Electronic Supplementary Material (ESI) for Materials Advances.

Novel TiO_2/TPU Composite Fiber-based Smart Textiles for Photocatalytic Applications

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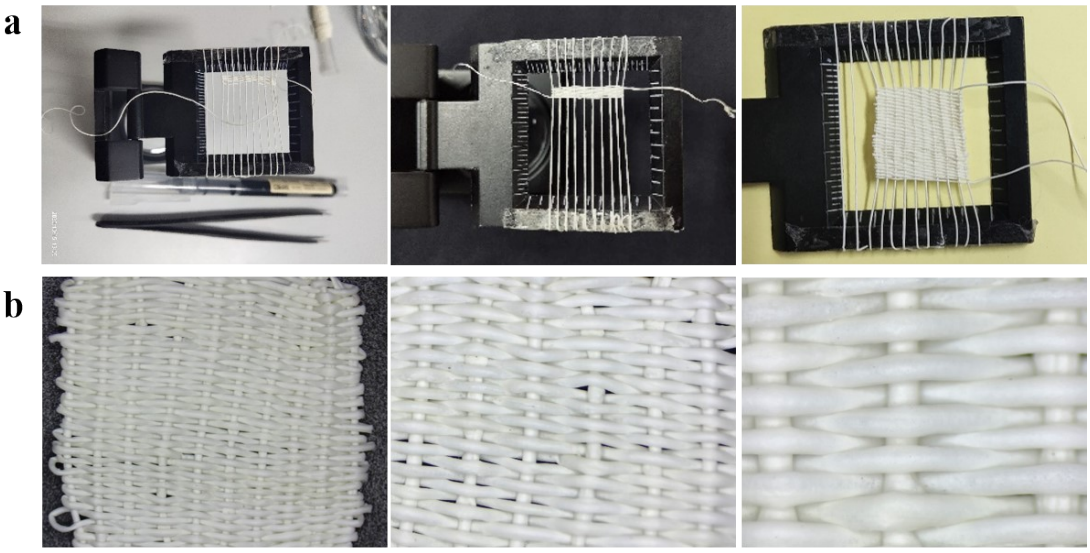

Figure S1 The images of smart textiles for photocatalytic applications: (a) composite fiber woven into a textile; (b) the woven textile.

Figure S2 The images of the smart textiles for photocatalytic degradation and Photocatalytic H_2 production.

