

## Supporting Information

# Photochromism-promoted high efficient photocatalytic degradation in ferroelectric photochromics

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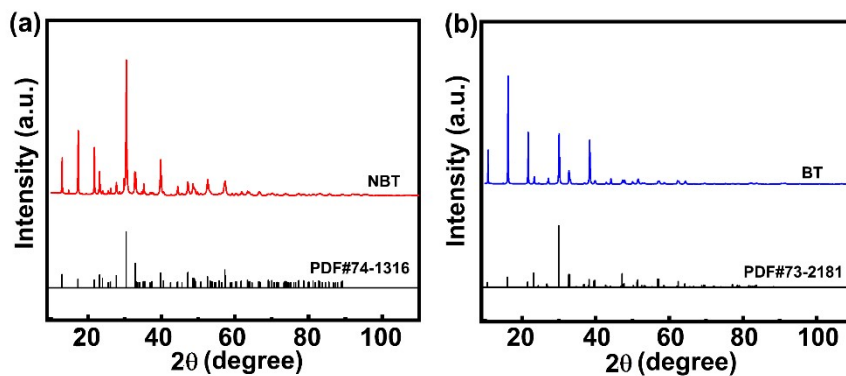


Fig. S1. XRD patterns of (a) NBT and (b) BT, respectively.

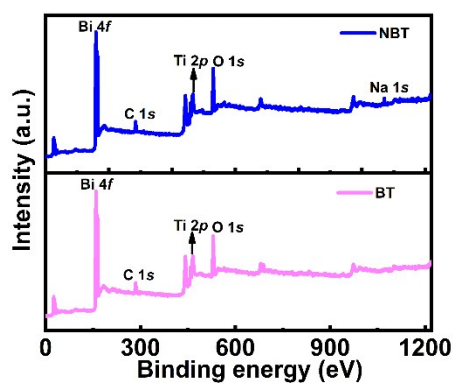


Fig S2. XPS spectra of (a) NBT and (b) BT samples, respectively.

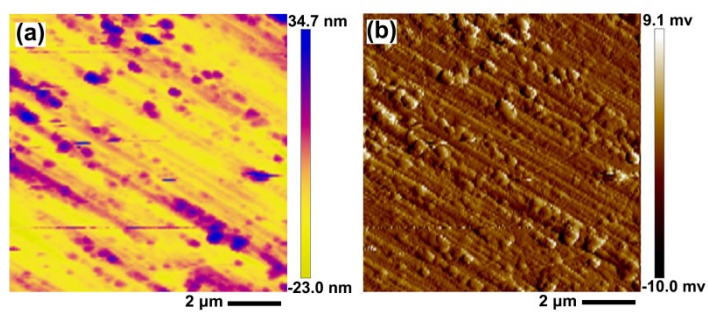


Fig. S3. (a) and (b) AFM image and amplitude of NBT surface before light irradiation, respectively.

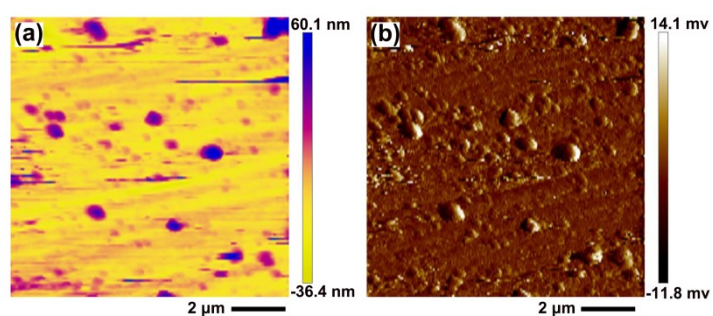


Fig. S4. (a) and (b) AFM image and amplitude of BT surface before light irradiation, respectively.

