Supporting Information

Nitrogen Doped 3D Titanium Dioxide Nanorods Architecture with Significantly Enhanced Visible Light Photoactivity

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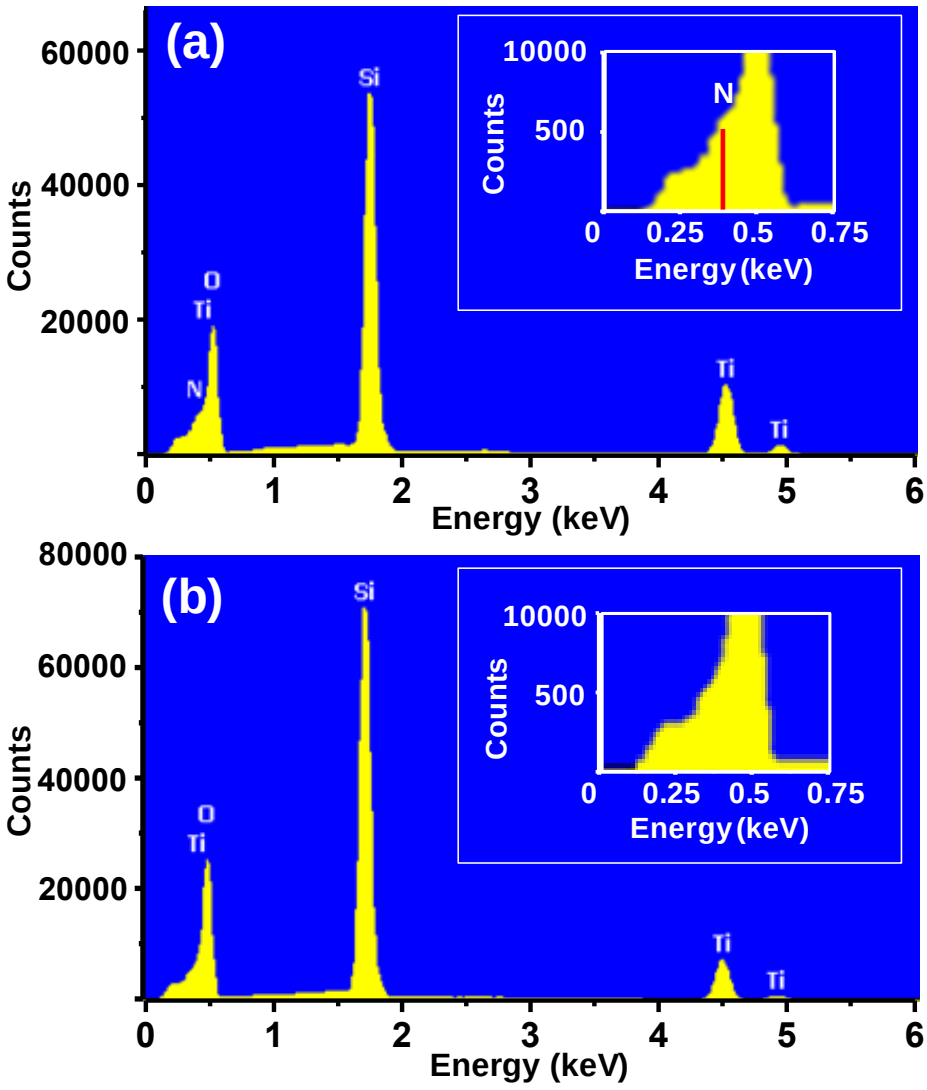

Figure S1. EDS spectra of Nitrogen doped **(c)** and undoped **(d)** TiO_2 NRs on Si NW array. N was detected in doped samples but absent in undoped one.

Table S1. Summary of the average concentrations of N dopant corresponding to different doping ratios. The values were obtained by energy-dispersive X-ray spectroscopy (EDS).

