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Supplementary Materials

Synthesis of N-Doped TiO_2 for Efficient Photocatalytic Degradation of Atmospheric NO_x

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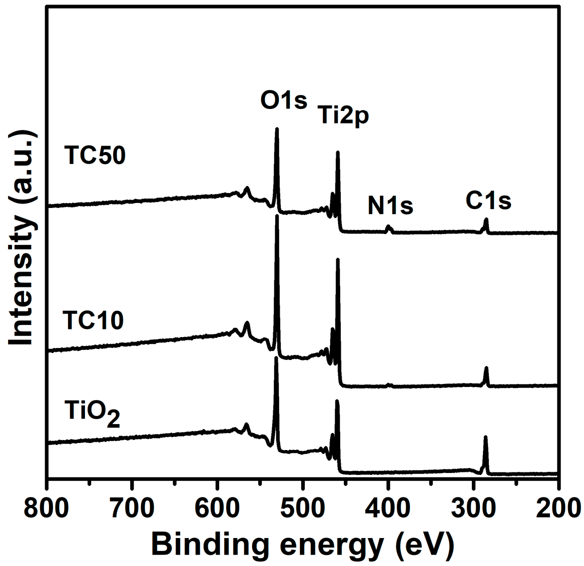

Figure S1. The broad scan survey spectra of pure TiO_2 P25 and N-doped TiO_2 samples with 10 wt% and 50 wt% nitrogen contents.

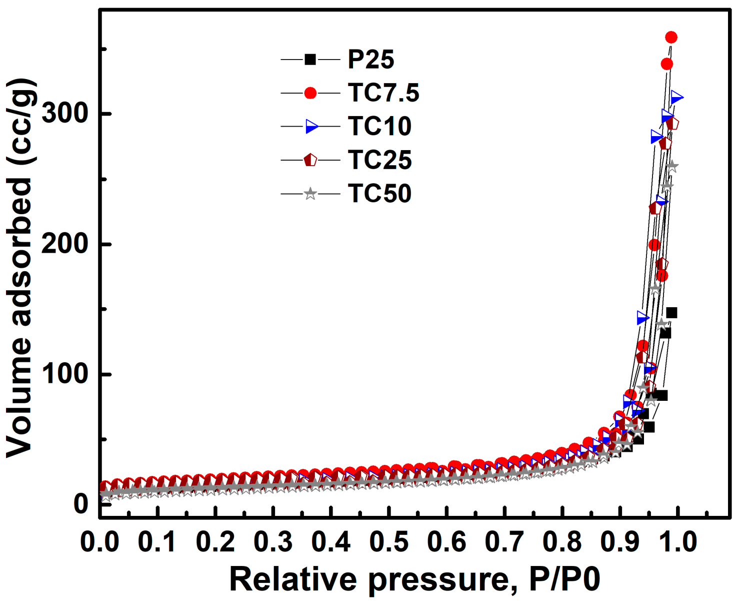

Figure S2. N_2 adsorption desorption isotherm of pure TiO_2 P25 and synthesized N-doped TiO_2.