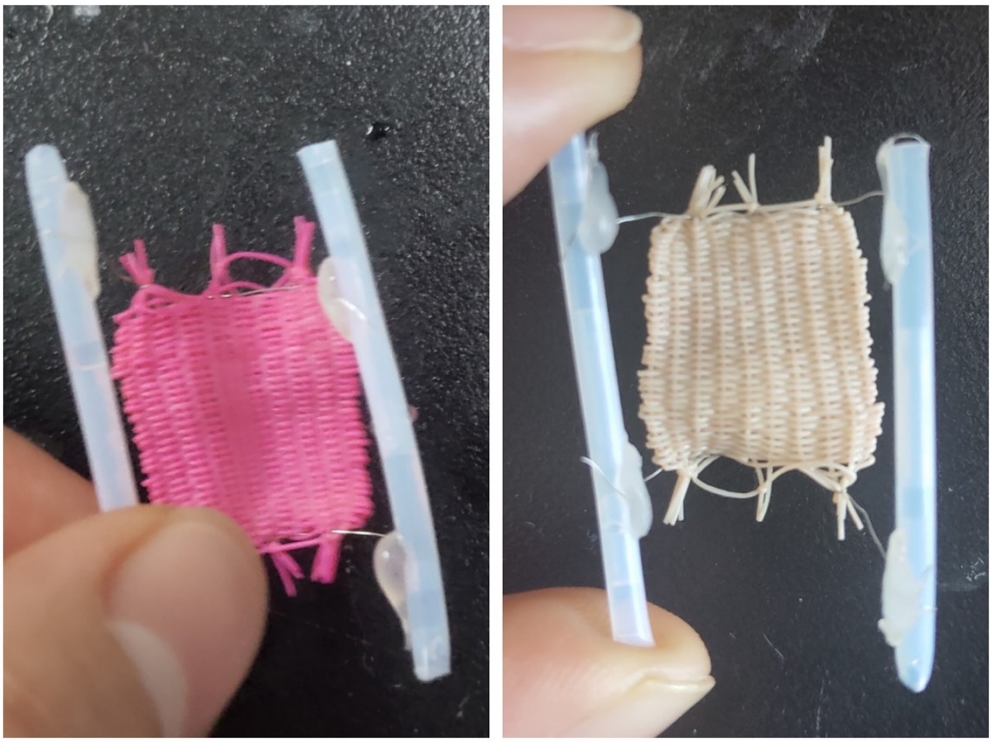

Figure S3 The images of the smart textiles: (a) the RhB adsorbed; (b) After light irridiation for 10 min.

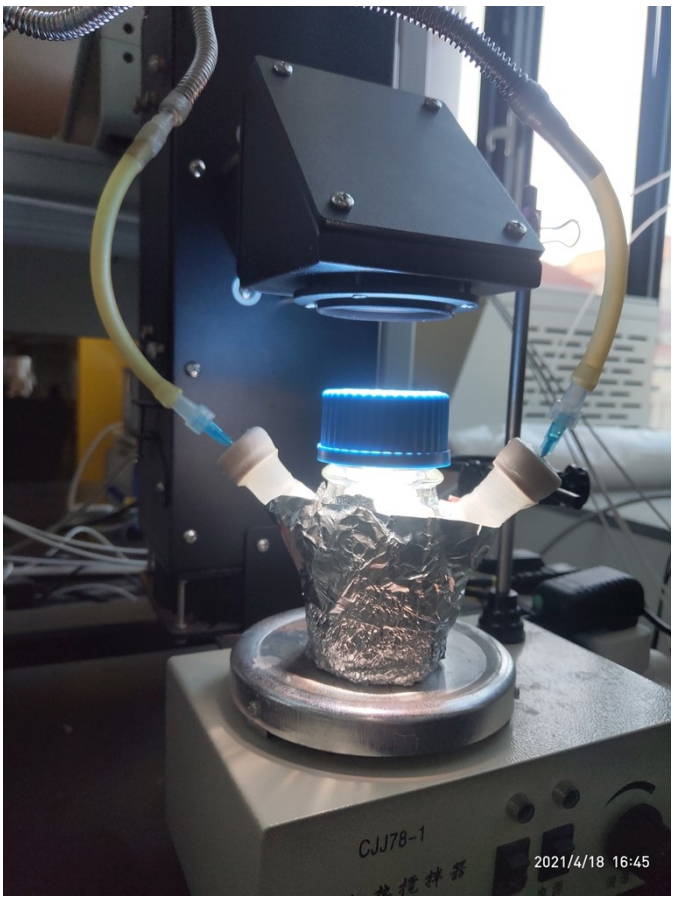

Figure S4 The images of the smart textiles for Photocatalytic H_2 production.

