Supplementary Information (SI) for Nanoscale.

Supporting information

Unravelling Charge Carrier Separation Mechanism in Ag/β-$BaTi_2O_5$ Heterostructures for High-Efficiency Photocatalysis: A Synergistic Study Combining Kelvin Probe Force Microscopy and Density Functional Theory

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Supplementary Figures

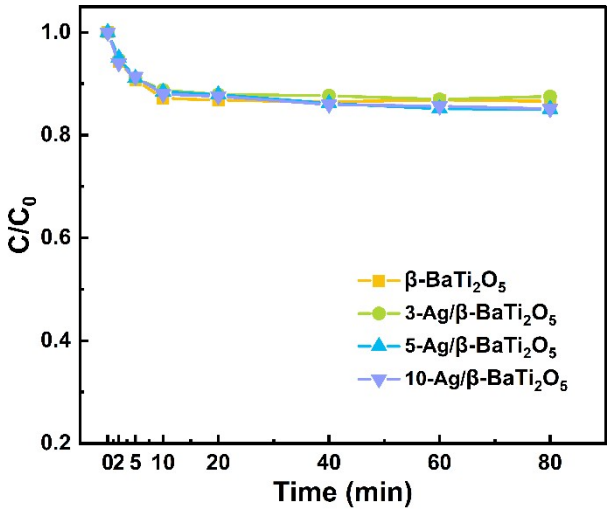

Figure S1 The adsorption performance of β-$BaTi_2O_5$ and x-Ag/β-$BaTi_2O_5$ (x = 3, 5, 10) photocatalysts for MB.

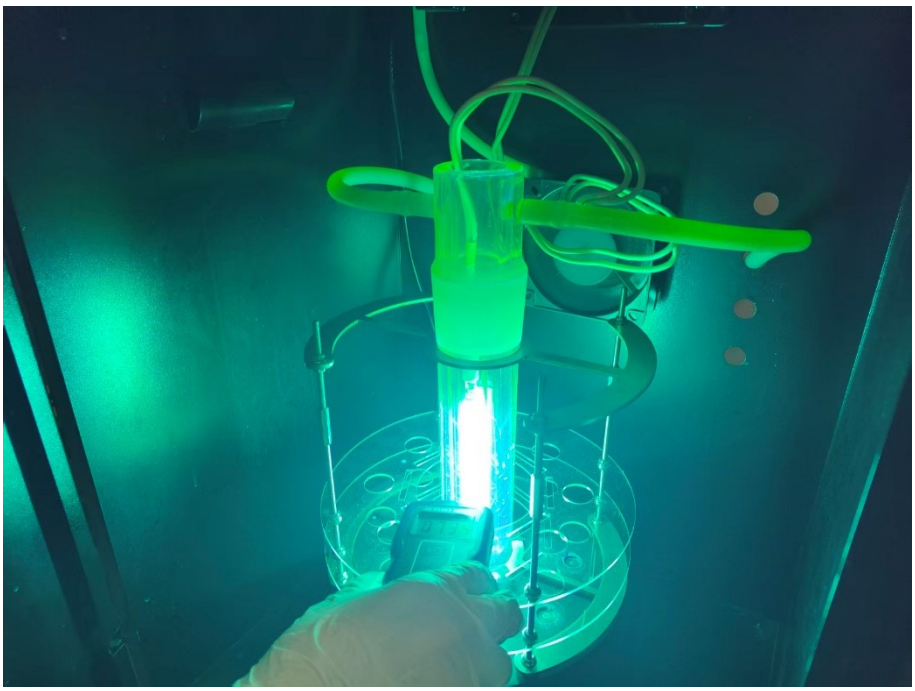

Figure S2 The light intensity of the mercury lamp in this study..

