

A Novel hydrolytic reaction to morphology-controlled TiO₂ micro/nanostructures for enhanced photocatalytic performances

Supporting Information

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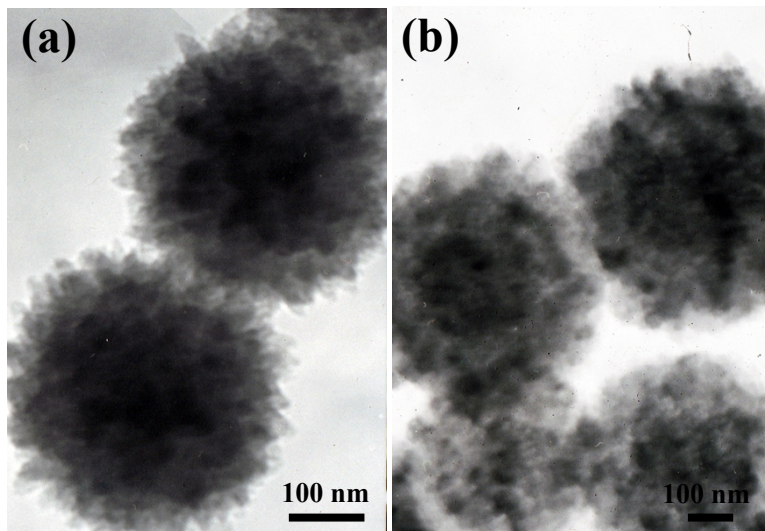


Fig. S1. TEM images of the products prepared hydrothermally with the assistance of urea at different time intervals: (a) 0.5 h, (b) 1 h.

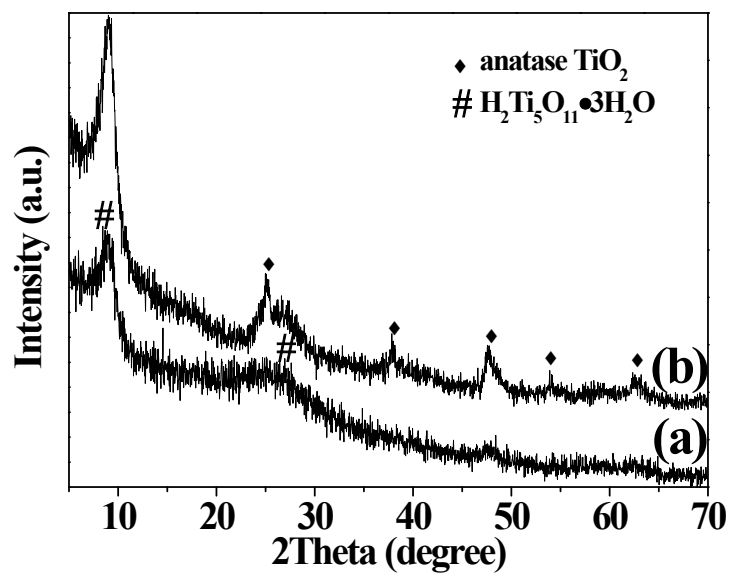


Fig. S2. XRD patterns of the samples synthesized through hydrothermal treatment of (NH₄)₂TiF₆ with the assistance of H₂O₂ and urea for (a) 0.5 h and (b) 1 h.

