

## Supplementary Information

### 3D Au-decorated $\text{Bi}_2\text{MoO}_6$ nanosheet/ $\text{TiO}_2$ nanotube arrays heterostructure with enhanced UV and visible-light photocatalytic activity for organic pollutants

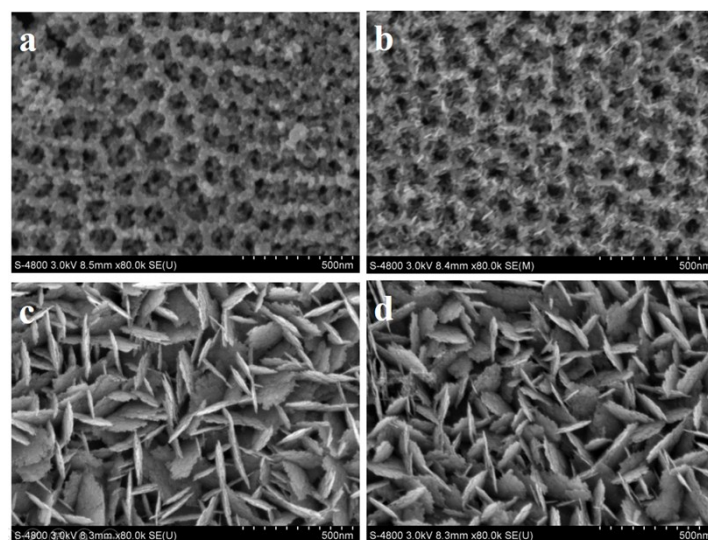
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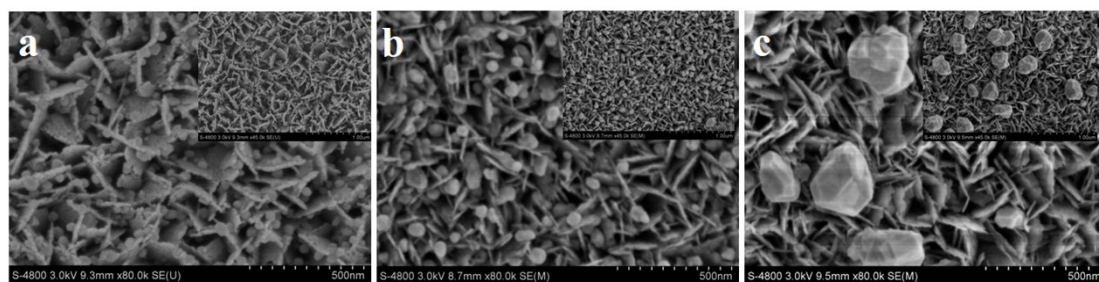
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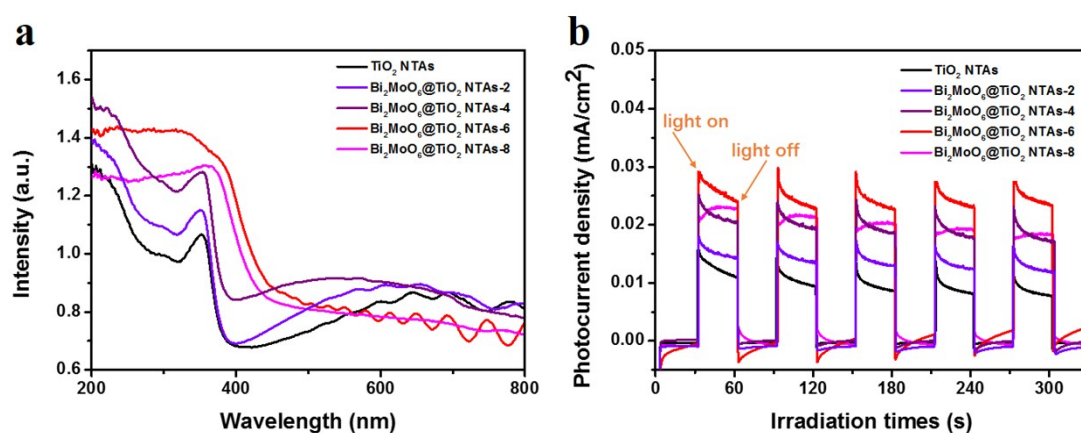
Keywords: Au,  $\text{Bi}_2\text{MoO}_6$ ,  $\text{TiO}_2$ , polydopamine, photocatalysis, heterostructure, visible light



