Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Nitrogen-doped TiO_2 microspheres with hierarchical micro/nanostructures and rich dual-phase junctions for enhanced photocatalytic activity

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Figures

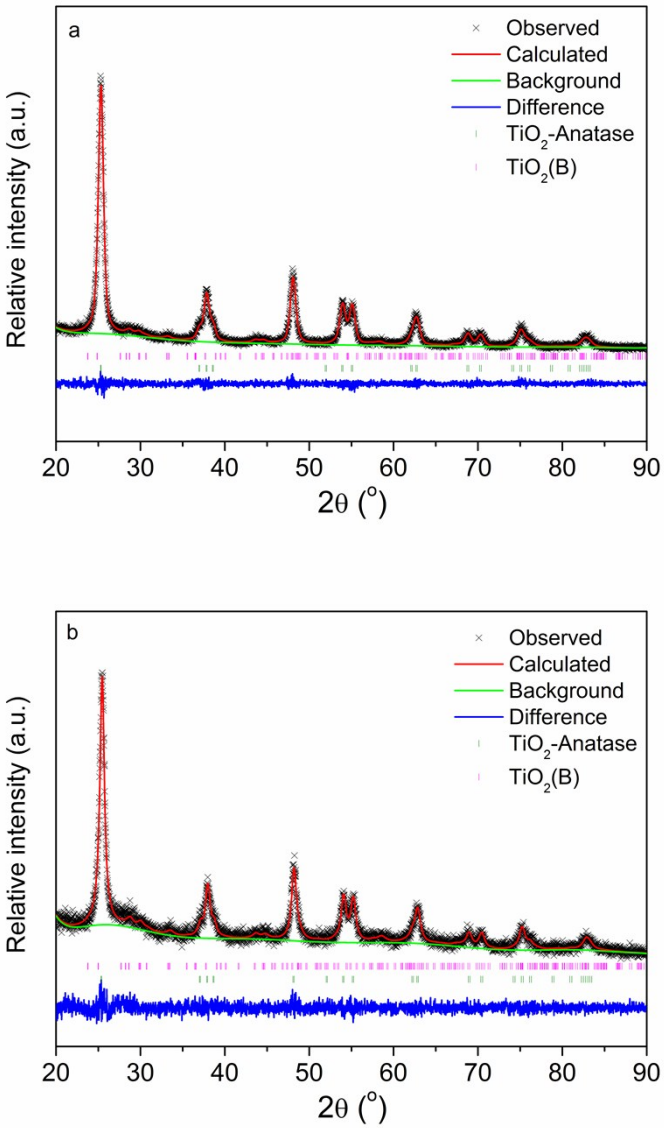

Fig. S1 Rietveld analyses of XRD patterns for TiO_2 (a) and N-TiO_2 (1-8) (b) samples.

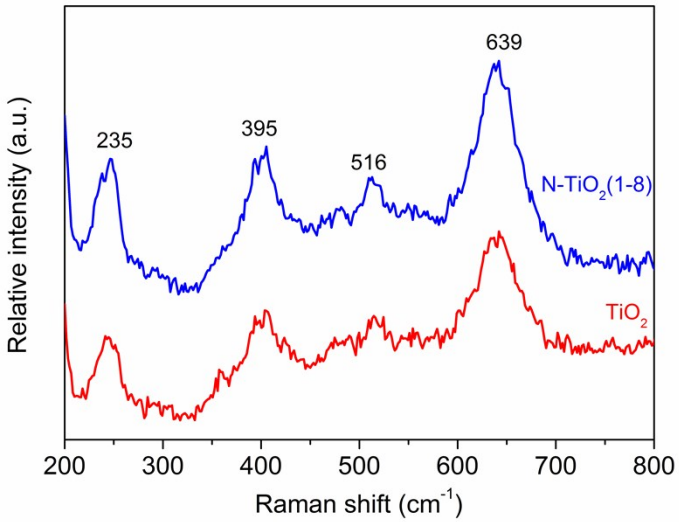

Fig. S2 Raman spectra of TiO_2 and N-TiO_2 (1-8).