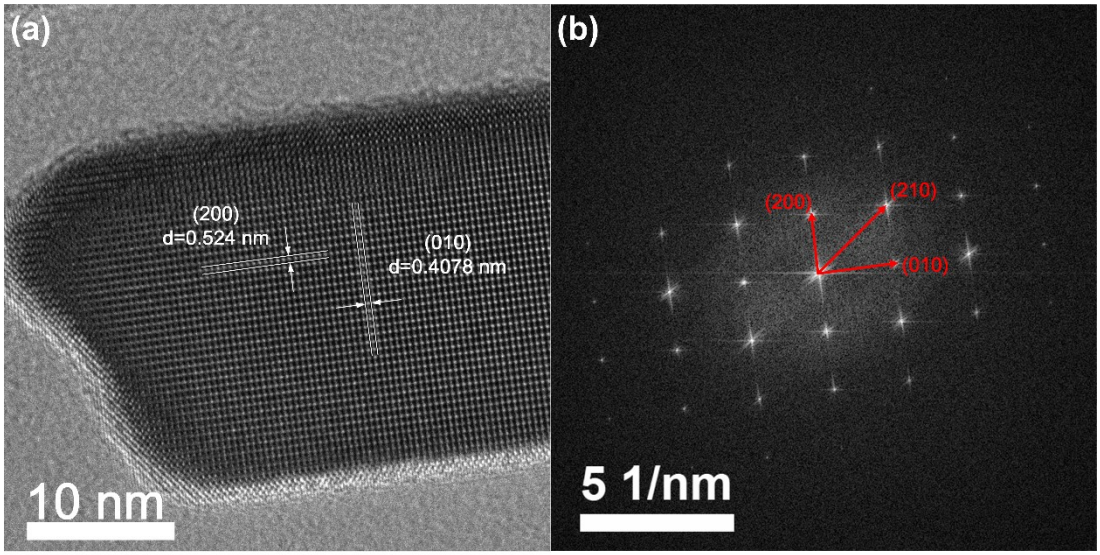

Figure S3 The image of β-$BaTi_2O_5$. (a) HRTEM (b) electron diffraction pattern

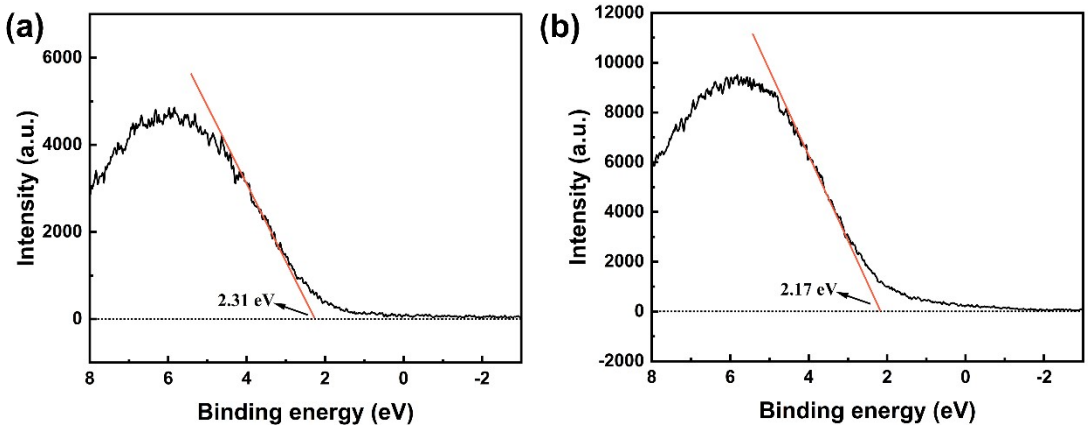

Figure S4 The VB-XPS spectrum of (a) β-$BaTi_2O_5$ (b) 5-Ag/β-$BaTi_2O_5$

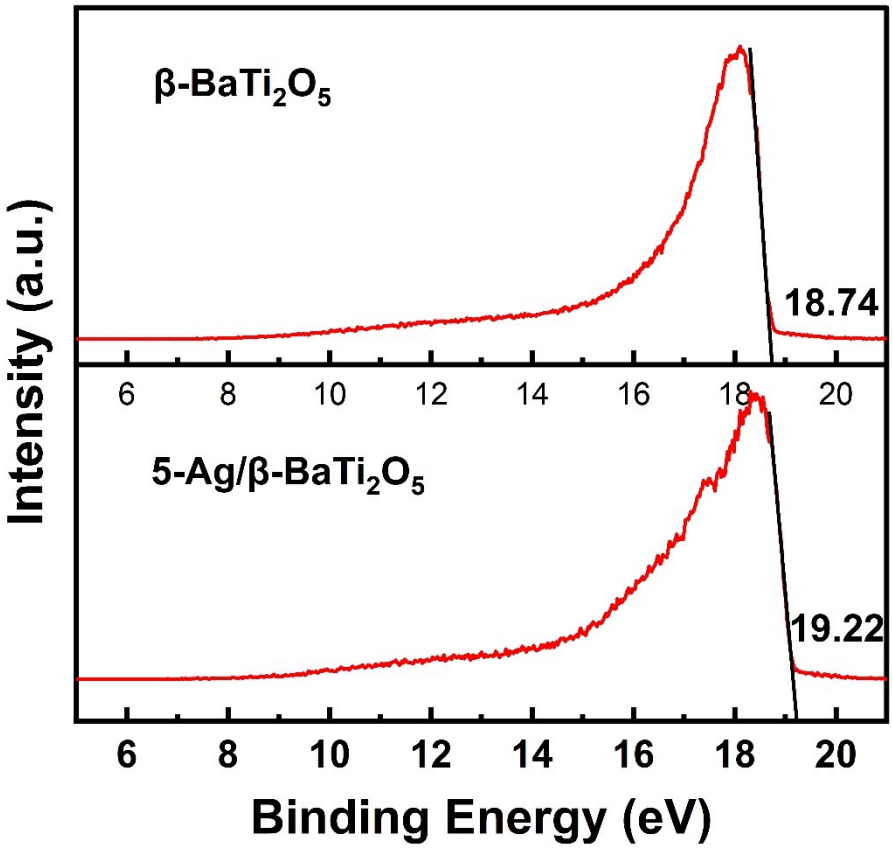

Figure S5 The UPS spectrum of β-$BaTi_2O_5$ and 5-Ag/β-$BaTi_2O_5$

Supplementary Tables

Table S1 Performance comparison of MB degradation by composite Ag-based photocatalysts

Photocatalyst	MB concentration and·volumee	Light source	Irradiation time (min)	Degradation efficiency	Ref.
$SrTiO_3$/rGO@Ag	10 mg/L, 200 mL	150 W xenon lamp	180	97%	[1]
Ag/CDs/TNTA	5 mg/L, 10 mL	8 W UV light	80	90%	[2]
Au/TiO_2	3.125×10^{-5}M, 20 mL	540W/m^2 visible light	150	97%	[3]
Ag/ZnS	15 mg/L	32 W UV light	300	80%	[4]
Ag/ZnO	30 mg/L, 250 mL	450 W xenon lamp（100 mW cm^{-2}）	180	92%	[5]