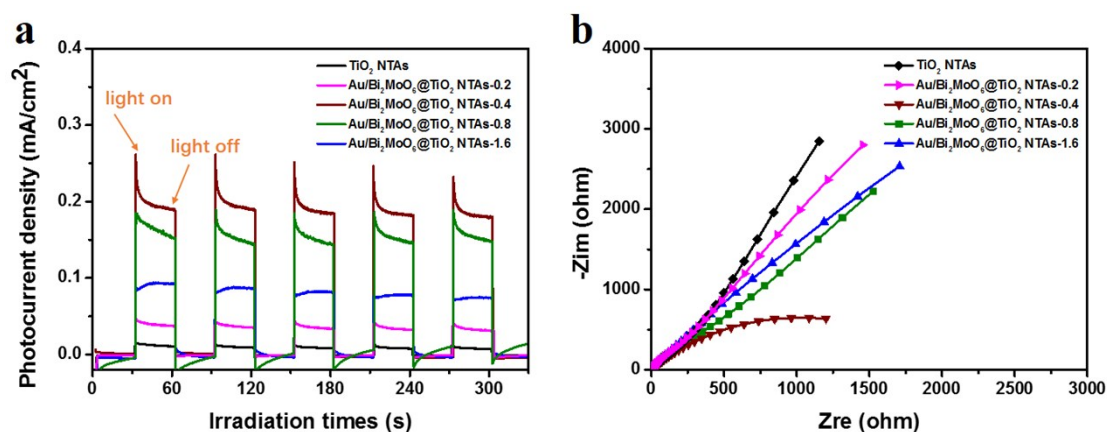
**Figure S1.**  $\text{Bi}_2\text{MoO}_6$ @ $\text{TiO}_2$  NTAs prepared by a solvothermal process at 160°C with various durations: 2 h (a), 4 h (b), 6 h (c) and 8 h (d).



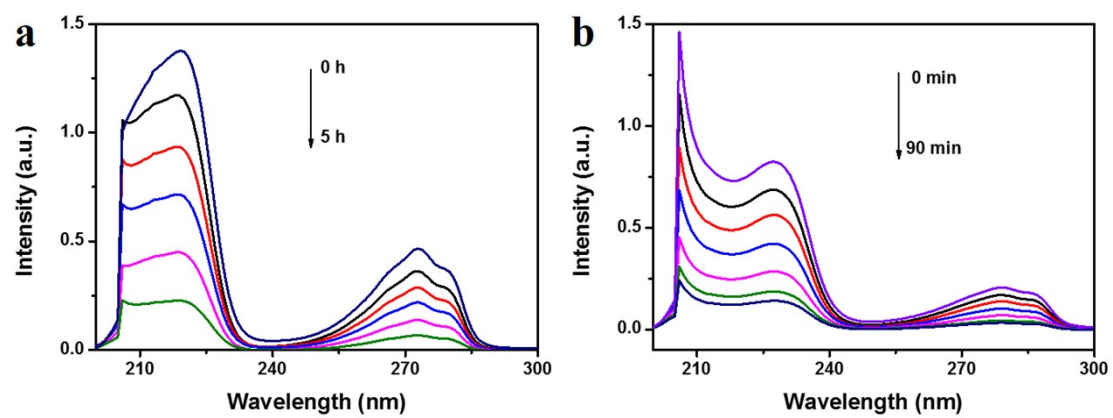
**Figure S2.** The PDA modified  $\text{Bi}_2\text{MoO}_6@\text{TiO}_2$  NTAs immersed in various concentration of chloroauric acid solution for 2 h: 0.4 mM (a), 0.8 mM (b) and 1.6 mM (c).



**Figure S3.** UV-DRS absorption spectra of the pure  $\text{TiO}_2$  NTAs and the as-prepared  $\text{Bi}_2\text{MoO}_6@\text{TiO}_2$  NTAs with different durations (2, 4, 6 and 8 h) via a solvothermal process under  $160^\circ\text{C}$  (a); and the photocurrent responses of the samples under visible light irradiation or not (b).



**Figure S4.** Photocurrent responses of the pure  $\text{TiO}_2$  NTAs and Au-decorated  $\text{Bi}_2\text{MoO}_6@\text{TiO}_2$  NTAs-6 composite with different concentration of  $\text{Au}^{3+}$  (0.2, 0.4, 0.8 and 1.6 mM) under visible light irradiation or not (a); and the electrochemical impedance spectroscopy (EIS) Nyquist plot of the samples in dark (b).



**Figure S5.** The effect of UV-light irradiation duration on the photo-degradation of phenol (a) and BPA (b) by using Au/Bi<sub>2</sub>MoO<sub>6</sub>@TiO<sub>2</sub> NTAs photocatalyst.