Supplementary Information

Visible light driven photocatalytic decolorization and disinfection of water employing reduced TiO_2 nanopowders

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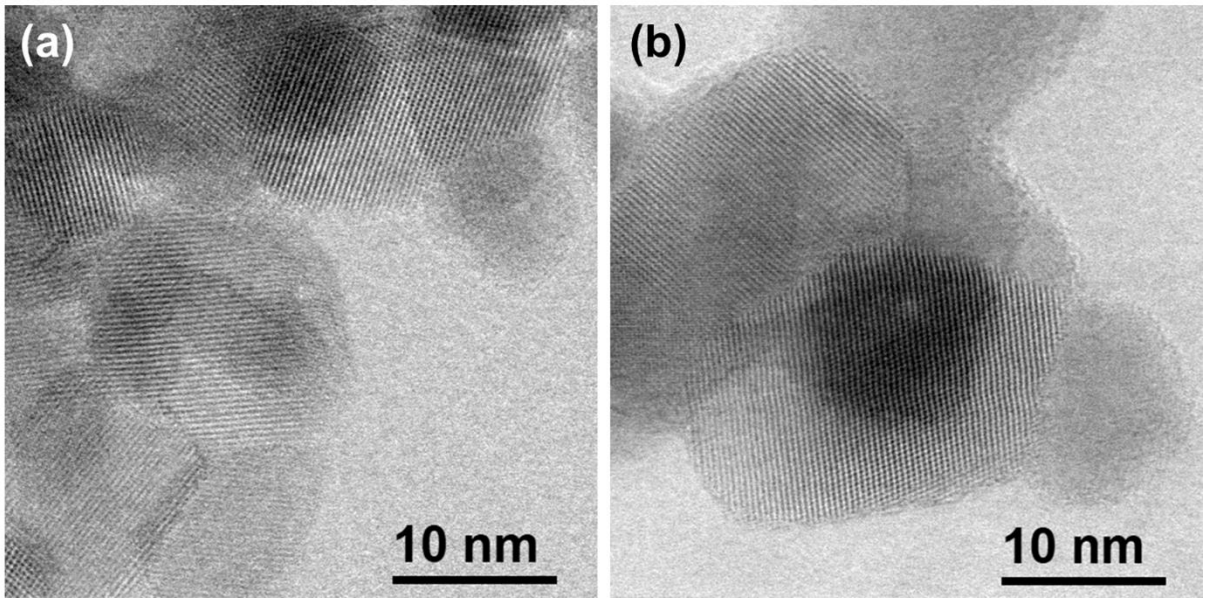

Figure S1: ABF-STEM images of the same magnification from C-TiO_2 (a) and N-TiO_2 (b). Annealing in NH_3 atmosphere resulted in larger grains reaching a maximum size ~25 nm, while the maximum grain size observed after annealing in air was ~15 nm.