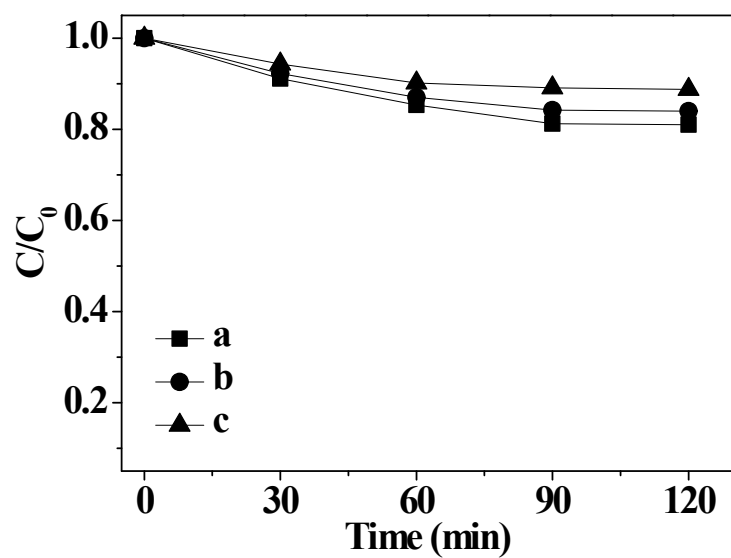


Fig. S3. The adsorption curves of RhB solution (initial concentration: 1×10^{-5} mol/L) over (a) TiO_2 nanorods, (b) TiO_2 core-shell nanospheres, and (c) TiO_2 microspheres.

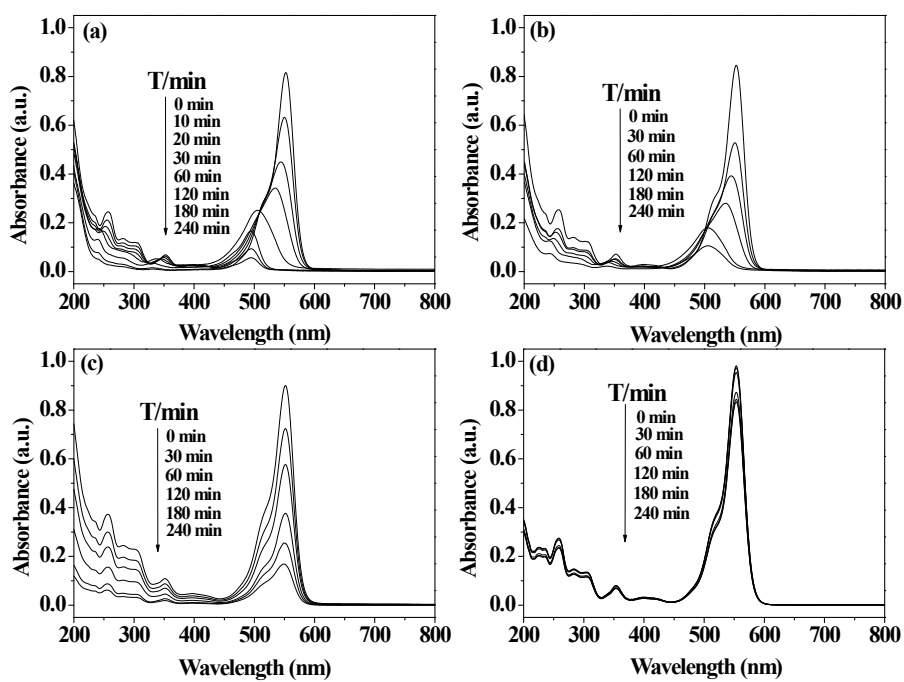


Fig. S4. UV-vis spectral changes of RhB solution (initial concentration: 1×10^{-5} mol/L) under UV light irradiation in the presence of (a) TiO₂ nanorods, (b) TiO₂ core-shell nanospheres, (c) TiO₂ microspheres, and (d) in the absence of any photocatalyst.

