

Supporting Information

Factors affecting photocatalytic activity of visible light responsive titanium dioxide doped with chromium ions

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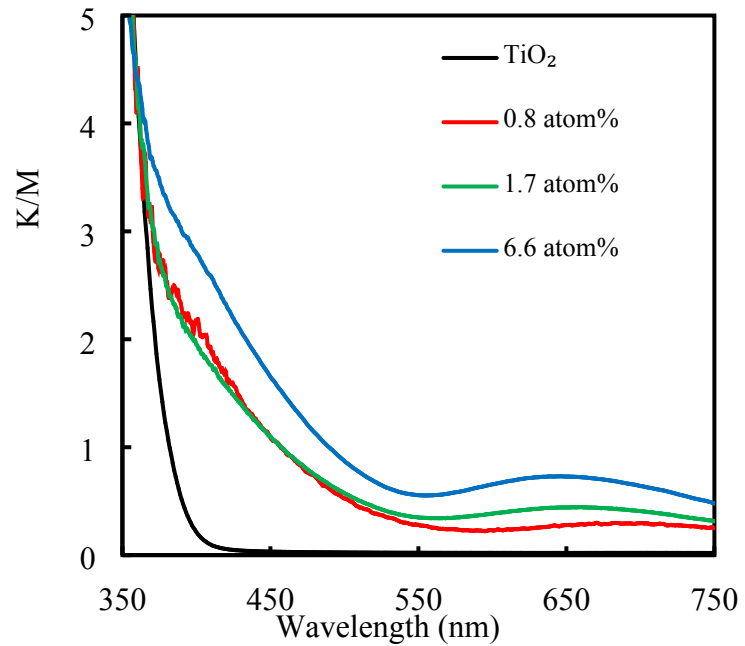


Fig. S1 UV-vis diffuse reflectance spectra of TiO₂ and 0.8 – 6.6 atom% Cr-TiO₂ sintered at 200°C.

