

Supporting Information

Ultrafine Single-Crystal TiOF₂ Nanocubes in Mesoporous Structure with High Activity and Durability in Visible Light Driven Photocatalysis

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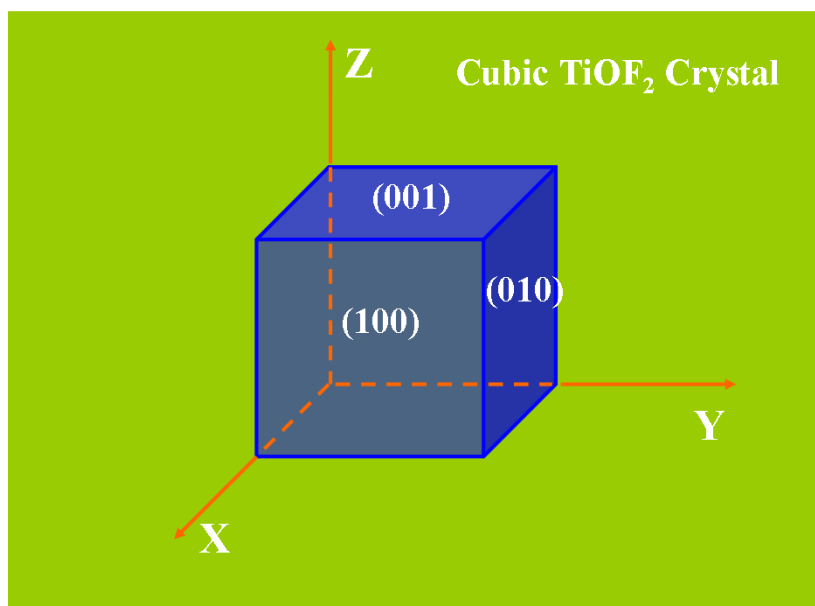


Fig.S1 Model of TiOF₂ cubic single crystal cell.

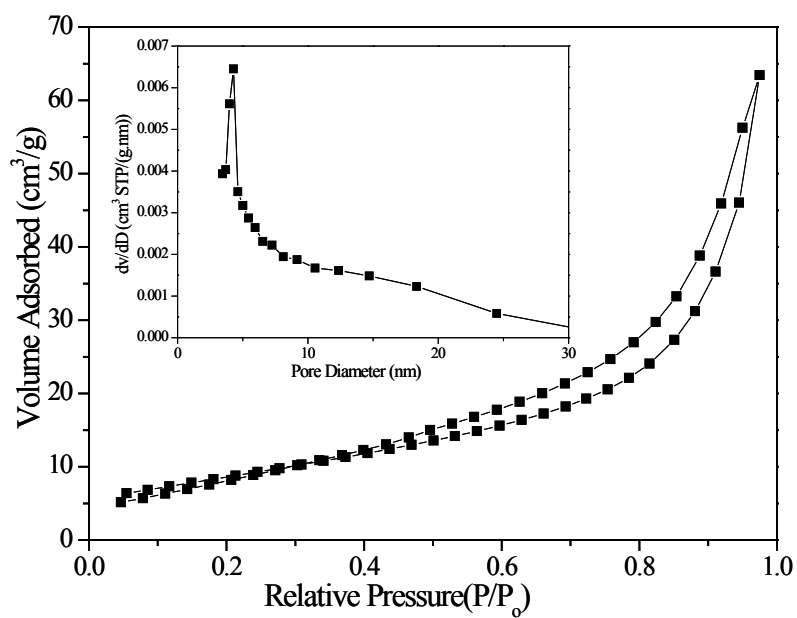


Fig.S2 N₂ absorption-desorption isotherm and pore size distribution curve (inset) of the TiOF₂ nanocubes after physical agitation in water for 6.0 h.