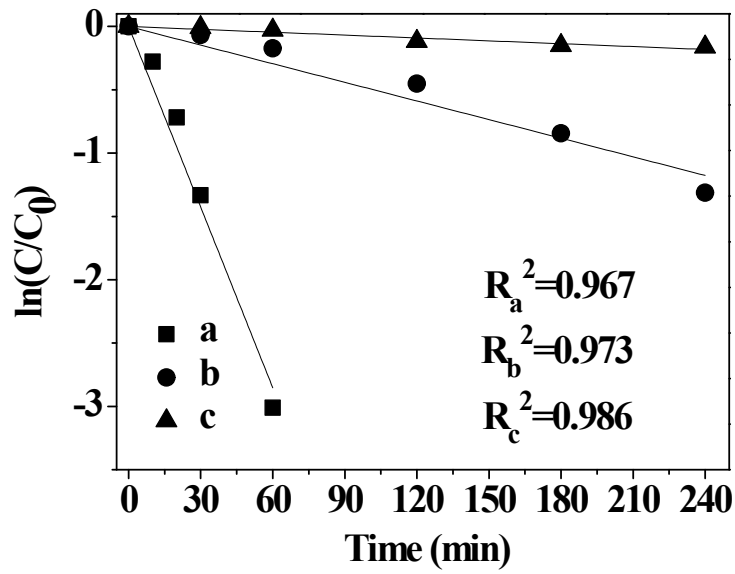


Fig. S5. The dependence of $\ln(C/C_0)$ on UV light irradiation time t and their fitting plots: (a) TiO_2 nanorods, (b) TiO_2 core-shell nanospheres, and (c) TiO_2 microspheres.

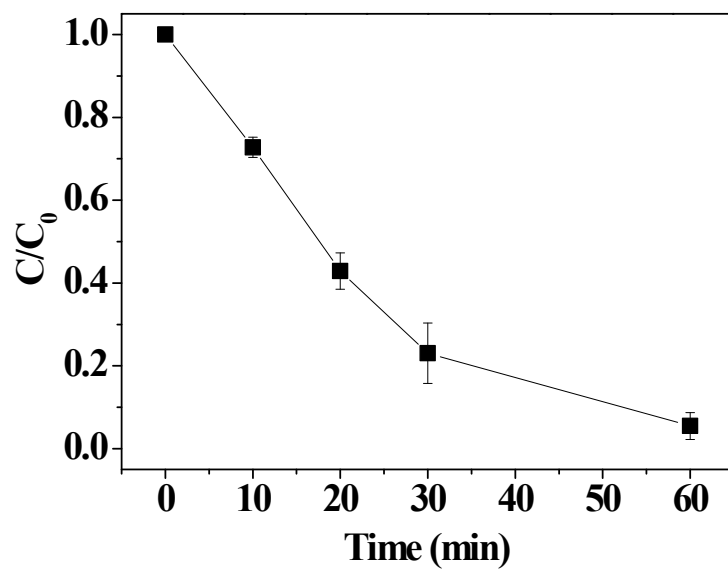


Fig. S6. Photocatalytic degradation of RhB solution (1×10^{-5} mol/L) under UV light irradiation in the presence of TiO_2 nanorods. Each point represents the average value of four separate experiments derived from four batches of photocatalysts, and the vertical line represents the error range.

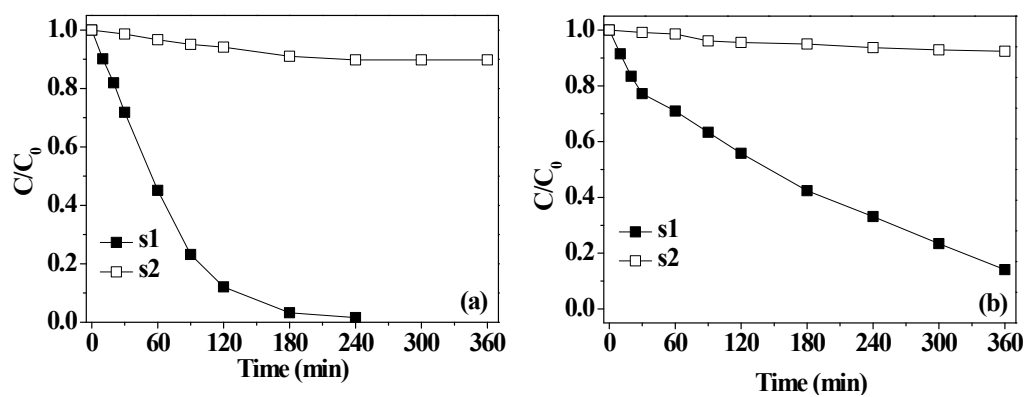


Fig. S7. Photocatalytic degradation of RhB solution with initial concentration of (a) 2×10^{-5} and (b) 5×10^{-5} mol/L under UV light irradiation in the presence (s1) TiO_2 nanorods and (s2) in the absence of any photocatalyst.