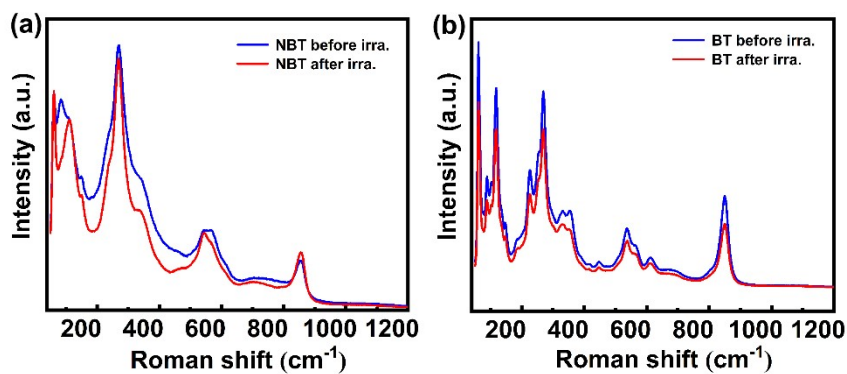


Fig. S5. Raman spectra of (a) NBT and (b) BT samples before and after 405 nm irradiation for 30 s, respectively.

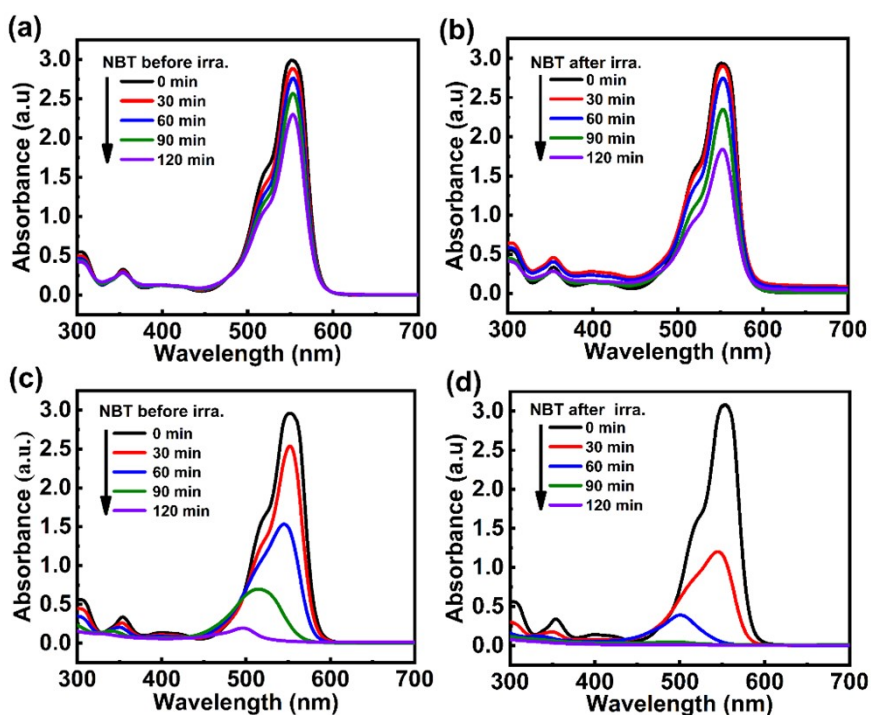


Fig. S6. (a) and (b) UV-absorption spectra of RhB for NBT sample before and after light irradiation in the piezocatalytic process, respectively; (c) and (d) UV-absorption spectra of RhB before and after light irradiation in the photocatalytic process, respectively.