TiO_2/GO	5 mg/L	500 W xenon lamp	240	99%	[6]
TGO-25%		visible light	140	97.5%	[7]
CaIn2O4	47.8 umol/L, 100 mL	300 W xenon lamp	120	99%	[8]
MnTiO3/TiO2	1×10^{-5}M, 50 mL	sunlight	240	75%	[9]
Fe3O4/SiO2/MnO2/ BiOBr-Bi	10 mg/L, 65 mL	400 W xenon lamp	150	95.23%	[10]
ZnO/GR	10 mg/L, 50 mL	20 W UV light	56	72.1%	[11]
ZnO:Eu	10 mg/L	300 W xenon lamp	150	90%	[12]
PANI/TiO2	10 mg/L, 50 mL	visible light	120	95.41%	[13]
TiO2 NPs	10 mg/L	6 W lamp	180	97%	[14]
BiSbO4	10 mg/L, 300 mL	300 W xenon lamp	600	96.7%	[15]

TiO2	20 mg/L	40 W UV light	160	92.3%	[16]
Cd:ZnO	0.025 M, 10 mL	50 W tungsten halogen lamp	150	82.5%	[17]
ZTPG	20 mg/L, 100 mL	60 W UV light	90	98.05%	[18]
ZnO	10 mg/L, 250 mL	UV light	390	64.32%	[19]
g-C_3N_4	50 mg/L, 50 mL	300 W xenon lamp	300	66%	[20]
5-Ag/β-$BaTi_2O_5$	10 mg/L, 50 mL	150 W UV light	80	99%	This work

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