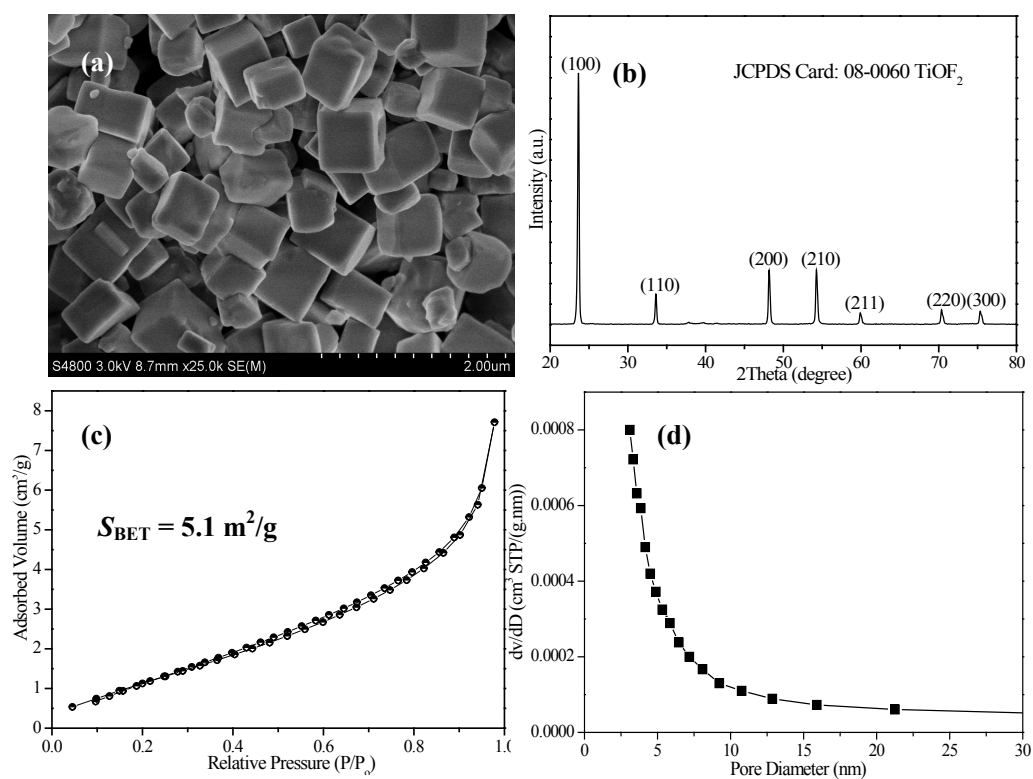


Fig.S3 The FESEM image (a), XRD pattern (b), N_2 adsorption-desorption isotherm (c), and pore size distribution curve (d) of the $\text{TiOF}_2\text{-Ref.}$

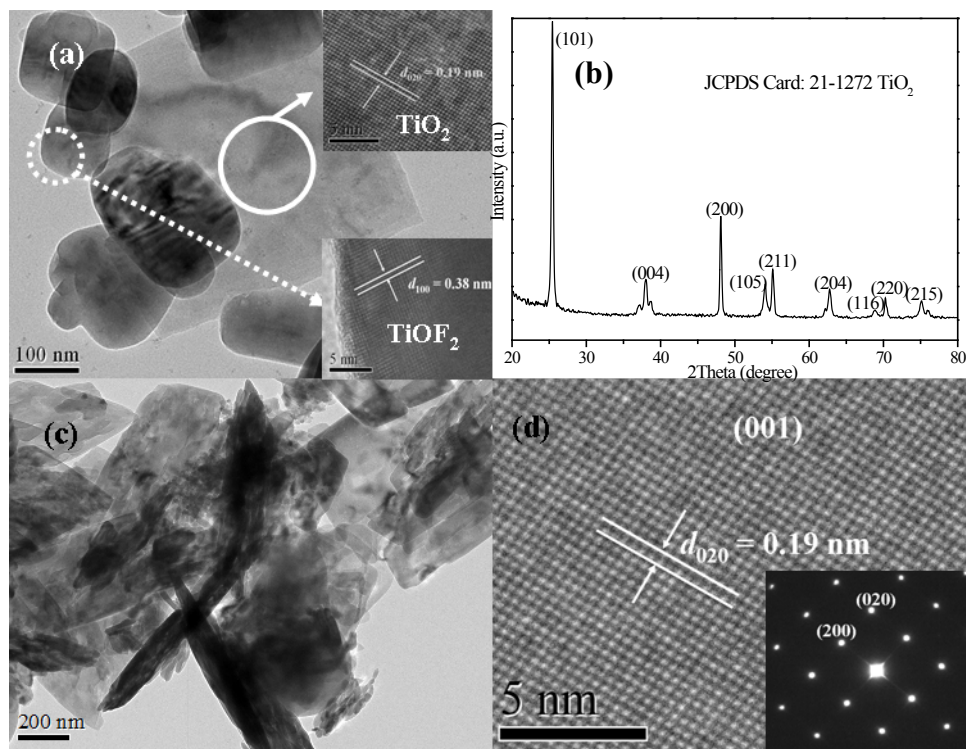


Fig.S4 The TEM image of the sample synthesized at solvothermal time of 48 h, the insets are HRTEM images. The XRD pattern (b), TEM image (c), and HRTEM image (d) of the sample synthesized at solvothermal time of 240 h. The inset of (d) is the SAED image.