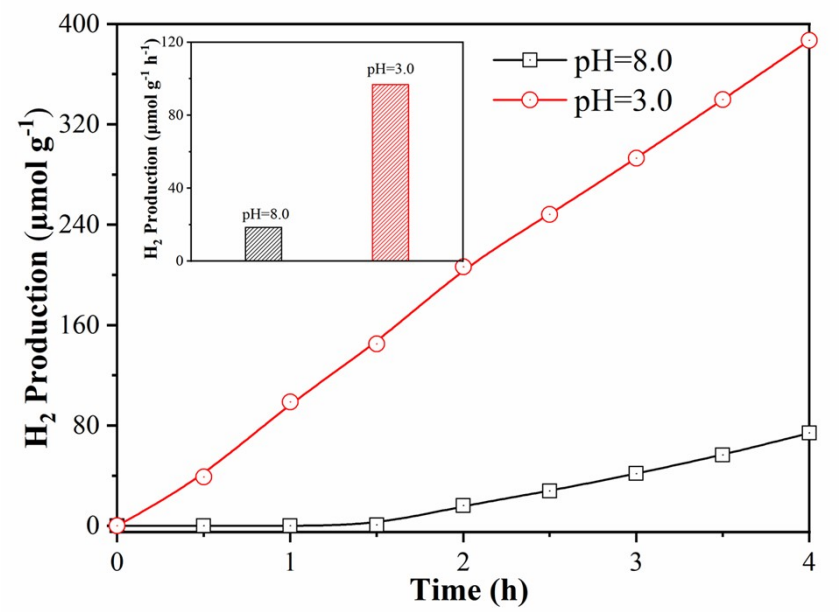

Figure S5 Photocatalytic H_2 production of the smart textiles under different pH values .

Table S1. Comparison of photocatalytic activity of similar photocatalysts with our work.

Photocatalytic pollutants degradation							
Photocatalysts	Support	Synthesis method	Light source	Pollutant	Photocatalytic activity	photocatalyst weight	Ref.
1:5-TiO_2/TPU textiles	TPU	Wet-spinning	300 W Xe lamp	5 ppm RhB	99.6% in 240 min	16.5 mg (2.75 mg P25 in the textiles)	This work
PEDOT/$BiVO_4$@Cotton	Cotton	Dipping	1000 W Xe lamp	60 ppm RB-19	95% in 120 min	0.4 g	1
Ag/AgCl/polydopamine/cotton	Cotton	Dipping	1000 W Xe lamp	50 ppm RB-19	95% in 180 min	6 × 6 cm^2	2
Carbon fibers/TiO_2	Carbon fibers	Dip-coating and hydrothermal	300 W Xe lamp	10 ppm RhB	12.84% in 120 min	-	3
Ag-Ag_2O/TiO_2/PET	PET	Magnetron sputtering	200 W Hg lamp	5 ppm RhB	65.2% in 360 min	50 mm in diameter	4
Ag-TiO_2/PET	PET	Magnetron sputtering	200 W UV lamp	5 ppm RhB	72.13% in 360 min	-	5
g-C_3N_4/PMMA/CFs	PMMA /CFs	Casting	Sunlight	10 ppm RhB	83% in 180 min	1 × 1 cm^2	6

Photocatalytic hydrogen production							
Photocatalysts	Support	Synthesis method	Light source	Sacrificial reagent	Photocatalytic activity	photocatalyst weight	Ref.
1wt%Pt-1:5 TiO_2/TPU textiles	TPU	Wet-spinning	300 W Xe lamp	10 vol% methanol	81.75 μmol g^{-1} h^{-1}	16.5 mg (2.75 mg P25 in the textiles)	This work
Co_3O_4@g-C_3N_4/carbon fiber	Carbon nanofiber	Vapor deposition; Hydrothermal	300 W Xe lamp	10 vol% TEOA	67.17 μmol g^{-1} h^{-1}	5 mg	7
$Bi_{12}TiO_{20}$/ $Bi_4Ti_3O_{12}$ nanofiber	PVP	Electrospinning	300 W Xe lamp	Na_2SO_3 and Na_2S	7.44 μmol g^{-1} h^{-1}	10 mg	8
CdS/CNF	CNF mats	Ionic layer adsorption and reaction method	150 W Xe lamp	Na_2SO_3 and Na_2S	1.5 μmol g^{-1} h^{-1}	3 cm × 0.5 cm	9
ZnS-$AgIn_5S_8$/fluoropolymer fiber	fluoropolymer fiber	Electrospinning hydrothermal	350 W Xe lamp	Na_2SO_3 and Na_2S	120mL (40h)	-	10

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