Synthesis of BiOI@(BiO)$_2$CO$_3$ Facets Coupling Heterostructures toward Efficient Visible-Light Photocatalytic Properties

Chenghua Ding, Fengpu Cao, Liqun Ye,* Kecheng Liu, Haiquan Xie,* Xiaoli Jin, and Yurong Su

* College of Chemistry and Pharmaceutical Engineering, Nanyang Normal University, Nanyang 473061, People's Republic of China.
E-mail: yeliquny@163.com (L. Ye); xie-hq@163.com (H. Xie)

Active Species Trapping and Superoxide Radical Quantification

Experiments:

For detecting the active species during photocatalytic reactivity, hydroxyl radicals (·OH), the superoxide radical (O$_2$•$^-$), and holes (h$^+$) were investigated by adding 1.0 mM IPA (a quencher of ·OH), BQ (a quencher of O$_2$•$^-$), and TEOA (a quencher of h$^+$), respectively. The method was similar to the former photocatalytic activity test. NBT (2.5 × 10$^{-5}$ mol/L, exhibiting an absorption maximum at 259 nm) was used to determine the amount of O$_2$•$^-$ generating. The production of O$_2$•$^-$ was quantitatively analyzed by detecting the concentration of NBT with the spectrophotometer. The method was similar to the former photocatalytic activity test, with NBT replacing the RhB.
**Fig. S1** TEM image, HRTEM image (b) and model (c) and of BiOI.

**Fig. S2** Transformation percentage of NBT concentration by S-30 with 300 min irradiation.
Fig. S3 Catalyst reproducibility of S-60.

Fig. S4 XRD patterns of fresh and used S-60.

Fig. S5 Trapping experiment of active species during the photocatalytic reaction of S-30.