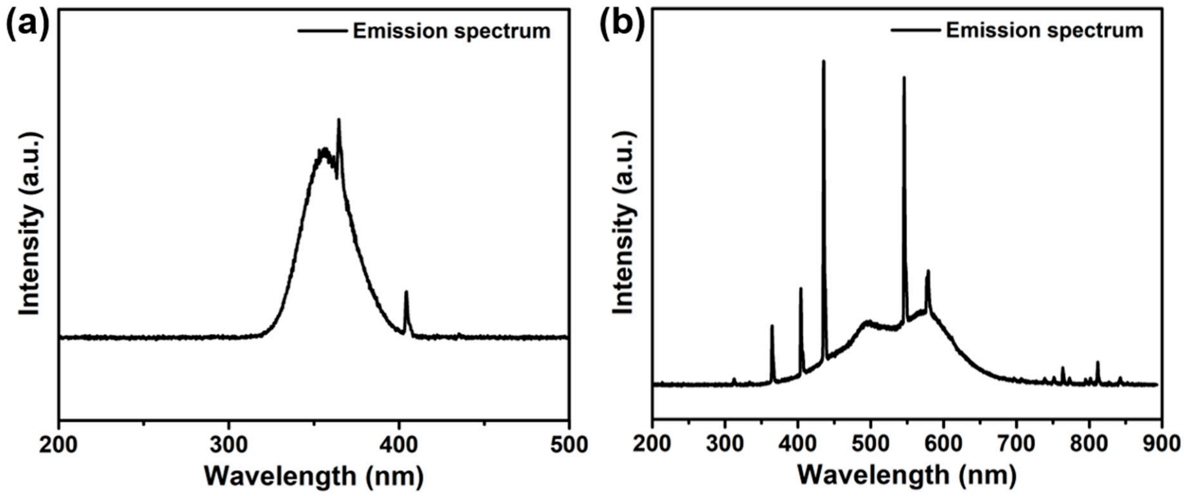

Figure S3. Emission spectra of (a) UV, and (b) visible light sources.

Table S1: Estimated FWHM and crystal size of the prepared samples along with the anatase (101) plane of TiO_2, and BET surface area and pore volume from N_2 adsorption desorption isotherm.

Samples	Position (2θ)	FWHM (2θ)	Crystal size (nm)	BET surface area (m^2/g)	Pore volume (cc/g)
TiO_2 P25	25.36	0.4905	16.60	52.21	0.20
TC7.5	25.37	0.4723	17.24	58.50	0.52
TC10	25.35	0.4445	18.32	50.98	0.46
TC25	25.35	0.4433	18.37	47.69	0.43
TC50	25.38	0.4393	18.54	45.24	0.37

Table S2. XPS elemental analysis of purer TiO_2 P25 and N-doped TiO_2 samples with 10wt% and 50wt% nitrogen contents.

Sample	Ti2p (atomic %)	O1s (atomic %)	N1s (atomic %)	C1s (atomic %)
TiO_2 P25	23.18	76.82	0	0
TC10	21.88	53.84	2.1	22.19
TC50	18.57	46.41	8.9	26.12

Table S3: The energy band gap, CB and VB edge potential of pure TiO_2 P25 and N-doped TiO_2 samples. The CB and VB edge potentials was measured vs Ag/AgCl at pH 5.8 and calculated vs NHE at pH 7.

Sample	CB potential (V)		Energy band gap (eV)	VB potential (V)	
	Ag/AgCl pH 5.8	NHE pH 7		Ag/AgCl pH 5.8	NHE pH 7
TiO_2 P25	-0.80	-0.66	3.25	2.45	2.59
TC7.5	-0.83	-0.66	3.22	2.39	2.56
TC10	-0.87	-0.66	3.18	2.31	2.52
TC25	-0.91	-0.66	3.14	2.23	2.48
TC50	-0.98	-0.66	3.10	2.12	2.44

Table S4: Photocatalytic efficiency of samples in NO removal, NO_2 generation, NO_x removal and NO_3^- selectivity under UV irradiation.

Sample	NO removal (%)	NO_2 generation (%)	NO_x removal (%)	$N0_3^-$ selectivity (%)
TiO_2 P25	47	29	17	36
TC7.5	49	17	32	65
TC10	59	25	34	58
TC25	51	23	29	57
TC50	41	21	20	49

Table S5: Photocatalytic efficiency of samples in NO removal, NO_2 generation, NO_x removal and NO_3^- selectivity under visible light irradiation.

Sample	NO removal (%)	NO_2 generation (%)	NO_x removal (%)	$N0_3^-$ selectivity (%)
TiO_2 P25	20	7	13	65
TC7.5	46	24	22	48
TC10	51	22	28	55
TC25	48	32	16	33
TC50	21	5	16	76