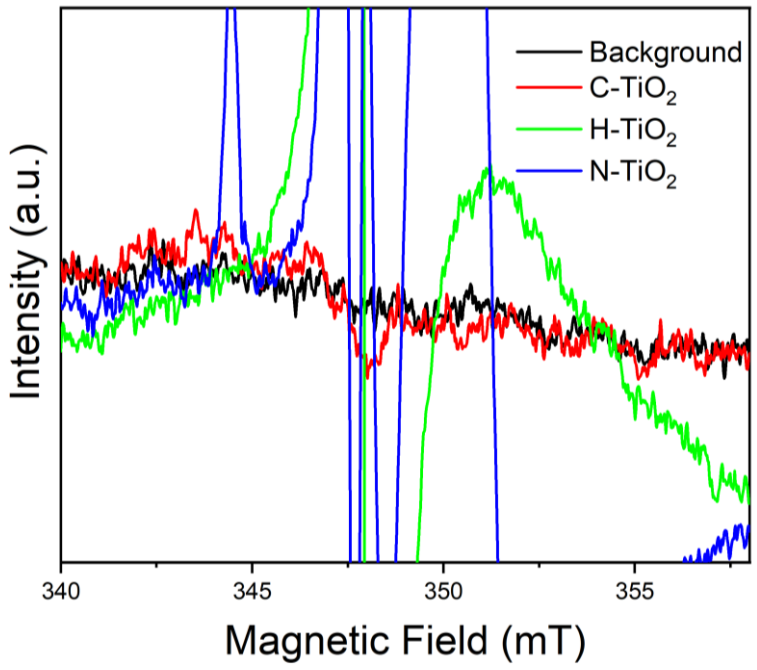

Figure S2: A higher magnification of the EPR spectra of paramagnetic species in C-TiO_2, H-TiO_2 and N-TiO_2.

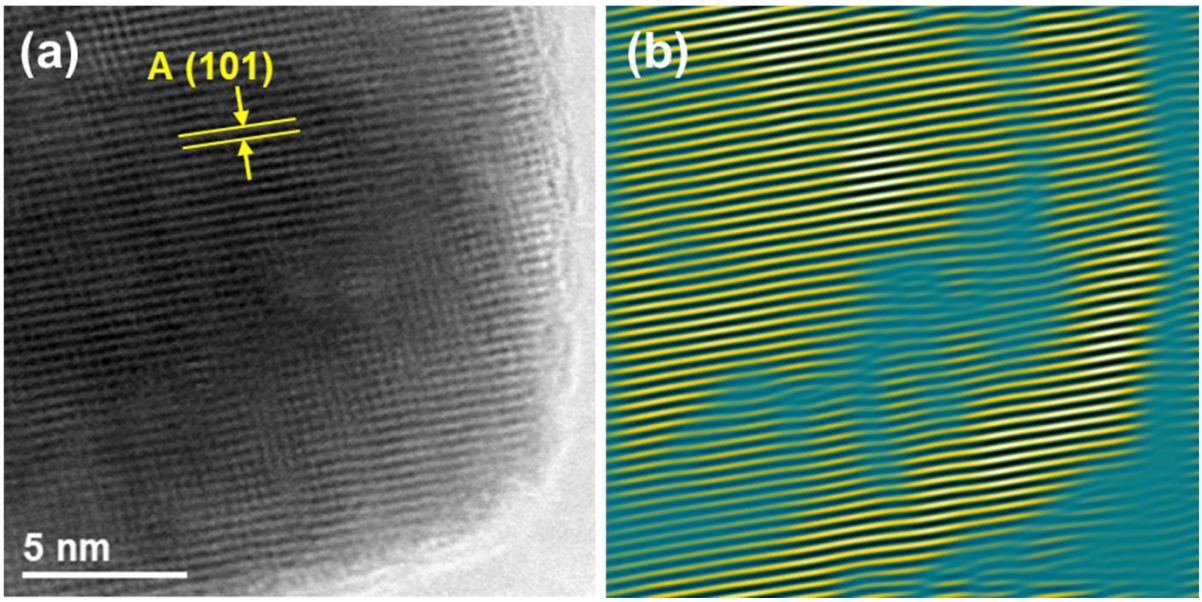

Figure S3: High-resolution ABF-STEM image of anatase nanoparticle N-TiO_2 (a) and the corresponding filtered image using *g 101* (b). Areas of nano-scale lattice distortion were detected, attributed to accumulation of point defects.

