

Electronic Supplementary Information

**Homogeneous Core/shell Bi_2WO_6 Spherical Photocatalysts: Their Controlled
Synthesis and Enhanced Visible-light Photocatalytic Performances**

Chaochao Mao, Maolin Li, Zhiguo Fang, Fanli Meng, Xiaoni Qu, Yanping Liu, Mengjiao Wang,
Ji Zhang, Xiaohui Guo*

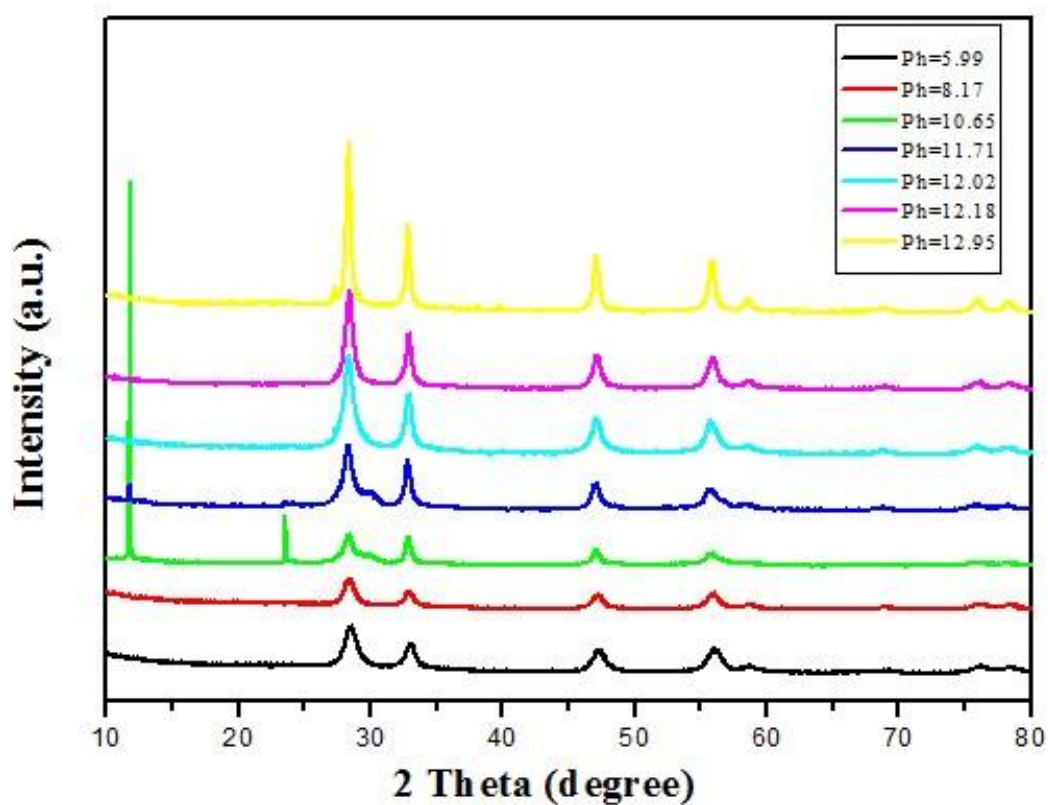


Figure S1: XRD patterns of the obtained Bi_2WO_6 samples at varying pH via 160°C solvothermal reaction for 20 h.

