Electronic Supporting Information

Novel heterostructured InN/TiO_2 Submicron Fibers designed for high performance visible-light-driven photocatalysis

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Experimental Results

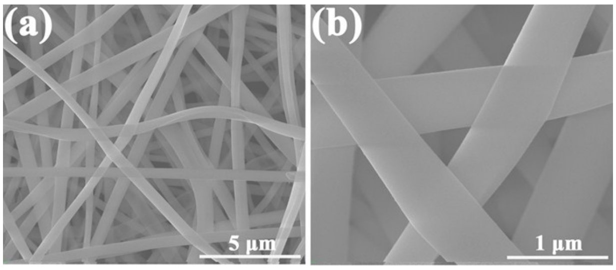

Figure S1. SEM images of electrospun fibers after annealing in air.

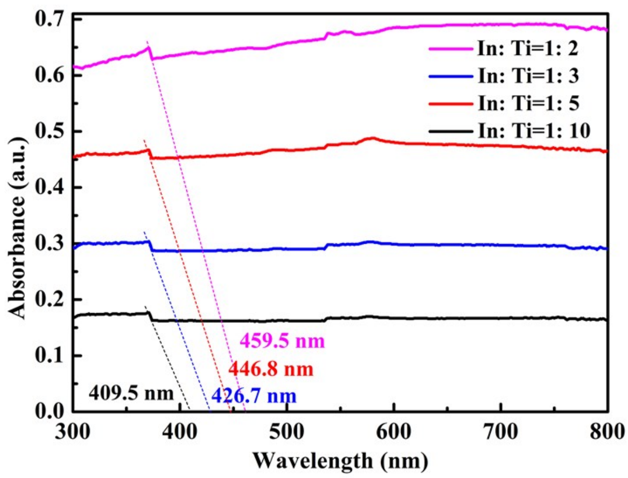

Figure S2. UV–vis diffuse reflectance spectra of InN/TiO_2 heterojunction submicron fibers with different In/Ti ratios.

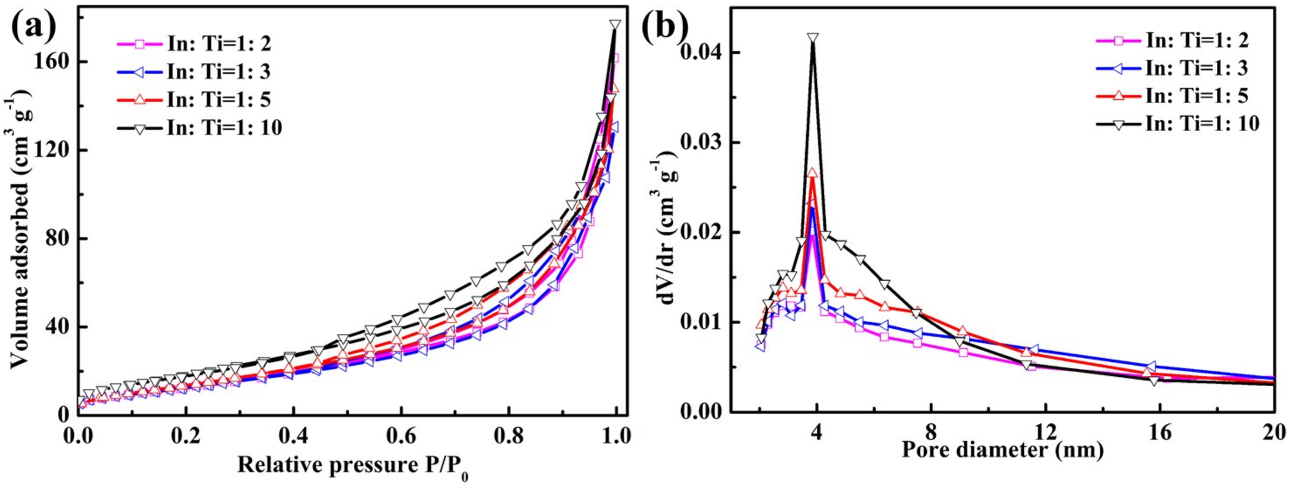

Figure S3. (a) Nitrogen adsorption-desorption isotherms and (b) the corresponding pore size distributions curves of InN/TiO_2 heterojunction submicron fibers with different In/Ti ratios.

Table S1 BET surface area, pore volume and pore size of InN/TiO_2 heterojunction submicron fibers with different In/Ti ratios.

