

Supporting Information for

Three-Dimensional Potassium Niobate Nanoarray on Vermiculite for High-performance Photocatalyst Fabricated by an *in situ* Hydrothermal process

Yuwei Wang,^a Xianggui Kong,^{a,*} Weiliang Tian,^a Deqiang Lei^b and Xiaodong Lei^{a,*}

^aState Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, China. Tel.: +86-10-64455357. Fax: +86-10-64425385. E-mail address: leixd@mail.buct.edu.cn; kongxg@mail.buct.edu.cn.

^bDepartment of Neurosurgery, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430022, China.

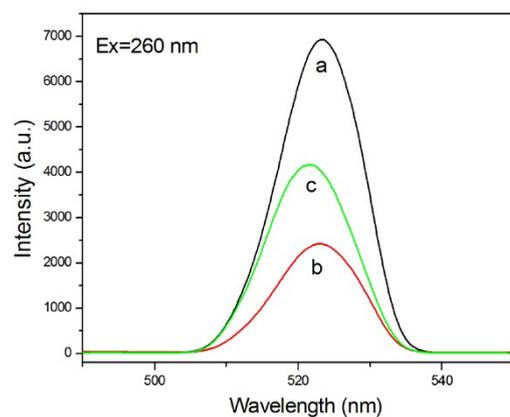


Fig. S1. PL spectra of VMT (a), KNbO₃ (b) and KNbO₃/VMT (c) with the excitation wavelength of 260 nm.

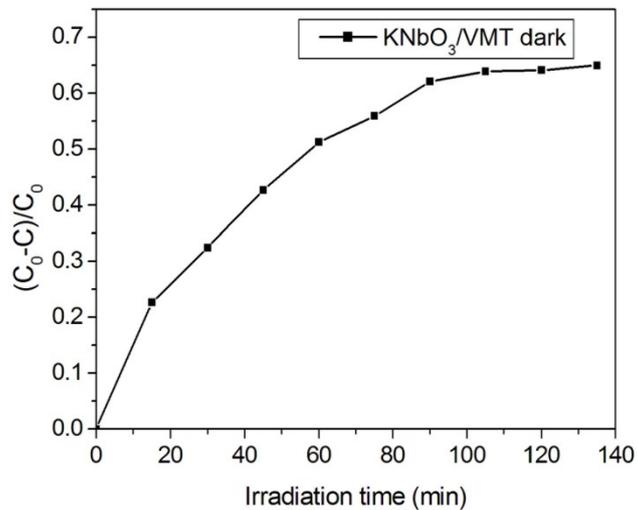


Fig. S2. The MB adsorption percentages over the KNbO₃/VMT composite in the dark. The initial MB concentration was 10 mg/L and the amount of the catalyst was 0.3 g.

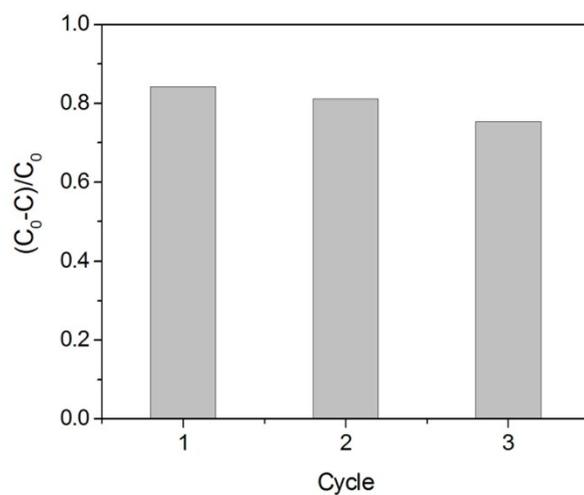


Fig. S3. Photocatalytic degradation profiles of MB after three consecutive catalytic cycles. The initial MB concentration was 20 mg/L and the amount of the catalyst was 0.3 g.

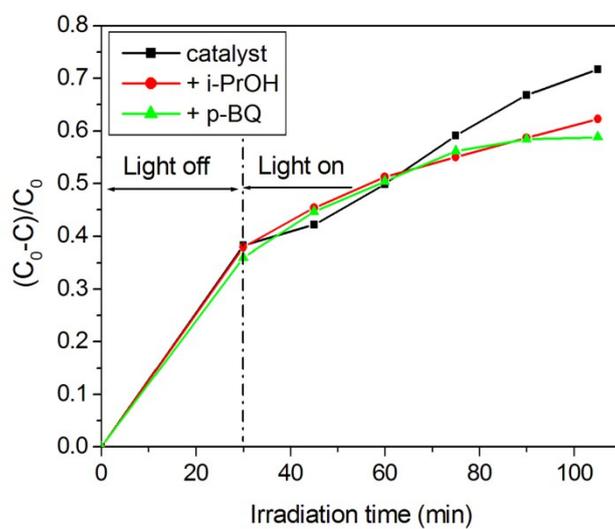


Fig. S4. Degradation kinetics of MB ($C_0=10$ mg/L) in the presence of scavengers under visible light.

Table S1. The mass loading of KNbO₃ on VMT with the hydrothermal time prolonged.

| Time (h) | 8 | 9 | 10 | 12 |
|------------------|-------|-------|-------|-------|
| Mass loading (%) | 3.37% | 3.56% | 7.52% | 9.85% |

Table S2. BET surface areas of VMT, KNbO₃ and KNbO₃/VMT.

| Sample | VMT | KNbO ₃ | KNbO ₃ /VMT |
|---------------------------------|--------|-------------------|------------------------|
| BET surface (m ² /g) | 15.444 | 6.617 | 12.905 |