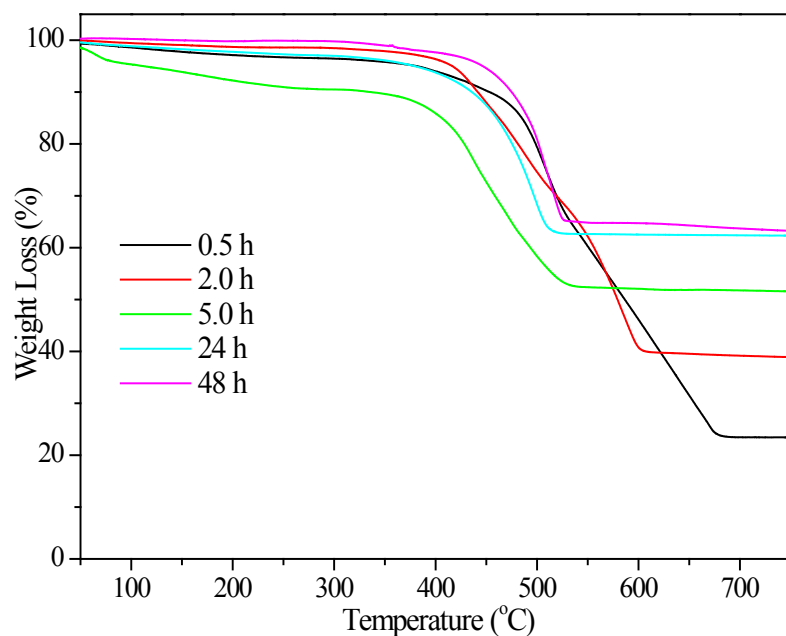


Fig.S5 TG analysis of the samples obtained after solvothermal alcoholysis of TiF_4 at 160°C for different periods.

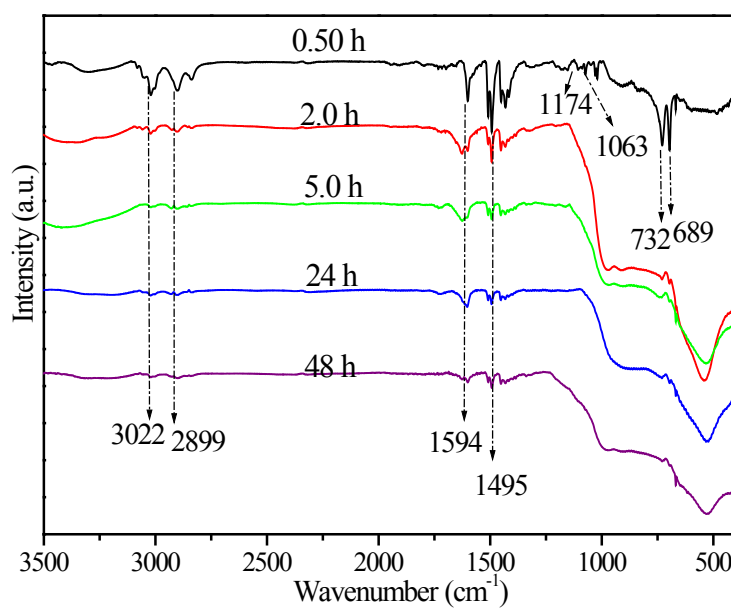


Fig.S6 FTIR spectra of the samples obtained after solvothermal alcoholysis of TiF_4 at 160°C for different periods.