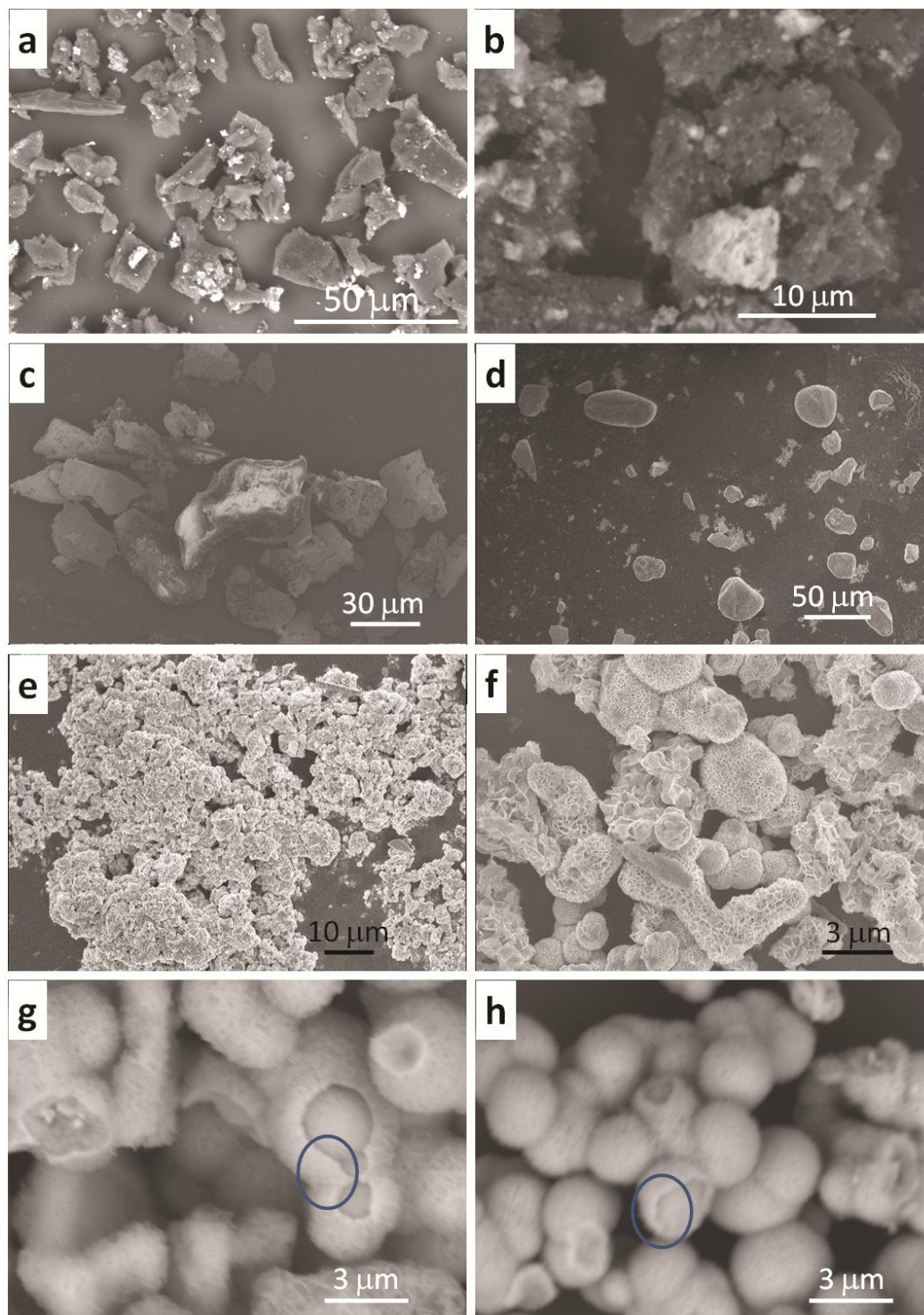


Figure S2: SEM images of the obtained Bi₂WO₆ samples under varying pH reaction conditions via 160°C solvothermal reaction for 20 h, (a) 1.05; (b) 2.65; (c) 5.90; (d) 8.15; (e) 10.65; (f) 11.75; (g) 12.18; (h) 12.95, herein, the circles indicate the formed core/shell structures.

