

# **Photocatalytic oxidation of Mn(II) on the surface of Bi<sub>2.15</sub>WO<sub>6</sub> via the ligand-to-metal charge transfer (LMCT) pathway**

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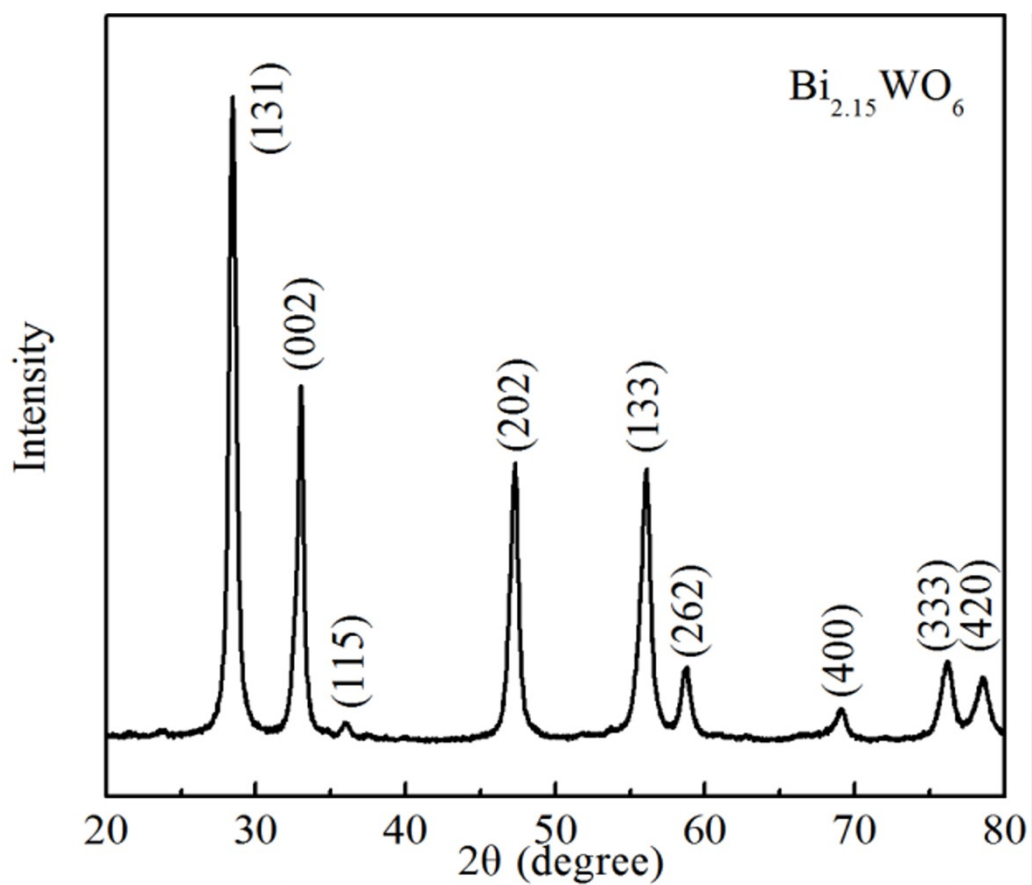
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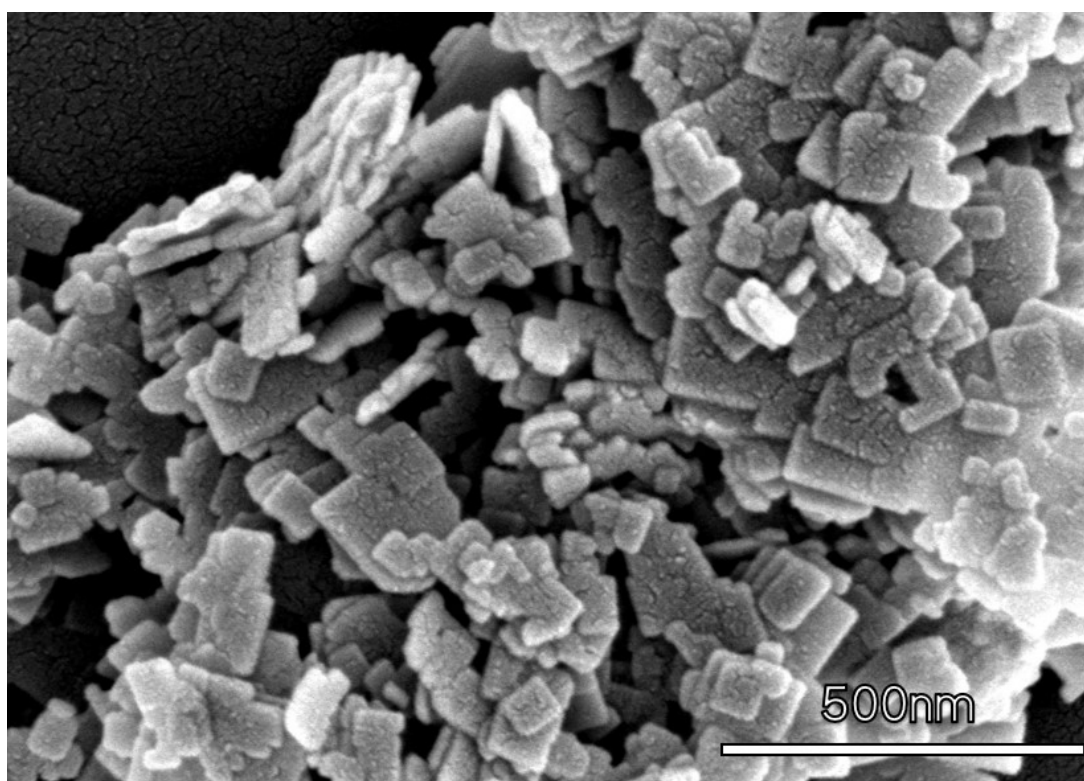
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