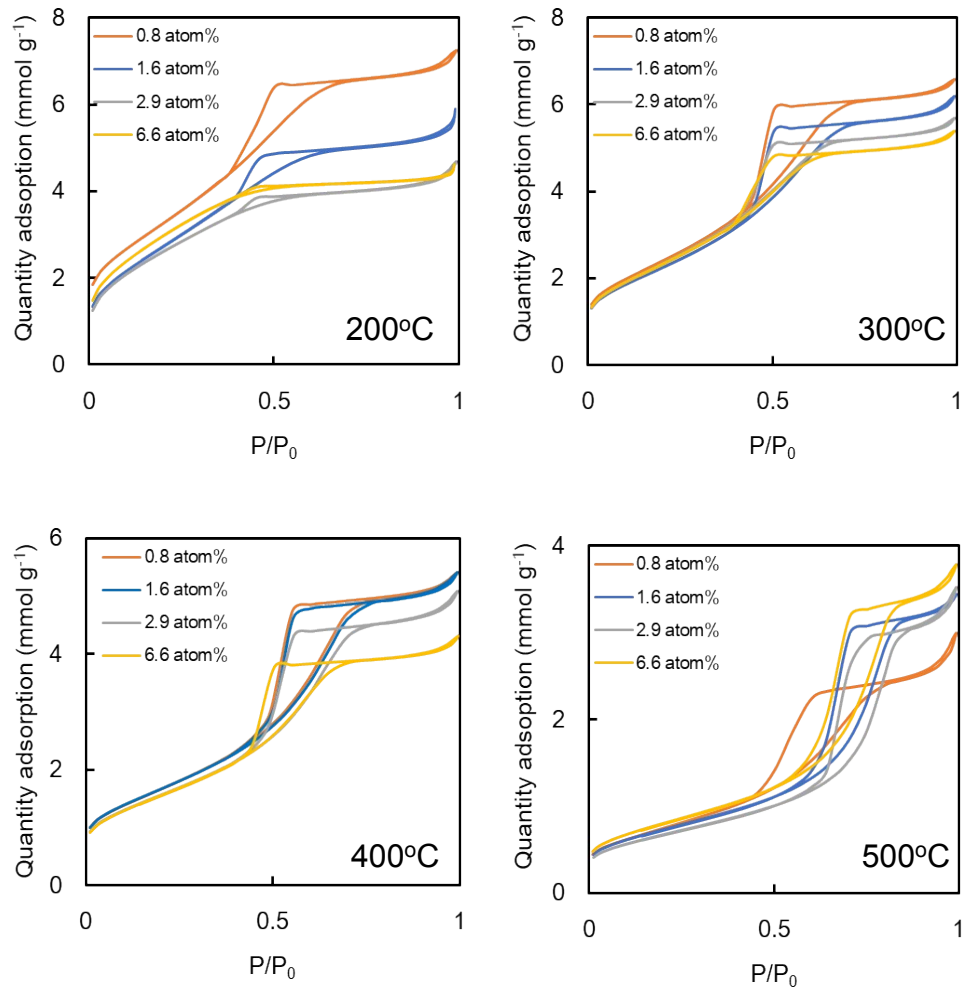
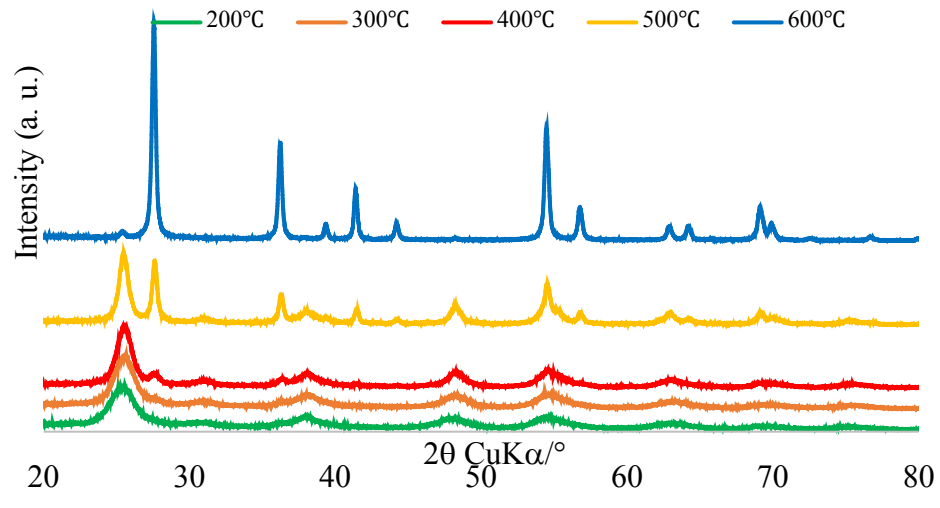
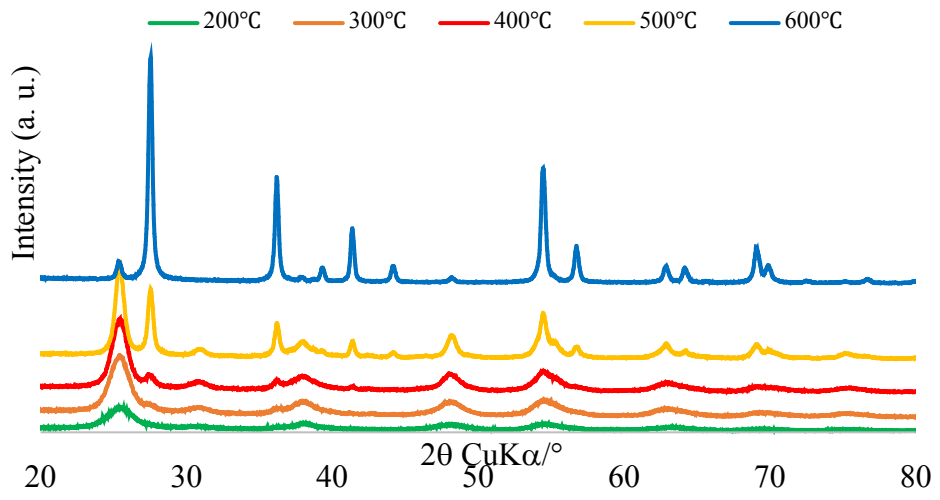


