Supplementary Information for

Pt Quantum Dots Deposited on N-Doped (BiO)$_2$CO$_3$: Enhanced Visible Light Photocatalytic NO Removal and Reaction Pathway

Xing’an Dong,a Wendong Zhang,b Wen Cui,a Yanjuan Sun,a Hongwei Huang,c Zhongbiao Wu,d and Fan Dong*,a

a Chongqing Key Laboratory of Catalysis and New Environmental Materials, College of Environment and Resources, Chongqing Technology and Business University, Chongqing 400067, China.
b Department of Scientific Research Management, Chongqing Normal University, Chongqing, 401331, China.
c National Laboratory of Mineral Materials, School of Materials Science and Technology, China University of Geosciences, Beijing 100083, China.
d Department of Environmental Engineering, Zhejiang University, Hangzhou 310027, China.

*Corresponding authors. E-mail address: dfctbu@126.com (Fan Dong).
Photocatalytic decomposition of phenol. Fifty milligrams of the photocatalyst were ultrasonically dispersed in 50 mL of the phenol aqueous solution (10 mg/L). Before light irradiation, the suspension was magnetically stirred in darkness for 1 h to achieve an absorption–desorption equilibrium. Afterward, the light (500 W xenon lamp, \( \lambda > 420 \text{ nm} \)) was turned on. At certain time interval, 3 mL of the suspension was sampled and centrifuged to get rid of the solid particles. Finally, the concentration of phenol was determined by colorimetry on a UV-5500PC UV–vis spectrophotometer. The concentration of phenol was analyzed by recording the absorbance at the characteristic band of 270 nm using a Cary 5000 UV-vis spectrophotometer.

Fig. S2 Photocatalytic degradation curves of phenol over BOC, NBOC and Pt-180 under visible light irradiation.
The degradation curves of phenol are shown in Fig. S2. The pure BOC exhibits a little photodegradation efficiency under visible light ($\lambda > 420$ nm). Comparatively, the NBOC showed improved photocatalytic performance with a removal ratio of 34.8% due to the N doping. Specifically, Pt-180 exhibits further enhanced photocatalytic activity, in which the phenol removal ratio reaches 74.7% with irradiation of visible light for 5 h.