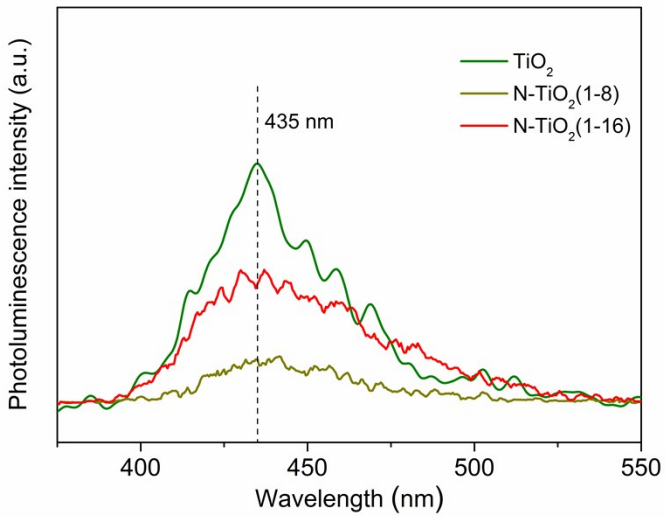

Fig. S3 Photoluminescence (PL) spectra of TiO_2, N-TiO_2 (1-8) and N-TiO_2 (1-16).

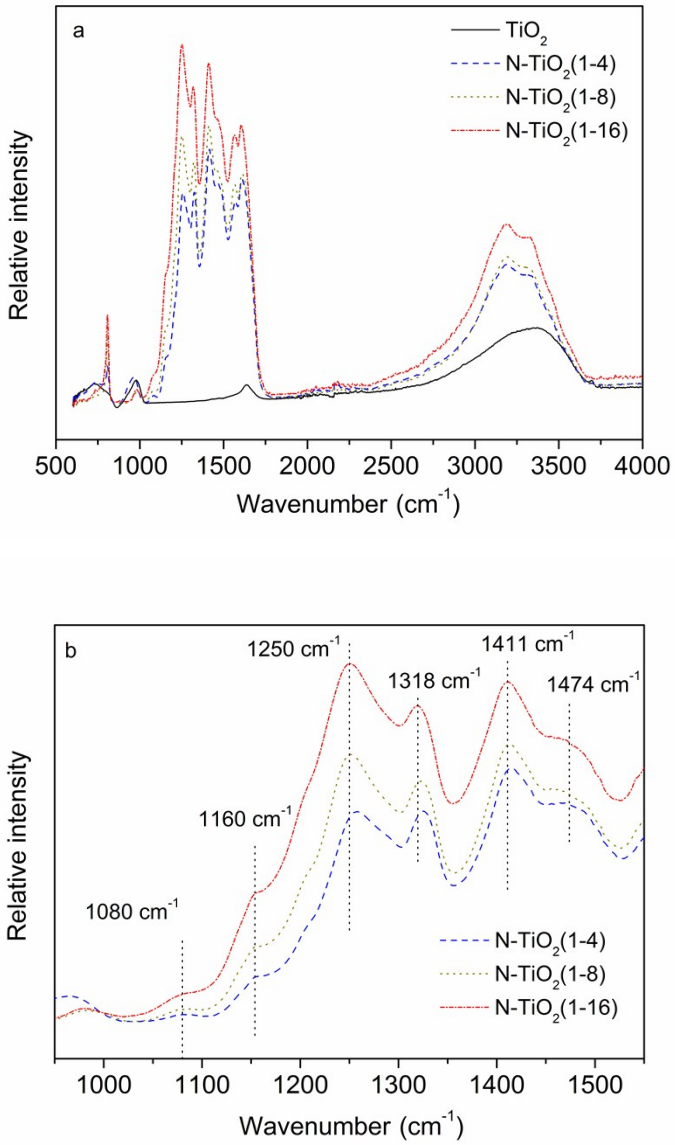

Fig. S4 (a) FTIR spectra of pure TiO_2 and various N-TiO_2 and (b) an enlarged FTIR spectra from 950 cm^{-1} to 1550 cm^{-1}.

