†Electronic Supplementary Information(ESI)

A novel strategy to enhance ultraviolet light driven photocatalysis from graphene quantum dots infilled TiO_2 nanotubes arrays†

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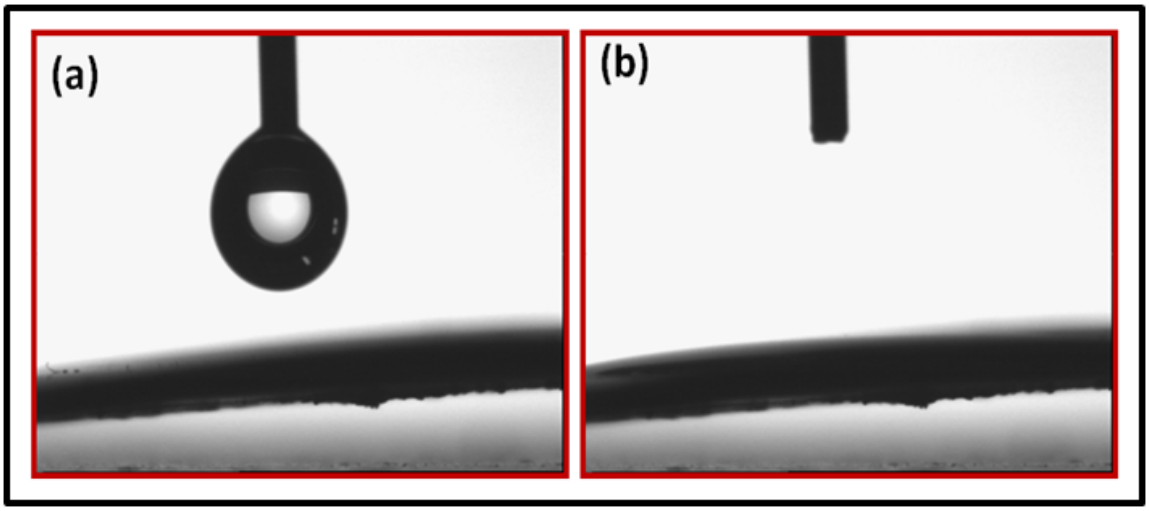

Fig. S1: Optical images show water droplets for contact angle measurement; a) before drop on mouth surface along tubular axis of TiO_2 3D NTAs and b) after interaction, drop with mouth surface along tubular axis of TiO_2 3D NTAs and sudden spread out; measured contact angle is about zero.

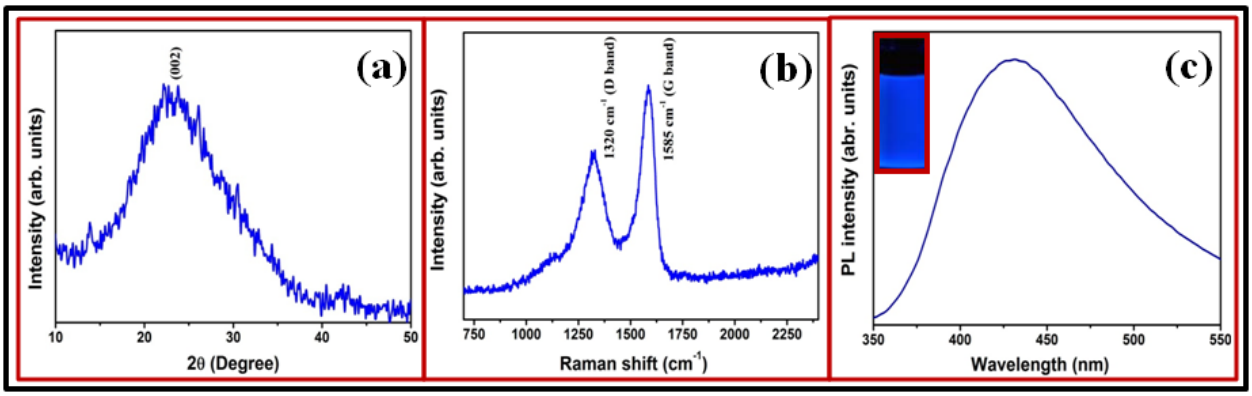

Fig. S2: (a) XRD, (b) Raman and (c) PL spectra of GQDs, and inset exhibits strong blue emission at 320 nm excitation wavelength.