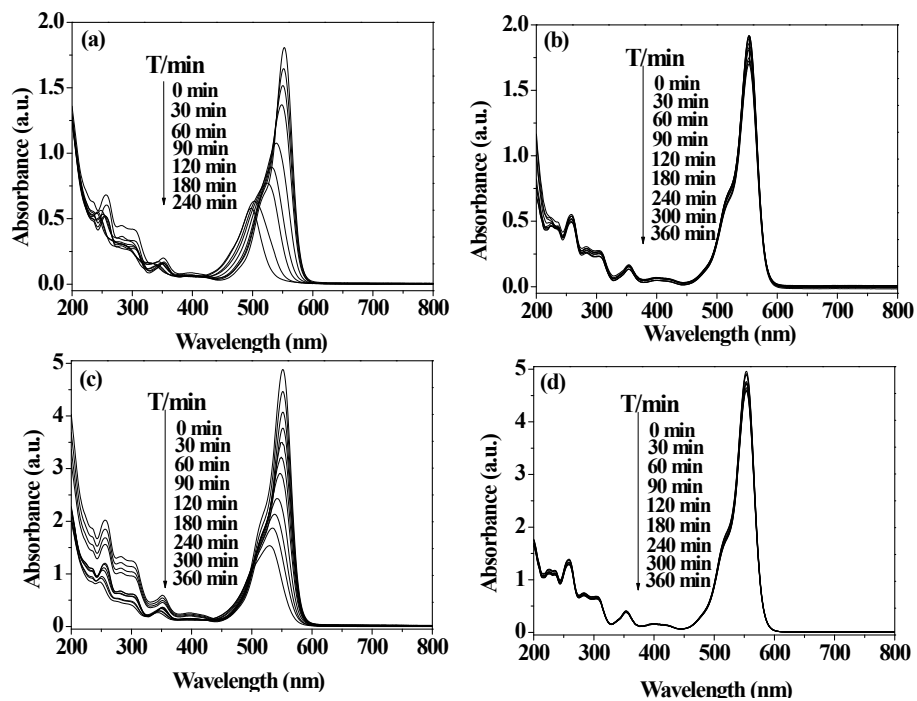


Fig. S8. UV-vis spectral changes of RhB solution under UV light irradiation in the presence of (a, c) TiO₂ nanorods and (b, d) in the absence of any photocatalyst. (Initial concentration: (a, b) 2×10^{-5} mol/L, (c, d) 5×10^{-5} mol/L).

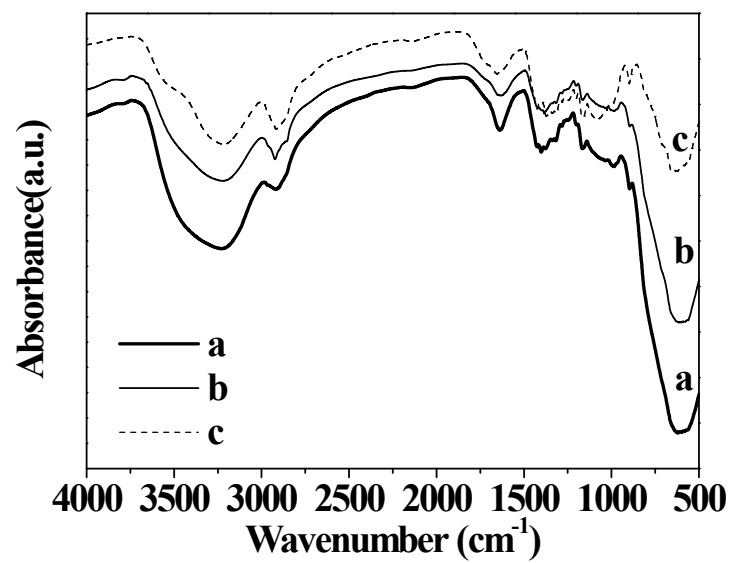


Fig. S9 FT-IR spectra of the samples: (a) TiO₂ nanorods, (b) TiO₂ core-shell nanospheres, and (c) TiO₂ microspheres