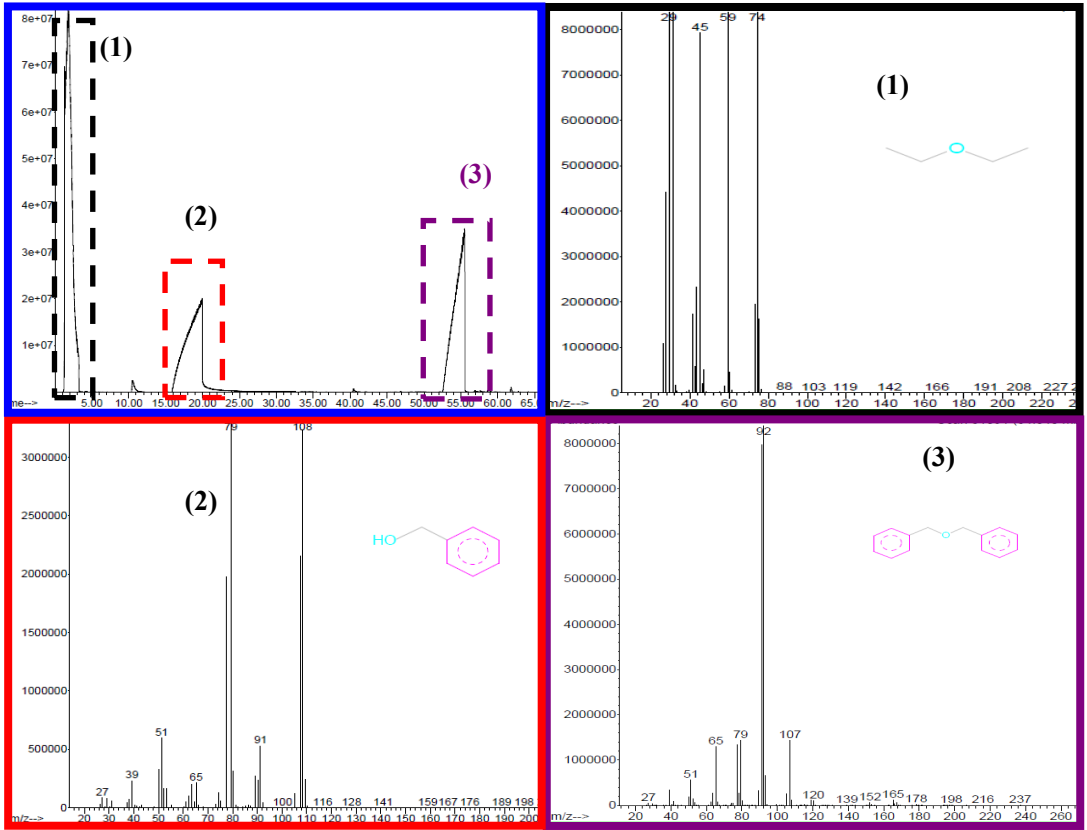


Fig.S7 GC-MS spectra of the solution after solvothermal alcoholysis of TiF_4 at 160°C for 24 h.

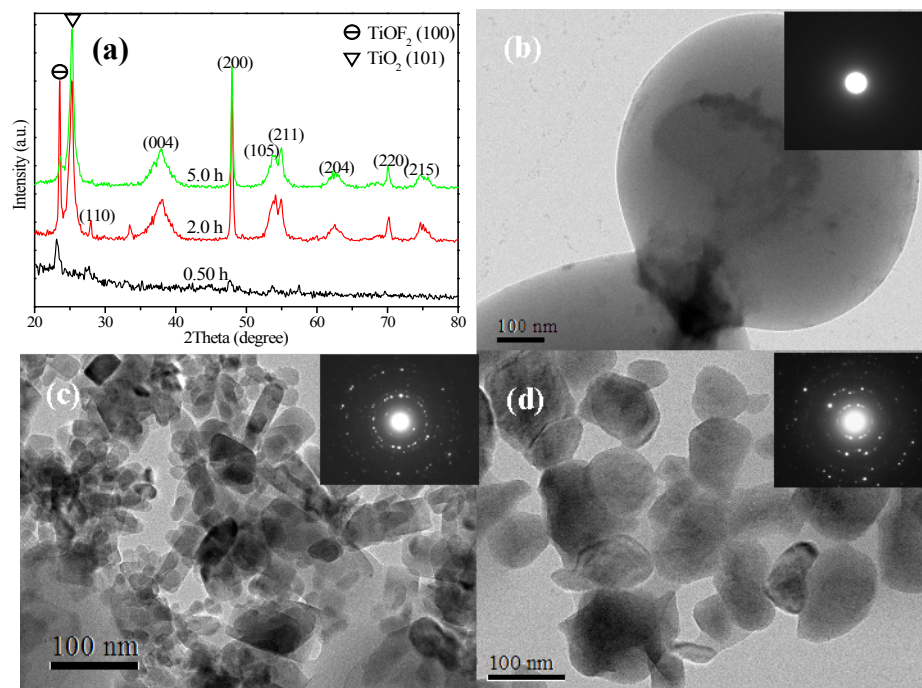


Fig.S8 The XRD patterns (a) and TEM images of the samples synthesized at solvothermal time of (b) 0.50 h, (c) 2.0 h, and (d) 5.0 h in the presence of 20 μL H_2O . The insets are the SAED images.