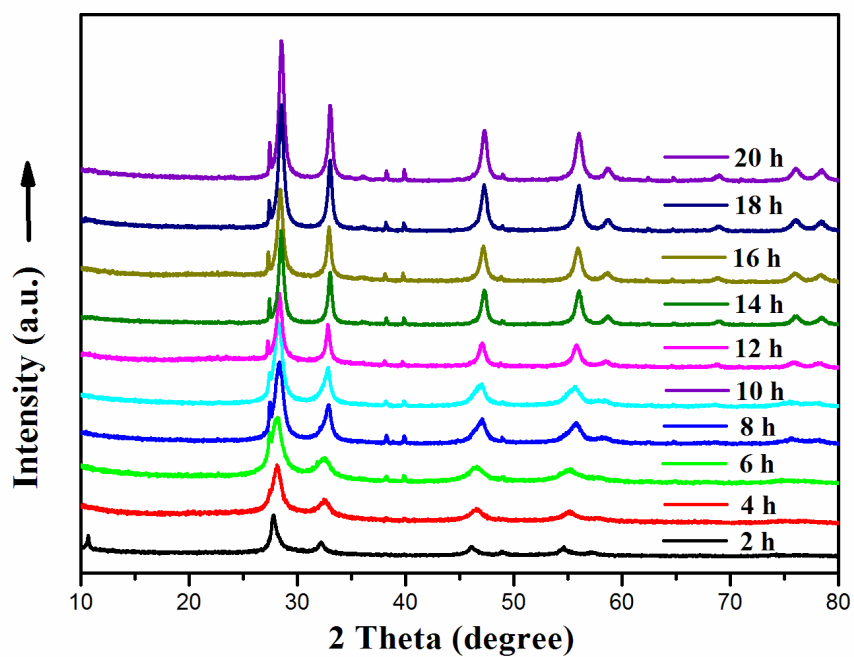


Figure S3: XRD patterns of the obtained Bi₂WO₆ samples via 160 °C solvothermal reaction for different reaction intervals.

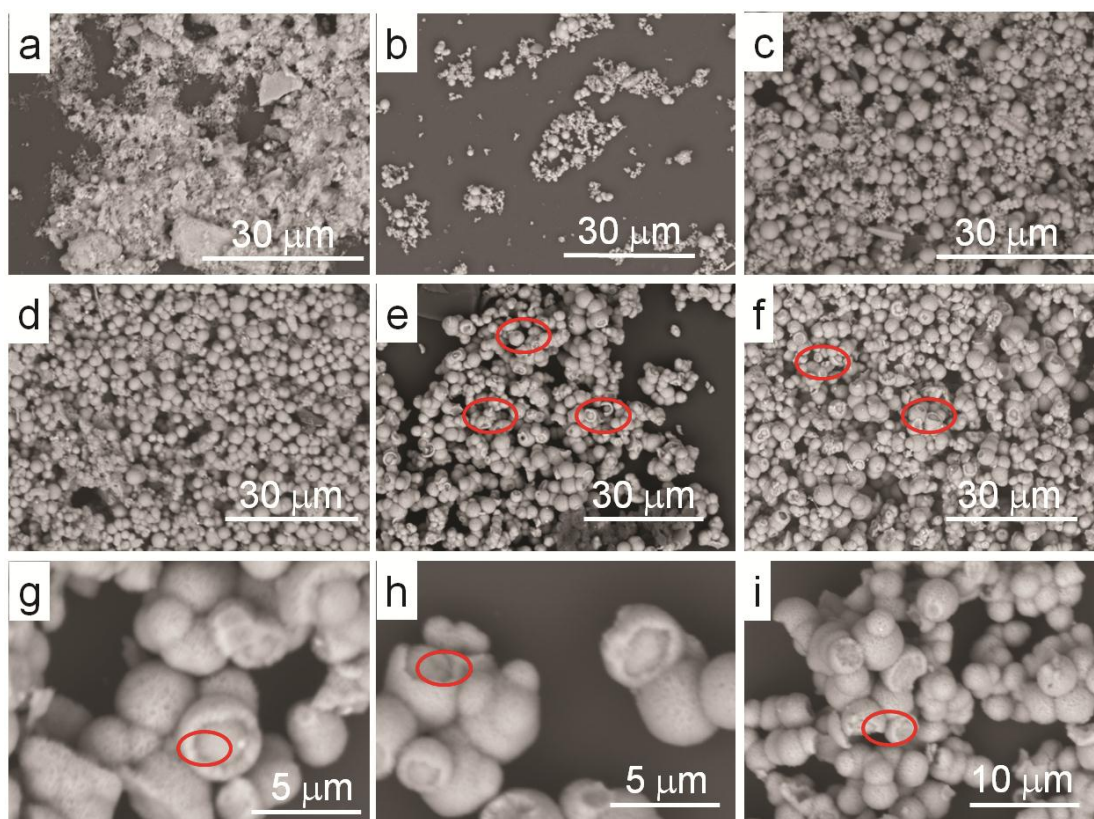


Figure S4: SEM images of the obtained Bi_2WO_6 samples at varying hydrothermal reaction intervals, a) 2 h; b) 4 h; c) 6 h; d) 8 h; e) 10 h; f) 12 h; g) 14 h; h) 16 h; i) 20 h, wherein, the red circles indicate the formed core/shell structures at different reaction intervals.