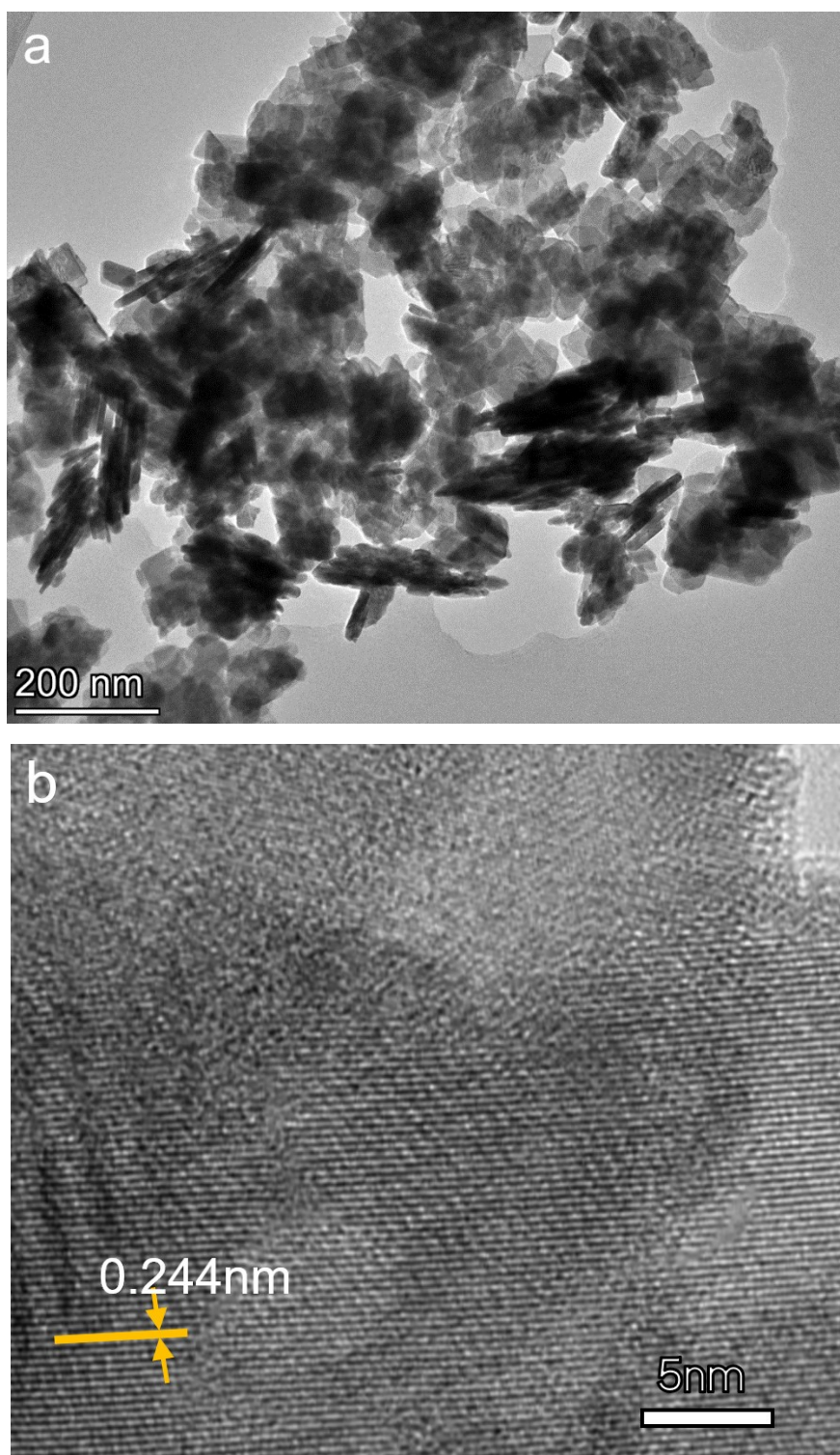
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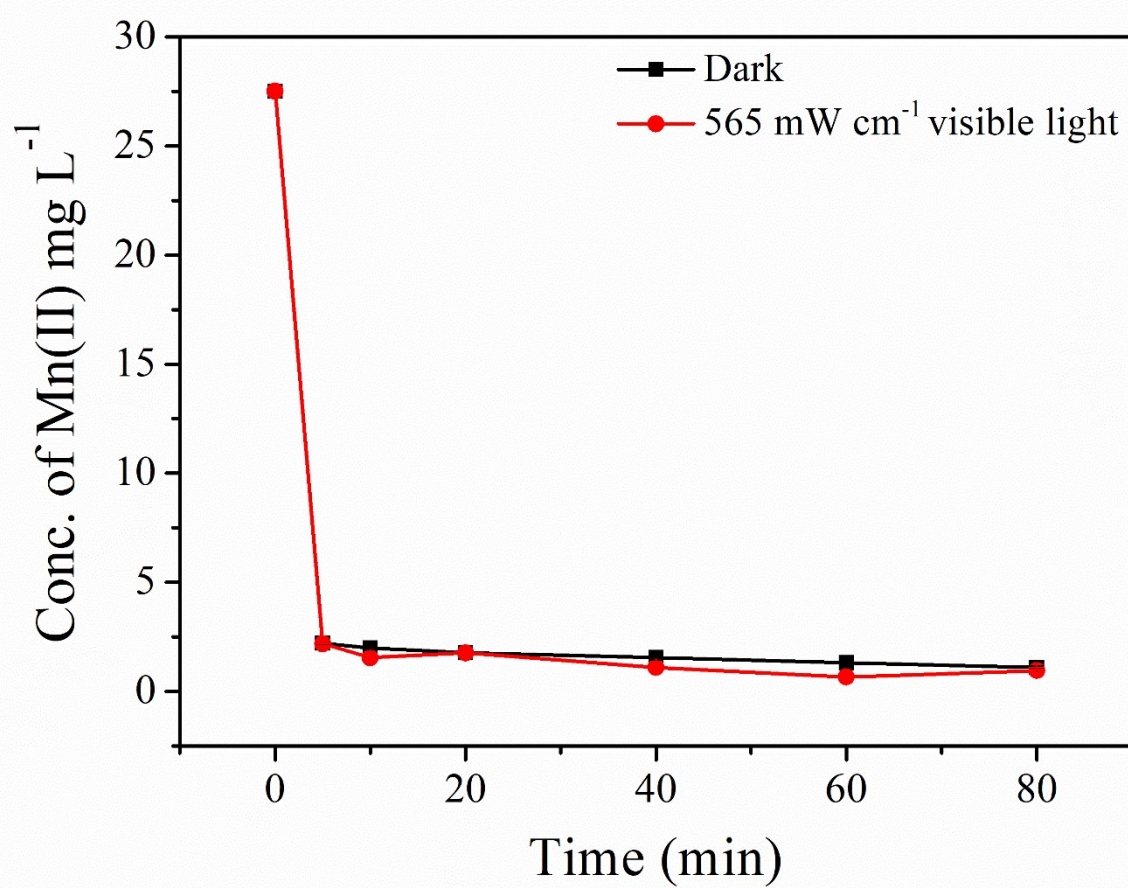
**Fig. S1** XRD pattern of  $\text{Bi}_{2.15}\text{WO}_6$ .