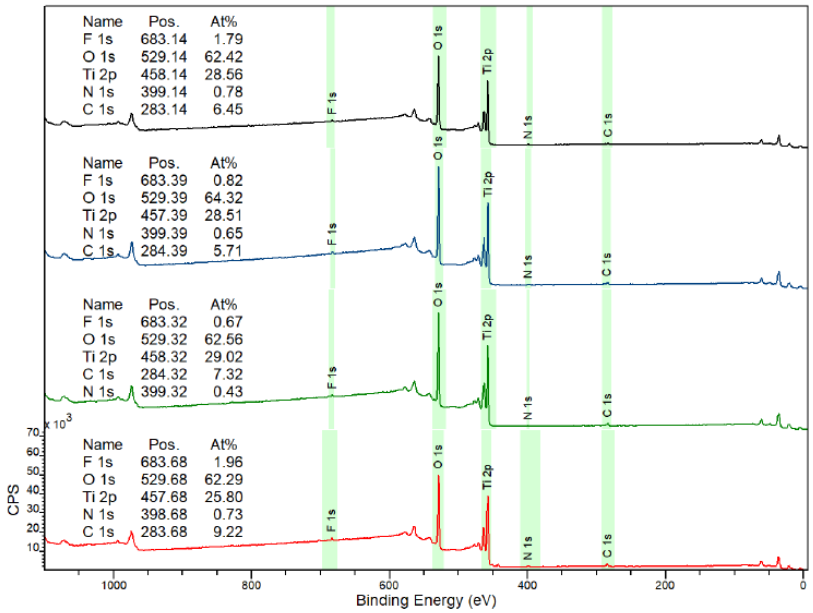

Figure S4: Survey XPS spectra of A-TiO_2 (black), C-TiO_2 (blue), H-TiO_2 (green) and N-TiO_2 (red). Atomic percentages are given on the graph.

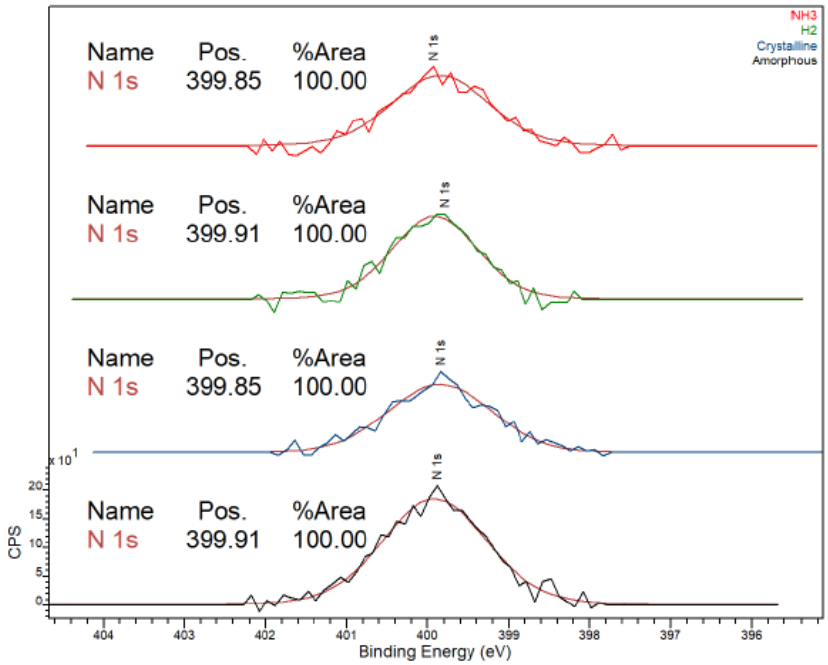

Figure S5: XPS spectra of N 1s of A-TiO_2 (black), C-TiO_2 (blue), H-TiO_2 (green) and N-TiO_2 (red).