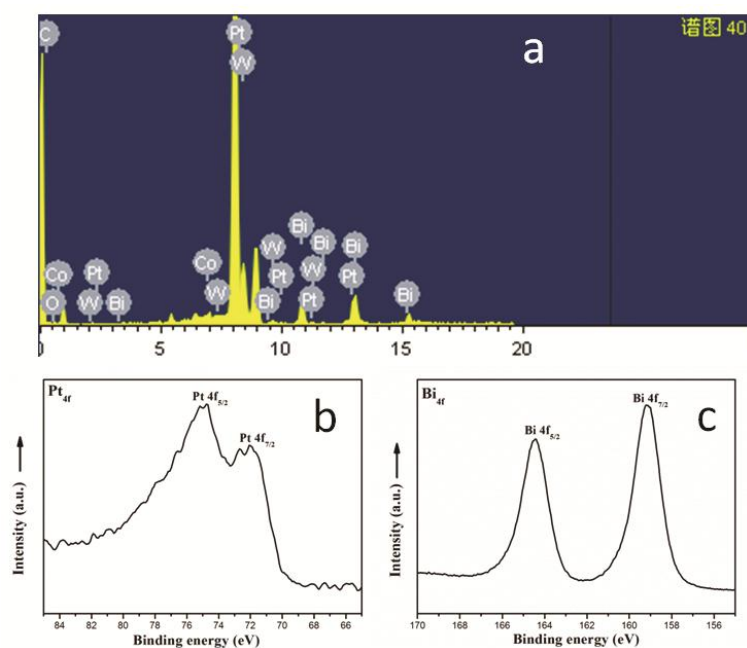


Figure S5: Structural and composition analysis for the Pt-loaded core/shell Bi_2WO_6 sample, (a) EDS image; (b, c) XPS spectra.

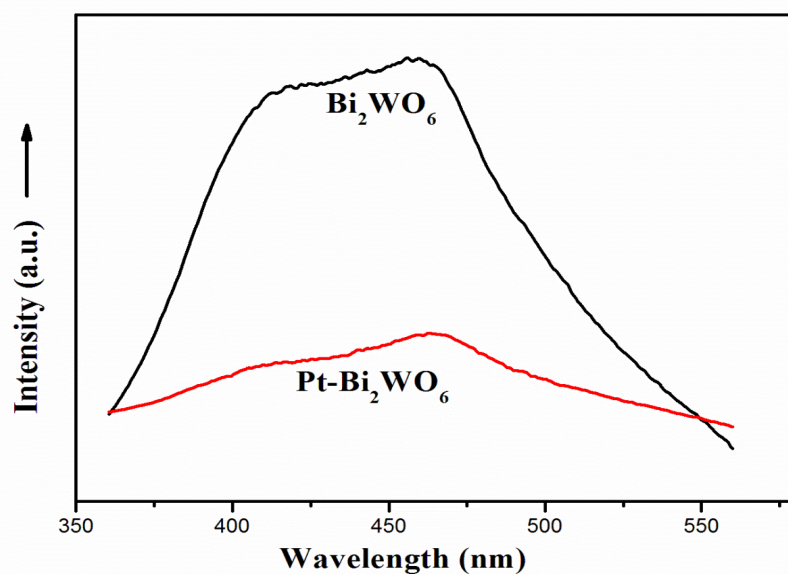


Figure S6: PL spectra of the as-made Bi_2WO_6 (BWO) based samples; the excitation wavelength was fixed at 320 nm.

