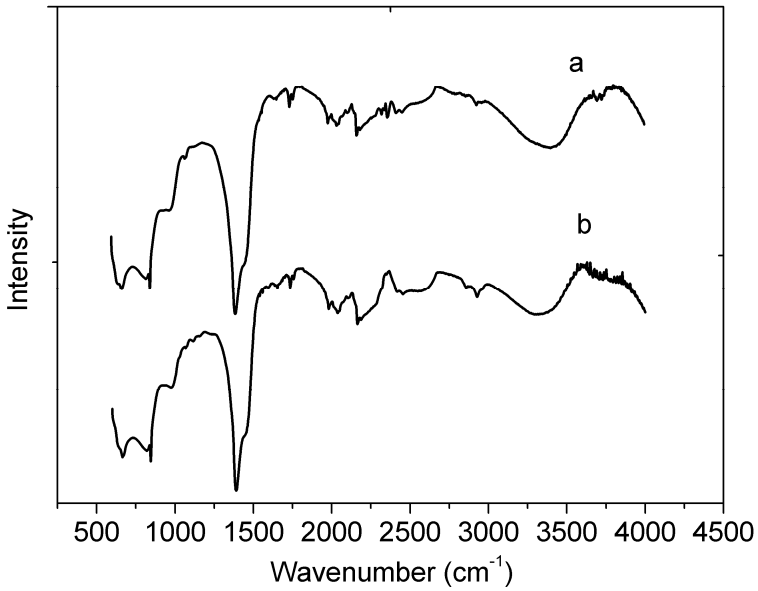

Figure S5. The infrared spectrum of (a) the $Bi_2O_3/Bi_4Ti_3O_2/TiO_2$ double-heterostructed prepared at 500 ^oC with 6:1 Bi_2O_3/TiO_2 weight ratio and (b) the above double-heterostructured nanobelt repeatedly used for four times under UV light irradiation.

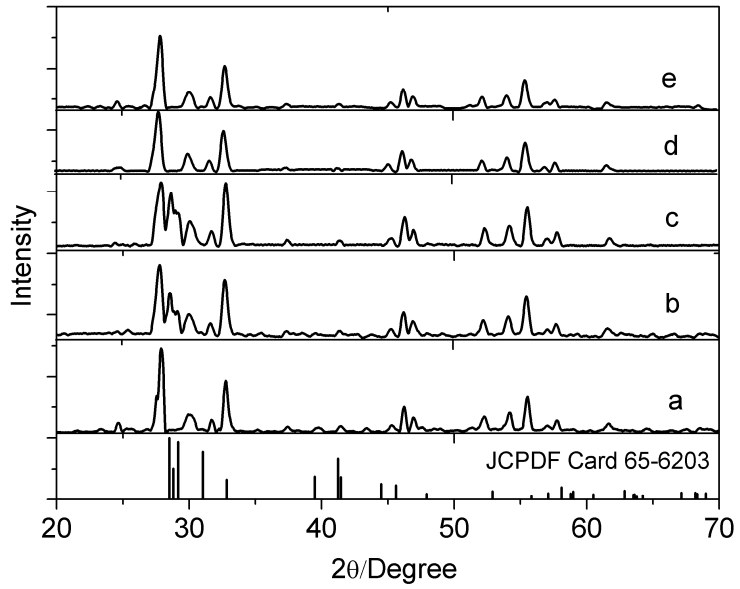

Figure S6. XRD patterns of (a) the $Bi_2O_3/Bi_4Ti_3O_2/TiO_2$ double-heterostructed prepared at 500 ^oC with 6:1 Bi_2O_3/TiO_2 weight ratio, (b) and (c) the above double-heterostructured nanobelt repeatedly used for four times under UV light and visible light irradiation, respectively, (d) and (e) re-annealed sample at 400 ^oC.

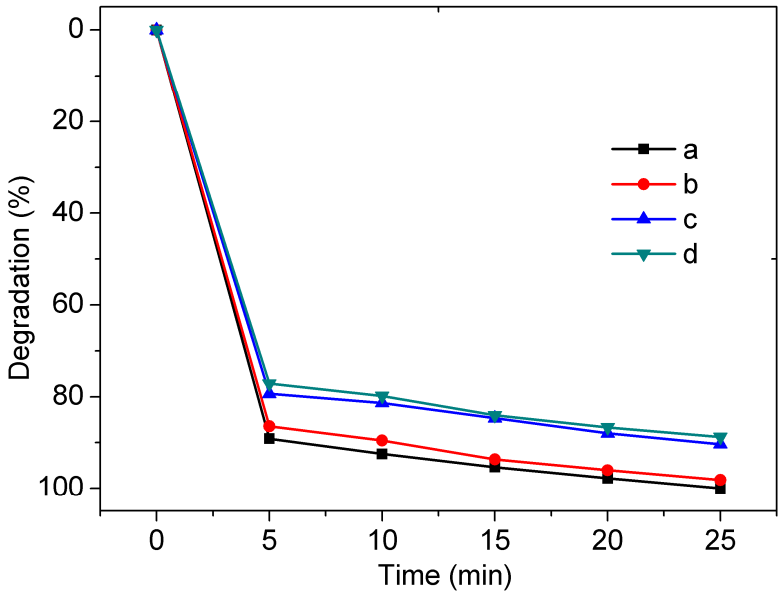

Figure S7. The photocatalytic degradation of MO in the presence of the re-newed double-heterostructured nanobelts by a heat-treatment at 400oC, under (a) UV light and (b) visible light irradiation, and photocatalytic degradation of MO in the presence of the re-newed double-heterostructured nanobelts by a hydrogen peroxide, under (c) UV light and (d) visible light irradiation.