Supplementary Materials

A Titania-Supported Polyoxometalate and Au Cocatalyst for Efficient Photocatalytic Environmental Remediation

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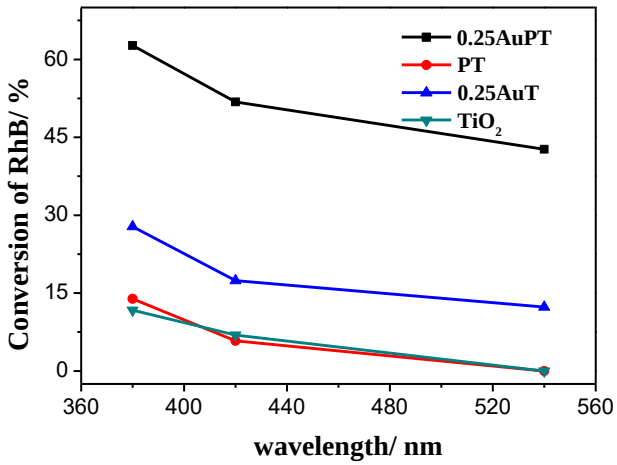


Figure S1. photocatalytic degradation of RhB on catalysts for one hour with illumination of monochromatic light of 380 nm, 420 nm, and 540 nm (optical filter).

We studied the photocatalytic degradation of RhB on AuPT, PT, Au/TiO_2, and bare TiO_2 for one hour with illumination of different monochromatic light of 380 nm, 420 nm, and 540nm to find the wavelength dependence of catalysts' performance. As Figure S1 shown, when illuminated with monochromatic light of 380 nm , the conversions of RhB on catalysts are the highest. The conversion decreased successively with the decrease of illumination wavelength. This trend is very similar to the UV-visible diffuse reflectance spectra of catalysts. The light absorption is a key issue for the

photocatalytic activity of catalysts. Although we use the monochromatic light with the three wavelength as light source, 0.25 AuPT is always the most effective catalyst among these catalysts, which is similar to the performance of catalysts with visible light illumination.

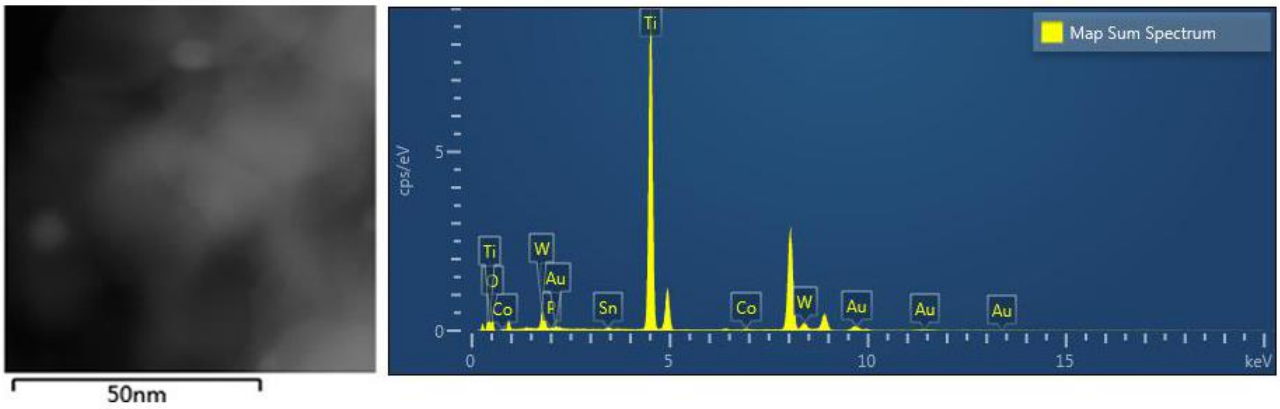


Figure S2: The element composition of AuPT catalyst.

Table S1. The element composition and proportion of AuPT catalyst.

Element	Line Type	k factor	Absorption Correction	Wt%	Wt% Sigma
O	K series	1.86867	1.00	2.59	0.13
P	K series	1.01332	1.00	0.05	0.08
Ti	K series	1.06845	1.00	81.82	0.48
Co	K series	1.26119	1.00	0.41	0.07
Sn	L series	1.85197	1.00	0.99	0.15
W	L series	2.47844	1.00	13.04	0.36
Au	L series	2.72091	1.00	1.10	0.34
Total:				100.00	

The HR-TEM and EDX analysis were carried out to clarify the element composition and proportion of AuPT catalyst. As shown in Figure S1 and Table S1, the Au loading on PT was determined to be 1.1

wt.% by EDX analysis, and we could clarify the elemental ratio of Co:W:Sn which is about 1.1:11:1.3 (calculated by Table S1).