Samples (In: Ti)	S_{BET} (m^2 g^{-1})	Pore volume (cm^3 g^{-1})	Average pore size (nm)
1:2	57.22	0.2747	12.18
1:3	53.82	0.2258	9.68
1:5	60.97	0.2587	9.78
1:10	72.12	0.3035	9.90

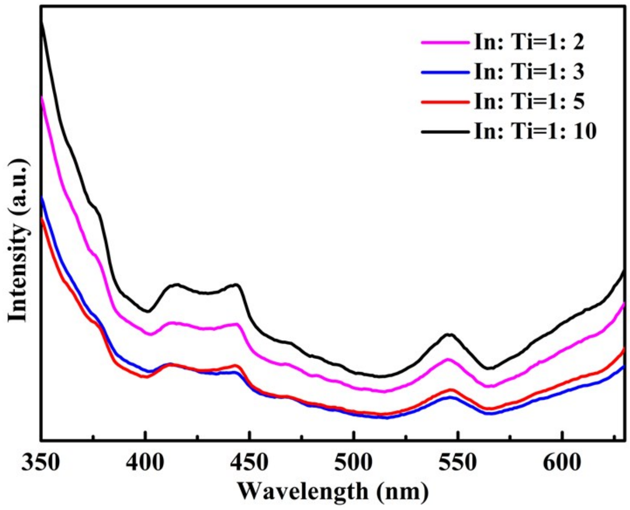

Figure S4. Photoluminescence (PL) spectra of InN/TiO_2 heterojunction submicron fibers with different In/Ti ratios with an excitation wavelength of 325 nm.

Table S2 Comparison of rate constants obtained from TiO_2 based visible-light photocatalysts in the degradation of RhB

Architecture/ Composition	**Light source**	**Concentration and volume of RhB solution**	**Photocatalyst weight (mg)**	***k*** **(min^{-1})**	**Ref**
TiO_2 nanofiibers	Filament lamp, 15 w, λ> 400 nm	2.5 × 10^{-5} mol L^{-1}; 10 mL	10	0.0018	21
S-doped TiO_2 nanorods	Philipst lamps, 15 W, λ> 400 nm	10 mg L^{-1}, 20 mL	10	0.0192	39
Zr-doped TiO_2 templated from cloth	Tungsten halogen lamp, 500 w,	5 mg L^{-1}, 100 mL	100	0.0044	40
N-doped TiO_2 nanofiibers	Filament lamp, 15 w, λ> 400 nm	2.5 × 10^{-5} mol L^{-1}; 10 mL	10	0.0065	21
Bi_2MoO_6/TiO_2 nanofibers	Xe lamp, 150 W, λ>400 nm	10 mg L^{-1}, 100 mL	100	0.0084	14
TiO_2@carbon nanofibers	Xe lamp, 150 W, λ>400 nm	5 mg L^{-1}, 100 mL	30	0.0053	16
Copper(II) phthalocyanine/ TiO_2 nanofibers	Xe lamp, 150 W, λ>400 nm	10 mg L^{-1}, 100 mL	100	0.0079	17
TiO_2/CdS nanofibers	Xe lamp, 150 W, λ>400 nm	10 mg L^{-1}, 100 mL	100	0.0114	15
In_2O_3/TiO_2 nanofibers	Xe lamp, 150 W, λ>420 nm	10 mg L^{-1}, 100 mL	50	0.009	18
Fe-doped SnO_2/TiO_2 nanofibers	Filament lamp, 15 w, λ> 400 nm	2.5 × 10^{-5} mol L^{-1};10 mL	10	0.0018	41
InN/TiO_2 submicron fibers	Table lamp, 14 w, 420 nm<λ<750 nm	2.5 × 10^{-5} mol L^{-1}; 10 mL	10	0.089	This work

Table S3 Comparison of rate constants between InN/TiO_2 heterojunction submicron fibers and new-type visible-light photocatalysts in the degradation of RhB

Architecture/ Composition	**Light source**	**Concentration and volume of RhB solution**	**Photocatalyst weight (mg)**	***k*** **(min^{-1})**	**Ref**
WO_3 nanobars	Xe lamp, 450 W, λ>420 nm	10^{-5} mol L^{-1}; 50 mL	50	0.0054	42
$BiVO_4$ nanostructures	Xe lamp, 350 W,	2.0 × 10^{-5} mol L^{-1}; 200 mL	200	0.001	43
In_2O_3 nanocubes/ carbon nanofibers	Xe lamp, 150 W, λ>420 nm	10 mg L^{-1}, 100 mL	100	0.0036	44
Bi_2S_3/CdS heterostructure	Xe lamp, 150 W, λ>420 nm	10 mg L^{-1}, 50 mL	100	0.0144	45
Graphene-$Bi_2O_2CO_3$ composites	Xe lamp, 350 W, λ> 400 nm	10^{-5} mol L^{-1}, 20 mL	100	0.032	46
$BiVO_4$/$Bi_2O_2CO_3$ nanocomposites	Xe lamp, 350 W, λ> 420 nm	2 × 10^{-5} mol L^{-1}, 20 mL	100	0.053	47
CdPc/PAN nanofibers	Xe lamp, 150 W, λ>400 nm	10 mg L^{-1}, 100 mL	100	0.0044	48
Bi_2MoO_6-carbon nanofiber heterostructure	Xe lamp, 150 W, λ>420 nm	10 mg L^{-1}, 100 mL	50	0.0070	49
InN/TiO_2 submicron fibers	Table lamp, 14 w, 420 nm<λ<750 nm	2.5 × 10^{-5} mol L^{-1}; 10 mL	10	0.089	This work