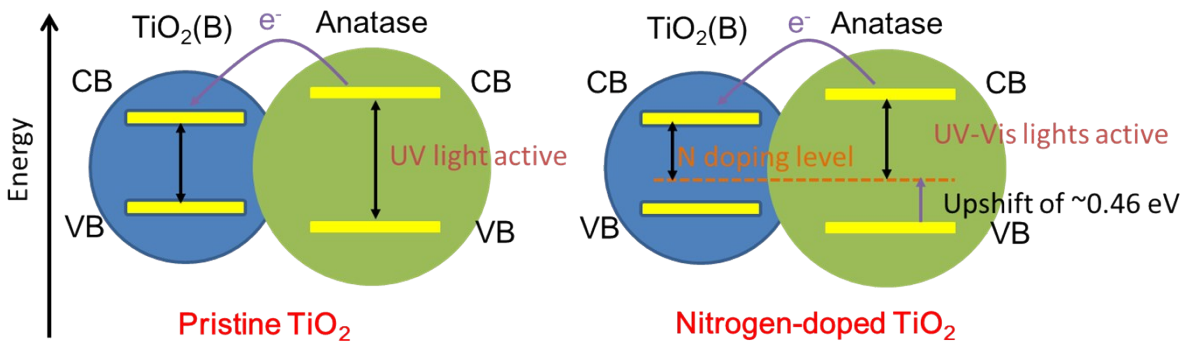

Fig. S5 The band diagram of pristine TiO_2 and N-TiO_2.

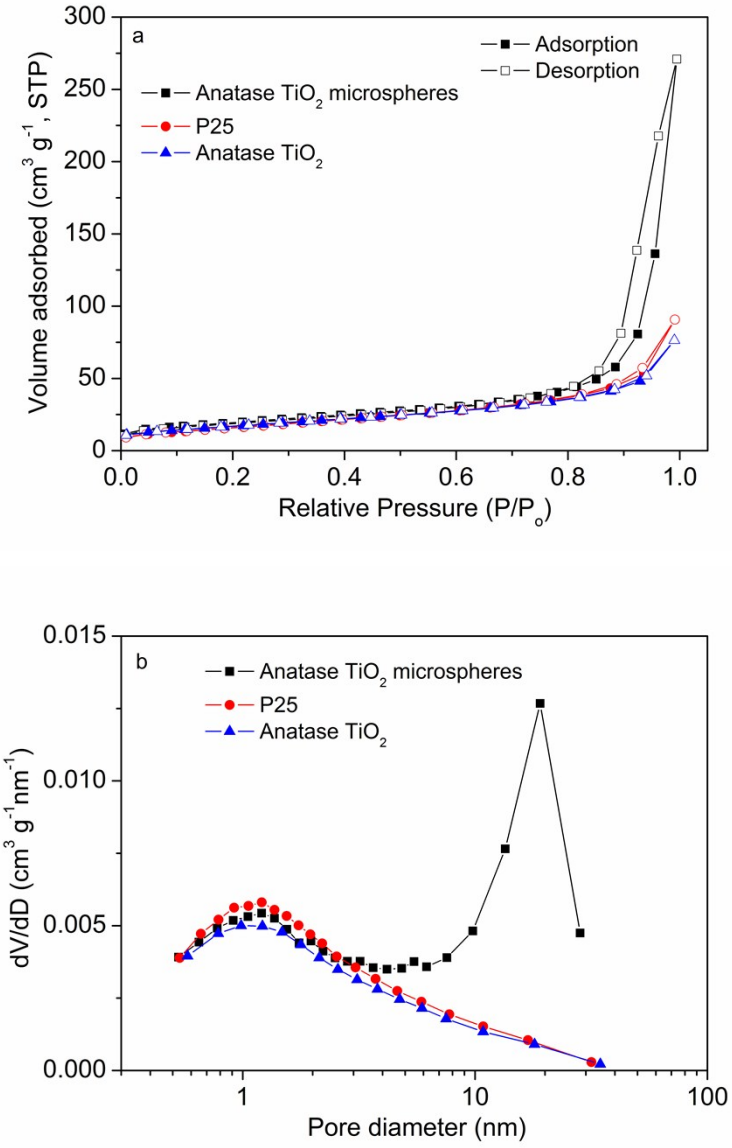

Fig. S6 Nitrogen adsorption/desorption isotherm patterns (a) and BJH pore size distribution curves (b) of TiO_2 microspheres calcined at 600 °C, the commercial P25-TiO_2 and anatase TiO_2.