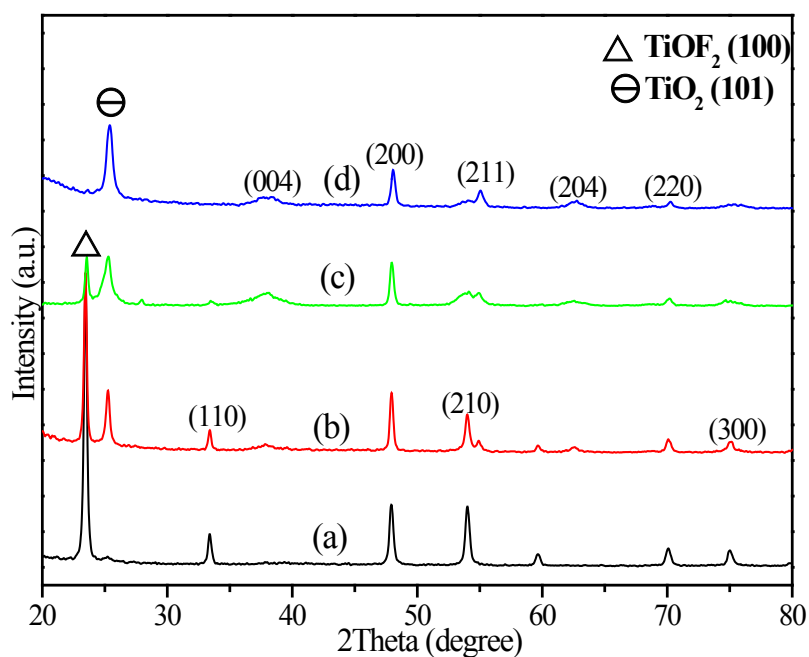


Fig.S9 XRD patterns of the samples synthesized by using (a) 5 mL, (b) 15 mL, (c) 18 mL, and (d) 20 mL benzyl alcohol for solvothermal alcoholysis of TiF₄. The total solution was fixed at 40 mL by adjusting the volume of ether.

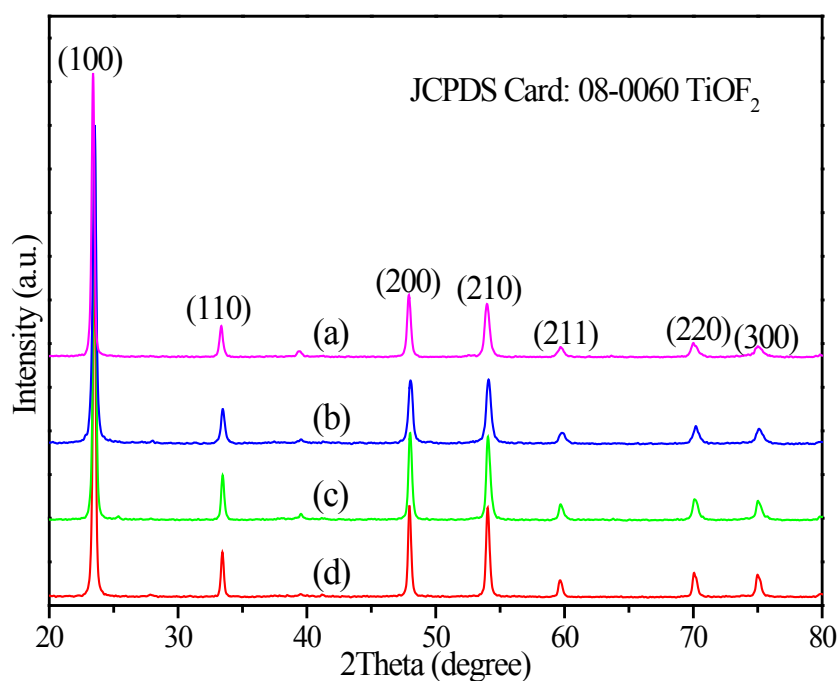


Fig.S10 XRD patterns of the samples synthesized by using 10 mL (a) hexahydrobenzyl alcohol, (b) n-hexyl alcohol, (c) n-pentanol, and (d) n-butyl alcohol in 30 mL ether.