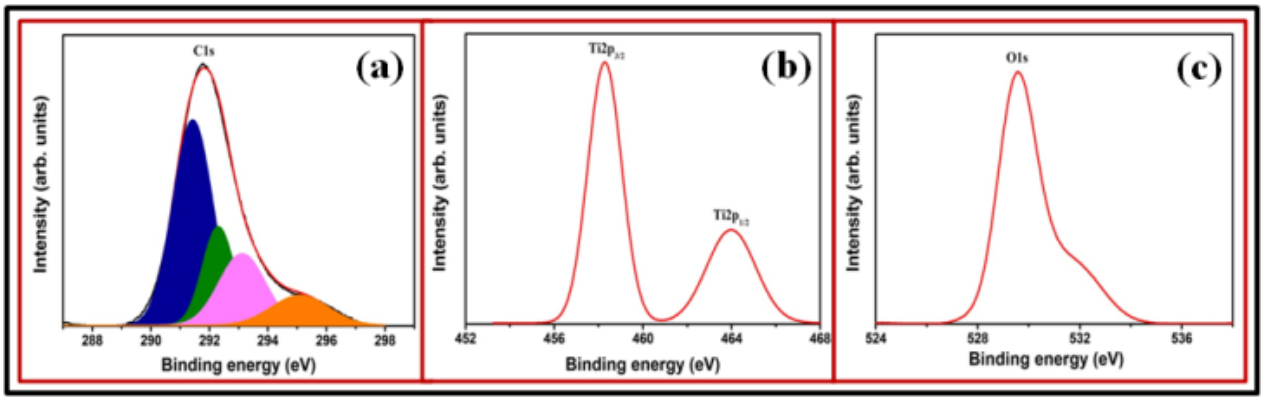

Fig. S3: Deconvolution of (a) C1s, (b) Ti (2p) and (c) O1s core levels of GQDs infilled TiO_2 3D NTAs, according to XPS spectra (Fig. 5).

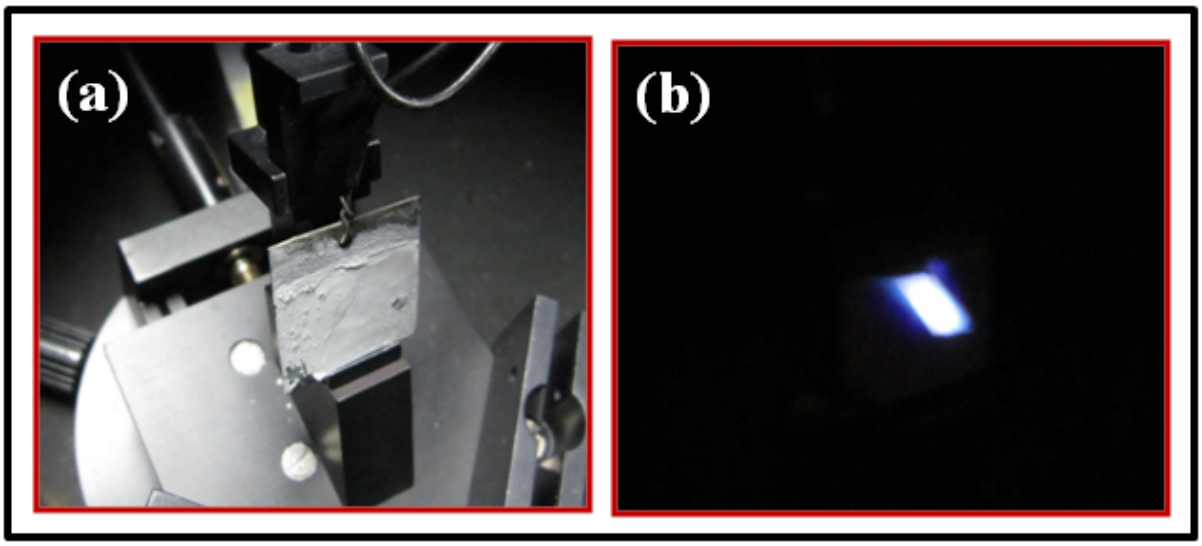

Fig. S4: (a) The optical image of sample chamber PL spectrometer, where annealed TiO_2 NTAs on Ti sheet was loaded and (b) the annealed TiO_2 NTAs sample under deep UV light upon 252 nm excitation wavelength.