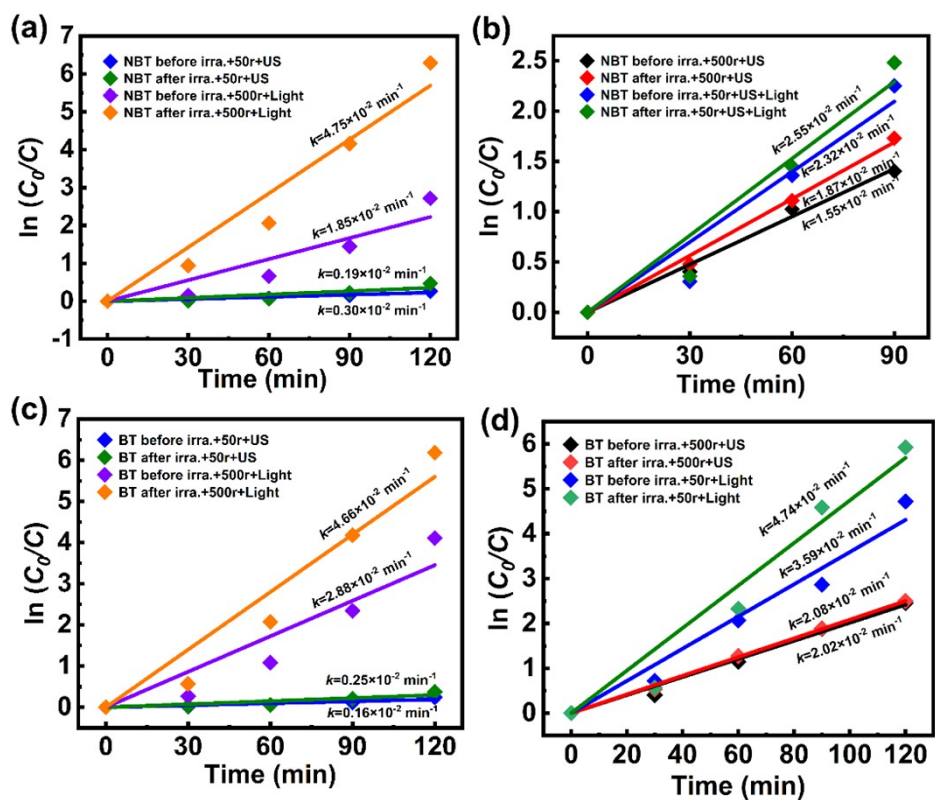


Fig. S7. (a) and (b) Pseudo-first-order kinetic linear fitting of RhB degradation of NBT before and after irradiation, respectively. (c) and (d) Pseudo-first-order kinetic linear fitting of RhB degradation of BT before and after irradiation, respectively.

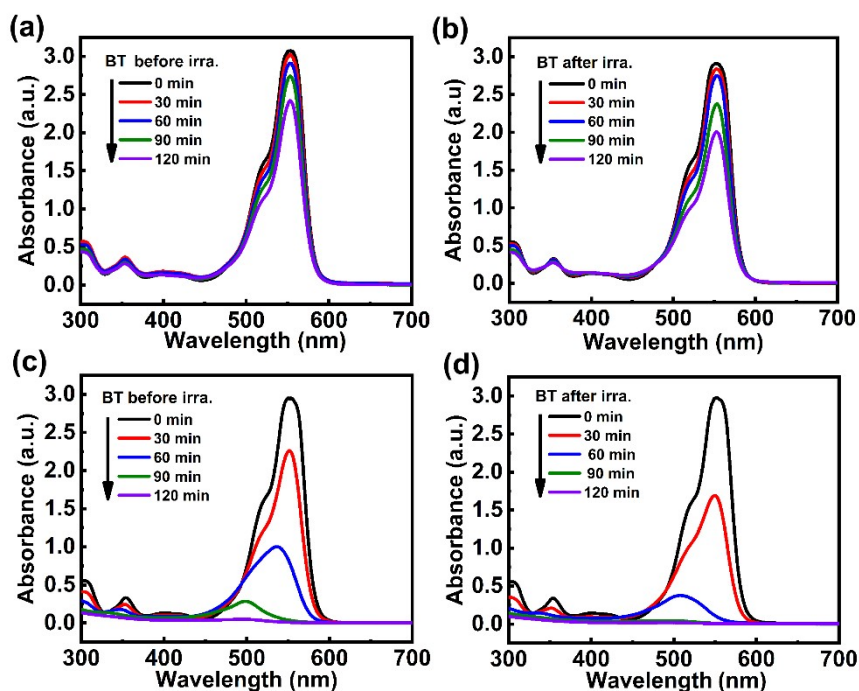


Fig. S8. (a) and (b) UV-absorption spectra of RhB for BT sample before and after light irradiation in the piezocatalytic process, respectively; (c) and (d) UV-absorption spectra of RhB before and after light irradiation in the photocatalytic process, respectively.