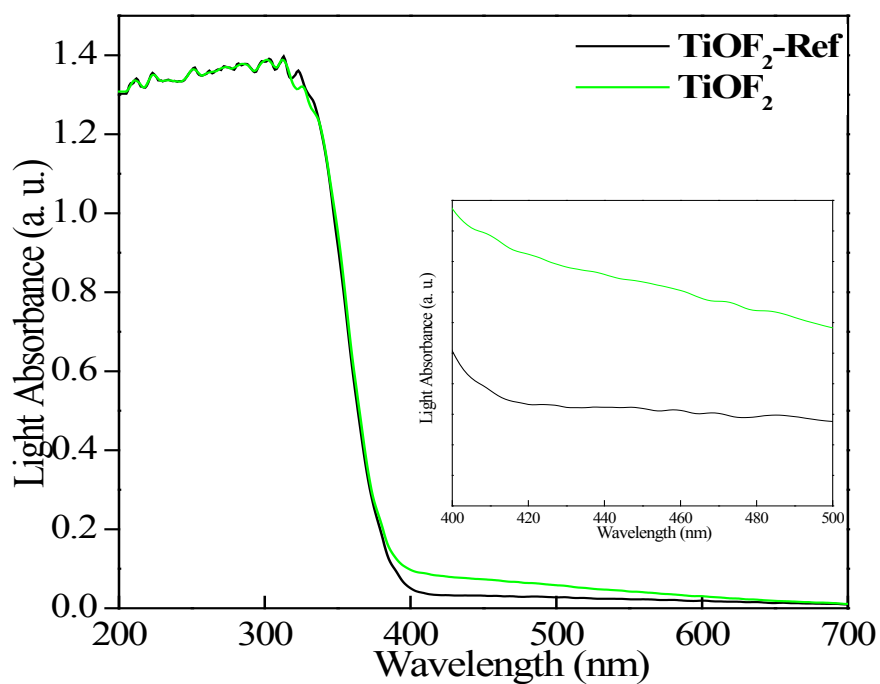


Fig.S11 UV-vis DRS spectra of $\text{TiOF}_2\text{-Ref}$ and TiOF_2 , and the inset is the magnified DRS spectra from 400 to 500 nm.

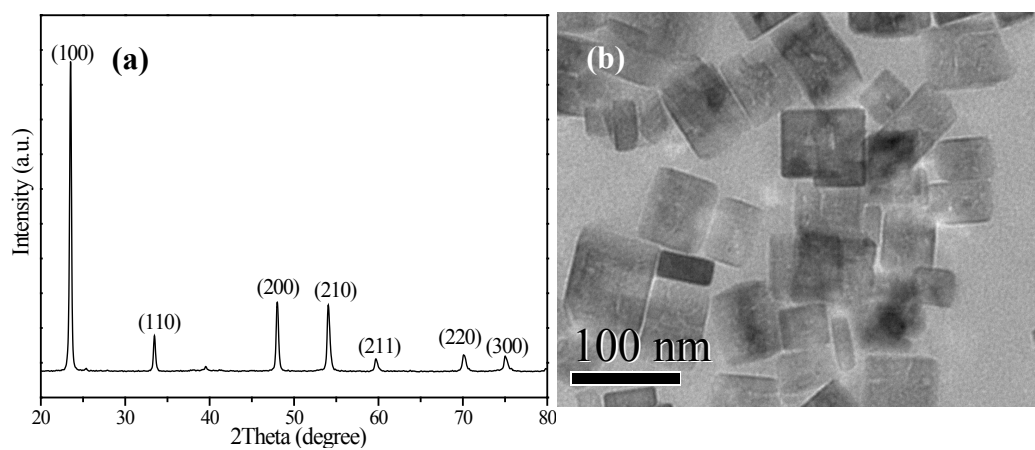


Fig.S12 The XRD pattern (a) and TEM image (b) of the TiOF_2 nanocubes after the eighth recycling test.