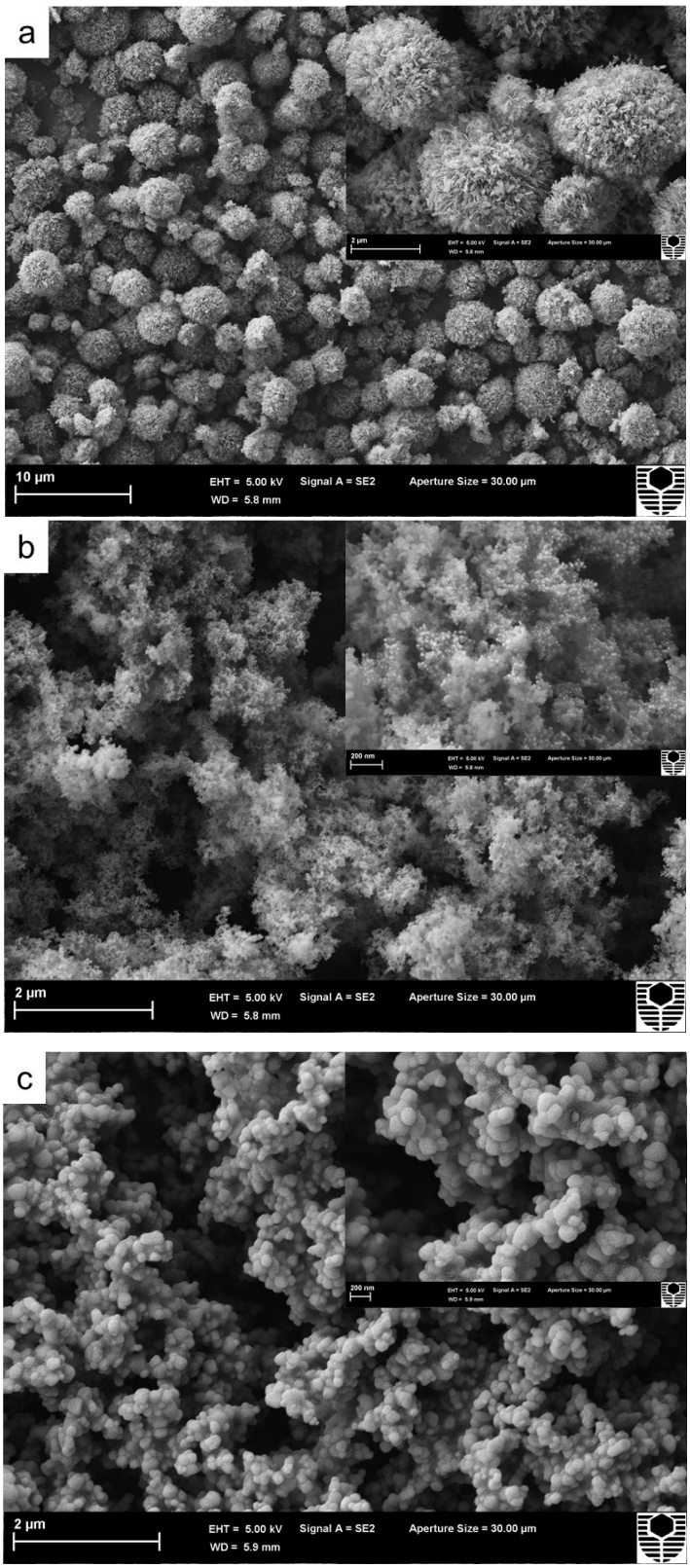

Fig. S7 SEM images of TiO_2 microspheres calcined at 600 °C (a), the commercial P25-TiO_2 (b) and anatase TiO_2 (c).