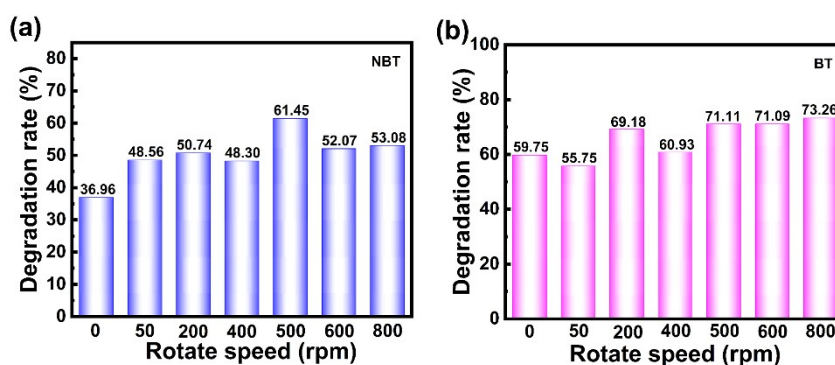


Fig. S9. The photocatalytic degradation rate of RhB at different mechanical stirring speeds for NBT (a) and BT (b) samples, respectively.

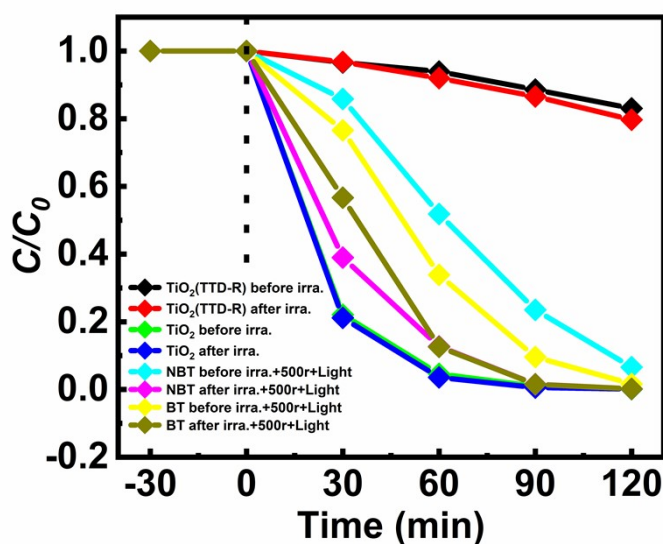


Fig. S10. The comparison of the catalytic degradation performance of TTD-R, TiO<sub>2</sub>, NBT and BT sample before and after light irradiation.

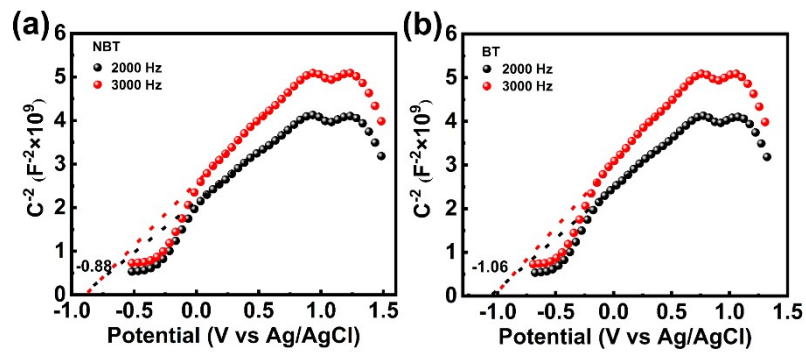


Fig. S11. Mott-Schottky plots of NBT (a) and BT (b) samples, respectively.