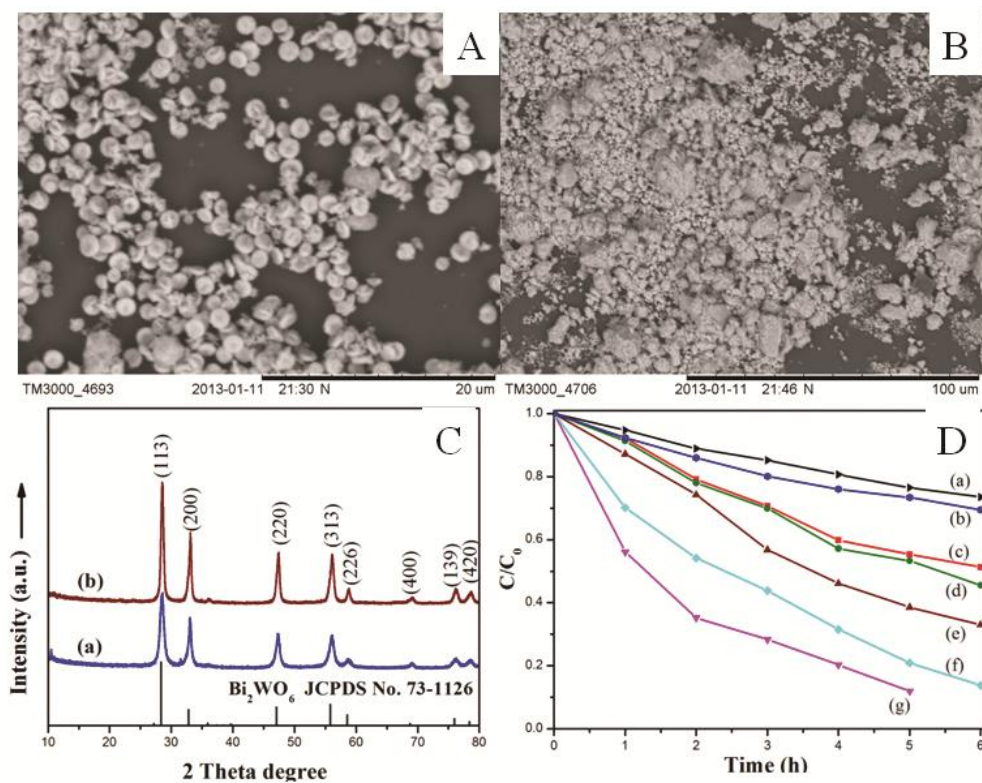


Figure S7: Morphology (A and B), structural(C), and UV-Vis spectra analysis of RhB

(D) for the as-prepared Bi_2WO_6 samples at different reaction conditions, wherein, sample a was obtained in $\text{H}_2\text{O}/\text{EG}= 3/1(\text{v/v})$ solution system via 160°C solvothermal reaction for 20 h; sample b can be obtained in pure EG solution system via 160°C solvothermal reaction for 20 h, The two samples are formed without addition of PVP. (a) Sample a; (b) Sample b; (c) Sample 1; (d) Sample 2; (e) Sample 3; (f) Pt- loaded Bi_2WO_6 composite; (g) Au- loaded Bi_2WO_6 composite.

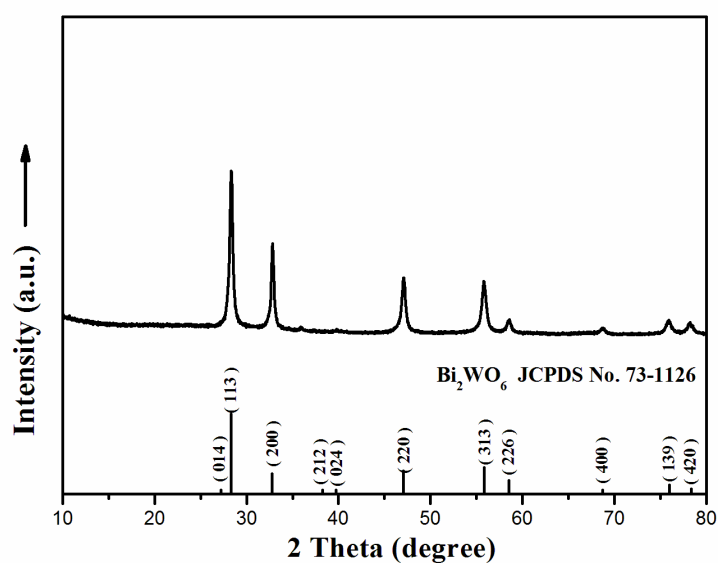


Figure S8: XRD pattern of the Pt-loaded Bi_2WO_6 sample after undergoing 5 catalytic cycles test.