**Fig. S2** SEM image of  $\text{Bi}_{2.15}\text{WO}_6$ .

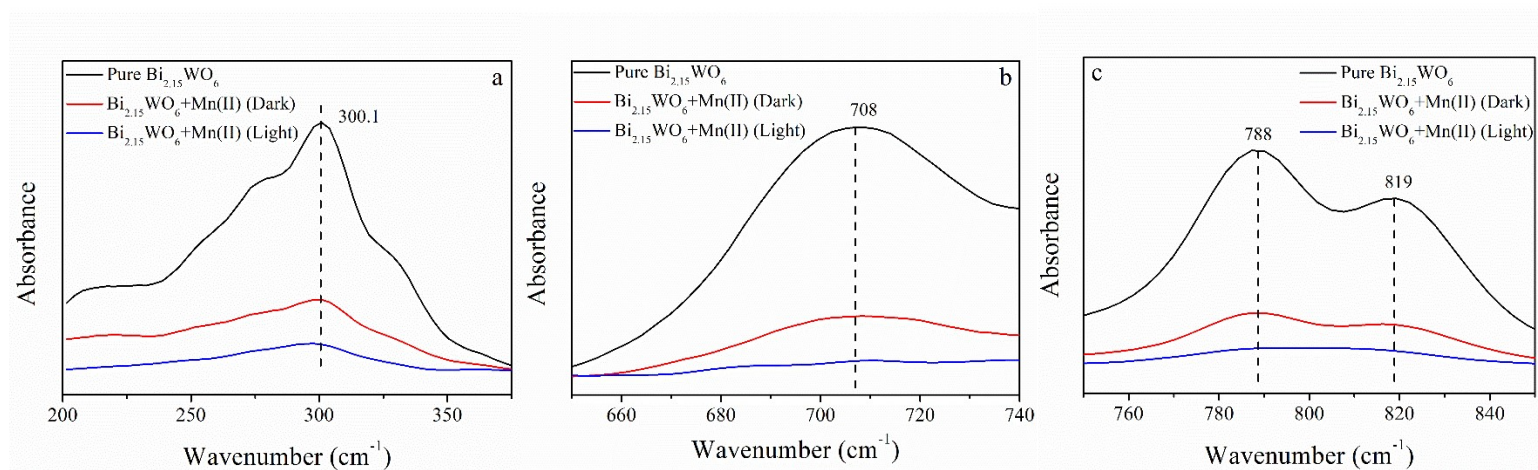


**Fig. S3** TEM image of  $\text{Bi}_{2.15}\text{WO}_6$ .



**Fig. S4** Concentration of Mn(II) in dark and 565 mW cm<sup>-1</sup> visible light.  
Conditions: [Bi<sub>2.15</sub>WO<sub>6</sub>] = 1.0 g L<sup>-1</sup>, pH 8.50 and [Mn(II)] = 0.5 mM.





**Fig. S5** Raman spectra of pure  $\text{Bi}_{2.15}\text{WO}_6$  and  $\text{Bi}_{2.15}\text{WO}_6\text{-Mn}$  after reacting with 0.5 mM  $\text{Mn(II)}$  in dark and under visible light.  
(a) 200-375  $\text{cm}^{-1}$ ; (b) 650-740  $\text{cm}^{-1}$ ; (c) 750-850  $\text{cm}^{-1}$ .