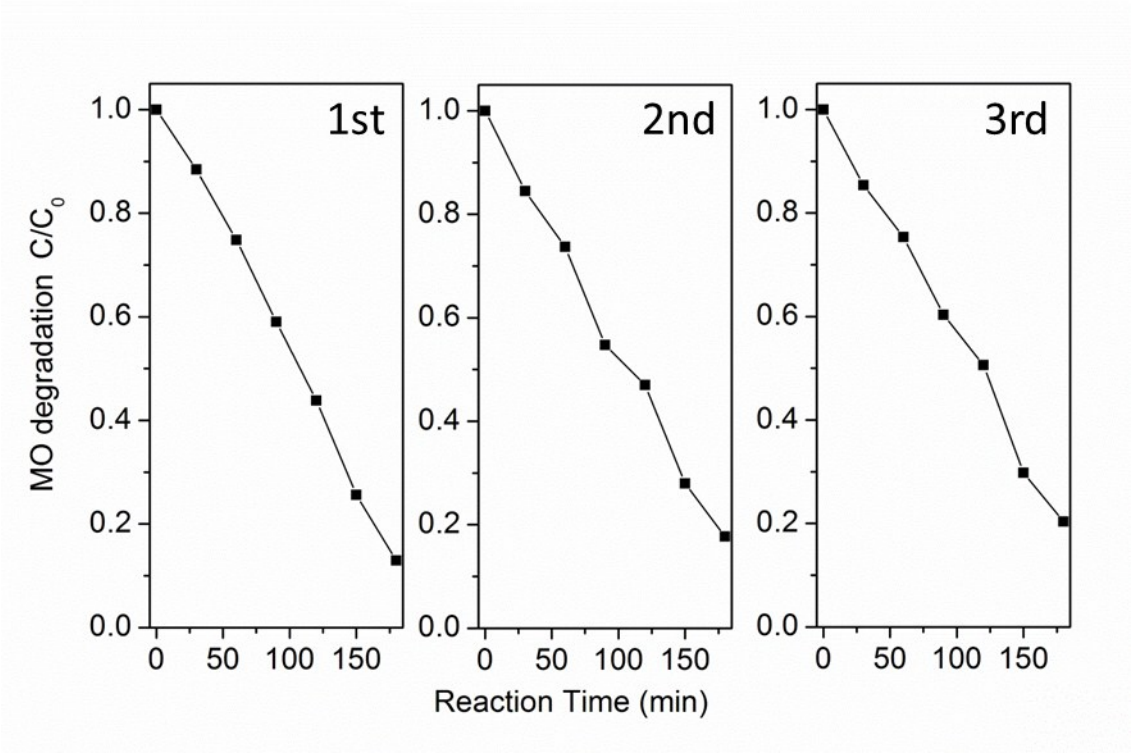

Fig. S8 Photo-degradation of MO in solutions with the N-TiO_2 (1-8) catalyst under UV-visible irradiation for multiple cycles.

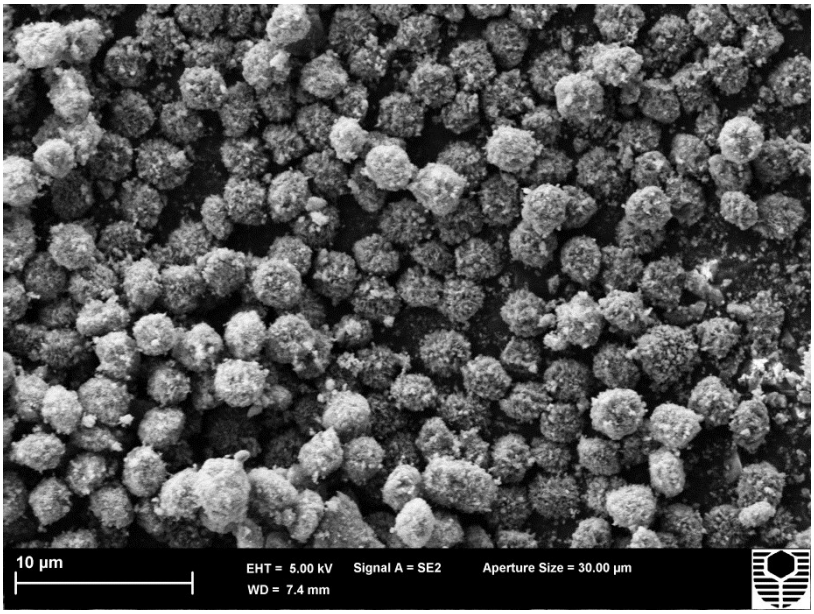

Fig. S9 SEM image of the N-TiO_2 (1-8) catalyst after several reaction cycles.

Table S1. Weight percentages and reliability factors of TiO_2 and N-TiO_2 (1-8) from room-temperature XRD data.

Samples	TiO_2		N-TiO_2 (1-8)	
Composition	TiO_2-Anatase	TiO_2(B)	TiO_2-Anatase	TiO_2(B)
Weight percentage (%)	88	12	81.2	18.8
Reliability factors				
χ^2	1.080		1.079	
R_p	7.06%		8.95%	
R_{wp}	5.79%		7.5%	