	A1	A2	A3	A4	A5	A6	A7
Samples	Undoped	1 : 80	1 : 40	1 : 20	1 : 10	1 : 5	1:1
N at.%	0	0.82	1.52	1.81	2.01	2.28	1.79

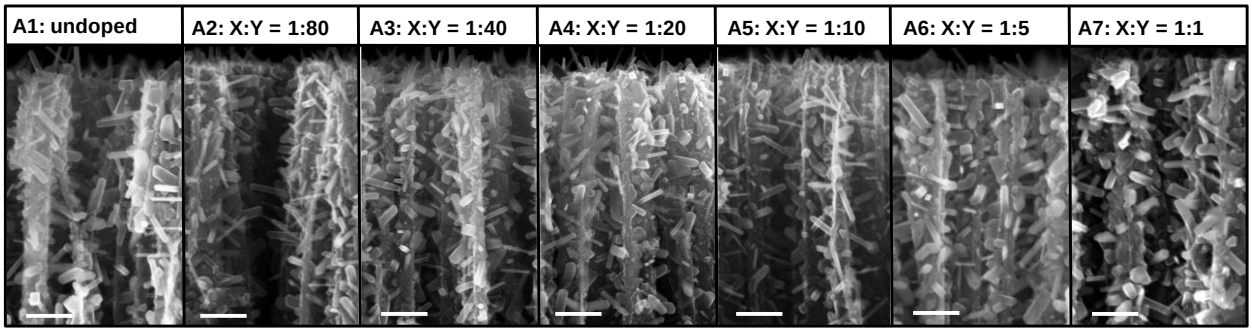

Figure S2. Nitrogen doping effect to the morphology of TiO_2 NR structures. **(a)** SEM images of TiO_2 NRs synthesized under different NH_3 cycle ratios. The ratio between NH_3 cycle and H_2O cycle in SPCVD growth is marked as *X:Y*. Scale bar, 200 nm.

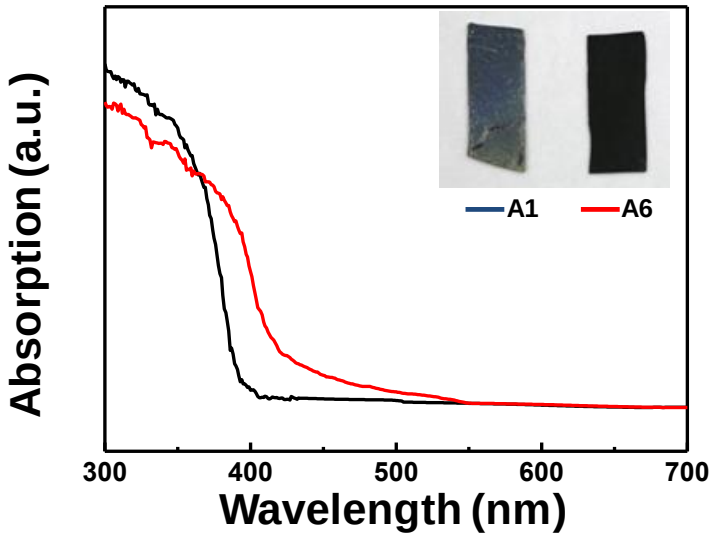

Figure S3. UV-Vis absorption spectra of heavily-doped (A6) and undoped (A1) TiO_2 NRs. Significant red shift of the absorption spectrum from A6 was observed. Inset is a digital photo shows the much darker color of heavily-doped TiO_2 NRs (A6) compared to the undoped TiO_2 NRs (A1), suggesting its more effective absorption of visible light.

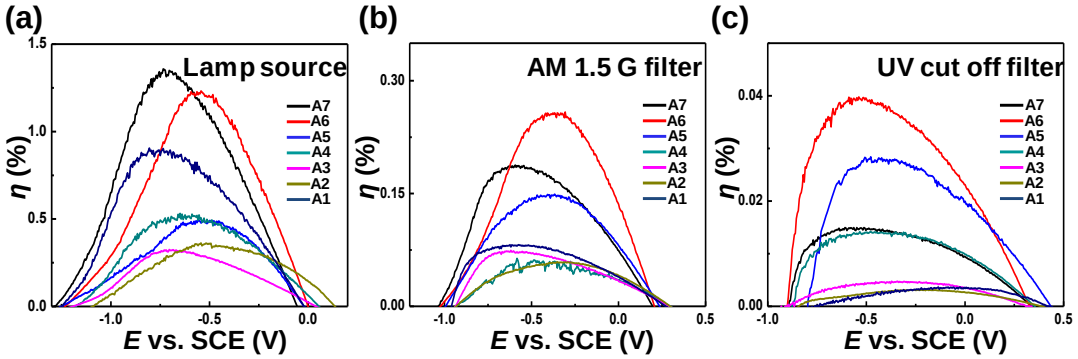

Figure S4. (a-c) Corresponding PEC efficiencies of Nitrogen doped and undoped TiO_2 NRs-Si NW hierarchical architectures under illuminations of 100 mW cm^{-2} Xe lamp source, lamp with AM 1.5G filter, and with UV cutoff filter, respectively.