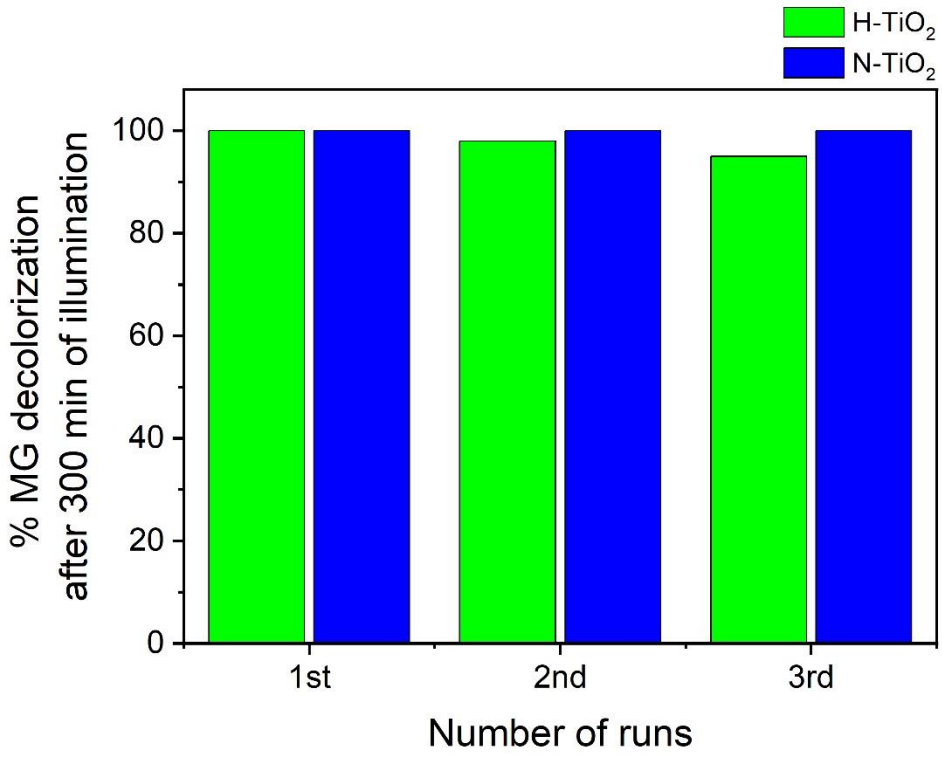

Figure S6: Recycling experiments of the H-TiO_2 and N-TiO_2 samples for three consecutive cycles of 300 min each. In each round a fresh solution of 5 mg L^{-1} MG was photocatalytically treated by 0.5 g L^{-1} of recovered photocatalyst under visible light illumination.

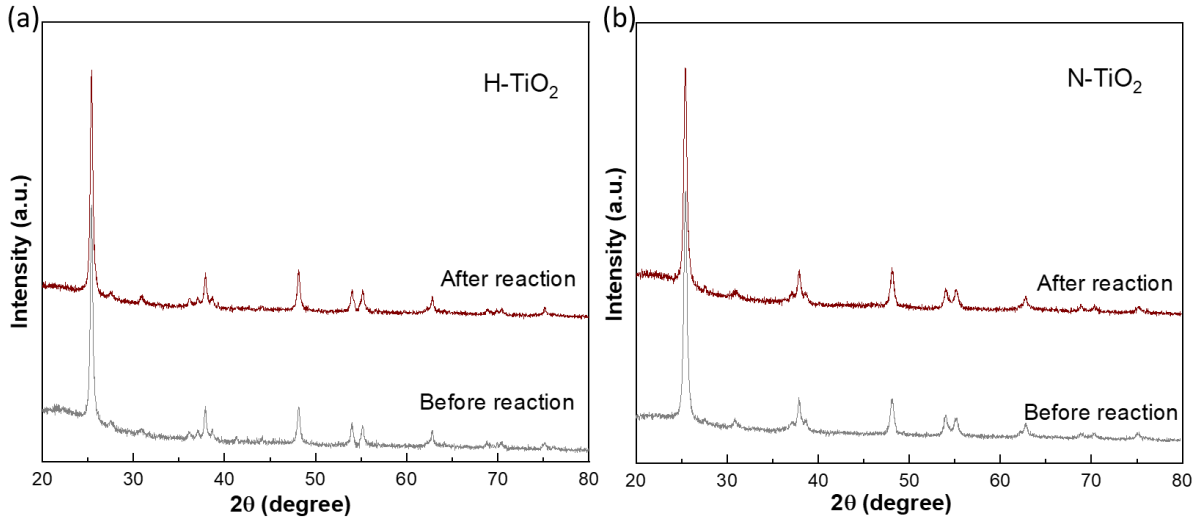

Figure S7: XRD patterns of the H-TiO_2 (a) and N-TiO_2 (b) samples before and after the recycling experiments of Fig. S6.