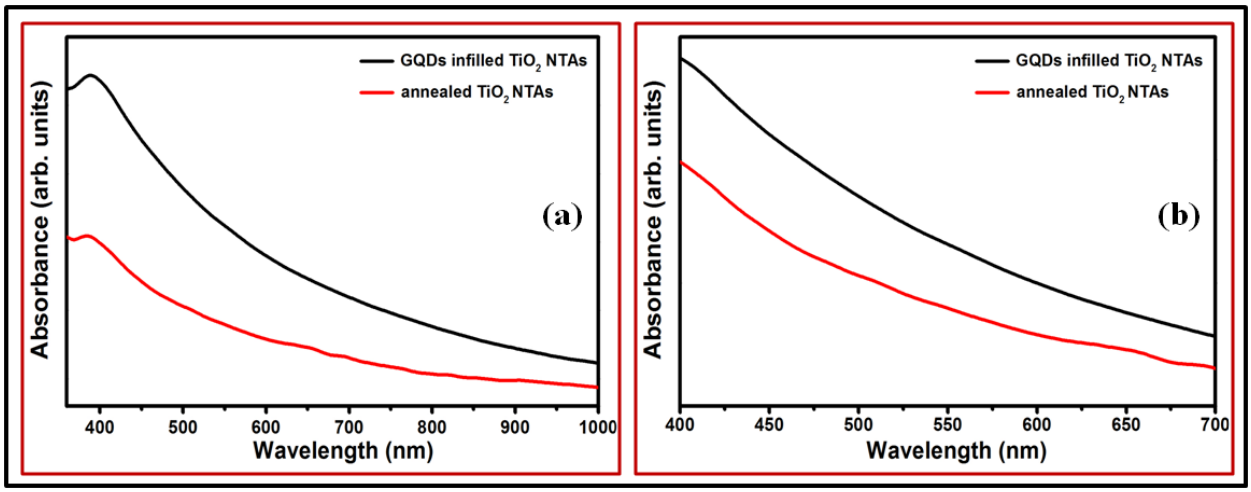

Fig. S5: (a) UV-visible absorption spectra of annealed TiO_2 3D NTAs and GQDs infilled TiO_2 3D NTAs and (b) optical absorption spectra of annealed TiO_2 3D NTAs and GQDs infilled TiO_2 3D NTAs using visible light (mercury lamp) source.

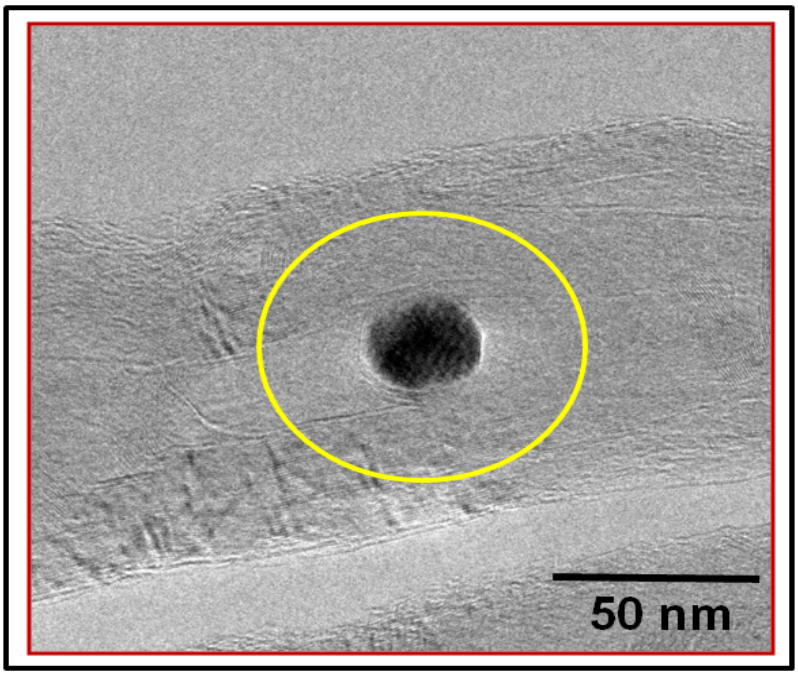

Fig. S6: TEM image of GQDs infilled TiO_2 NTAs after stability test; GQD particle depicts in TiO_2 NTAs, marked by yellow circle.