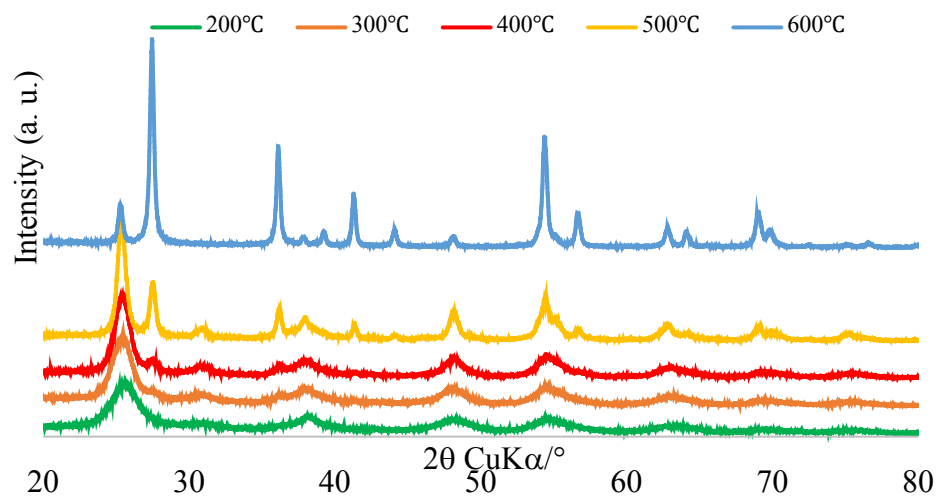
Fig. S2 N_2 adsorption-desorption isotherms of 0.8 – 6.6 atom% Cr- TiO_2 sintered at 200 - 500 $^{\circ}\text{C}$.



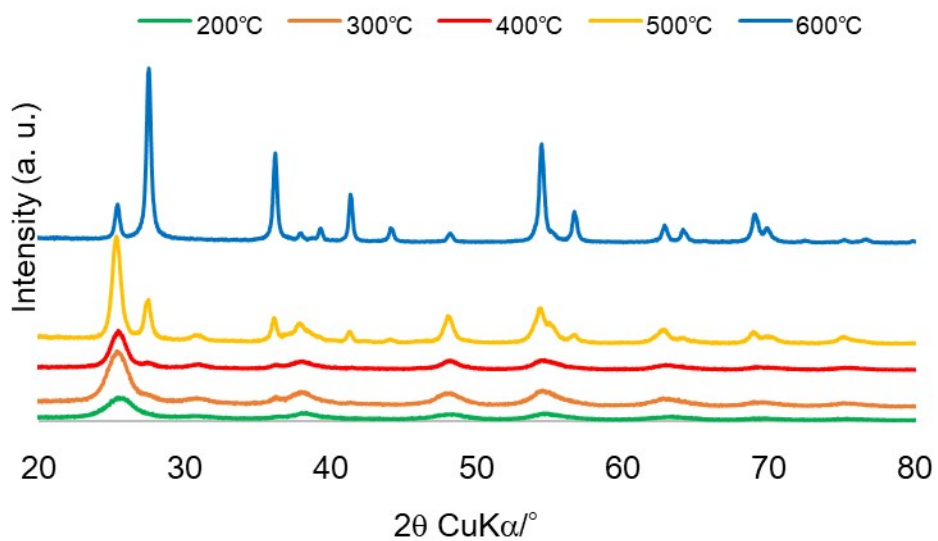
0.8 atom%



1.7 atom%



2.9 atom%



6.6 atom%

Fig. S3 XRD patterns of 0.8 – 6.6 atom% Cr-TiO₂ sintered at 200 - 600°C.

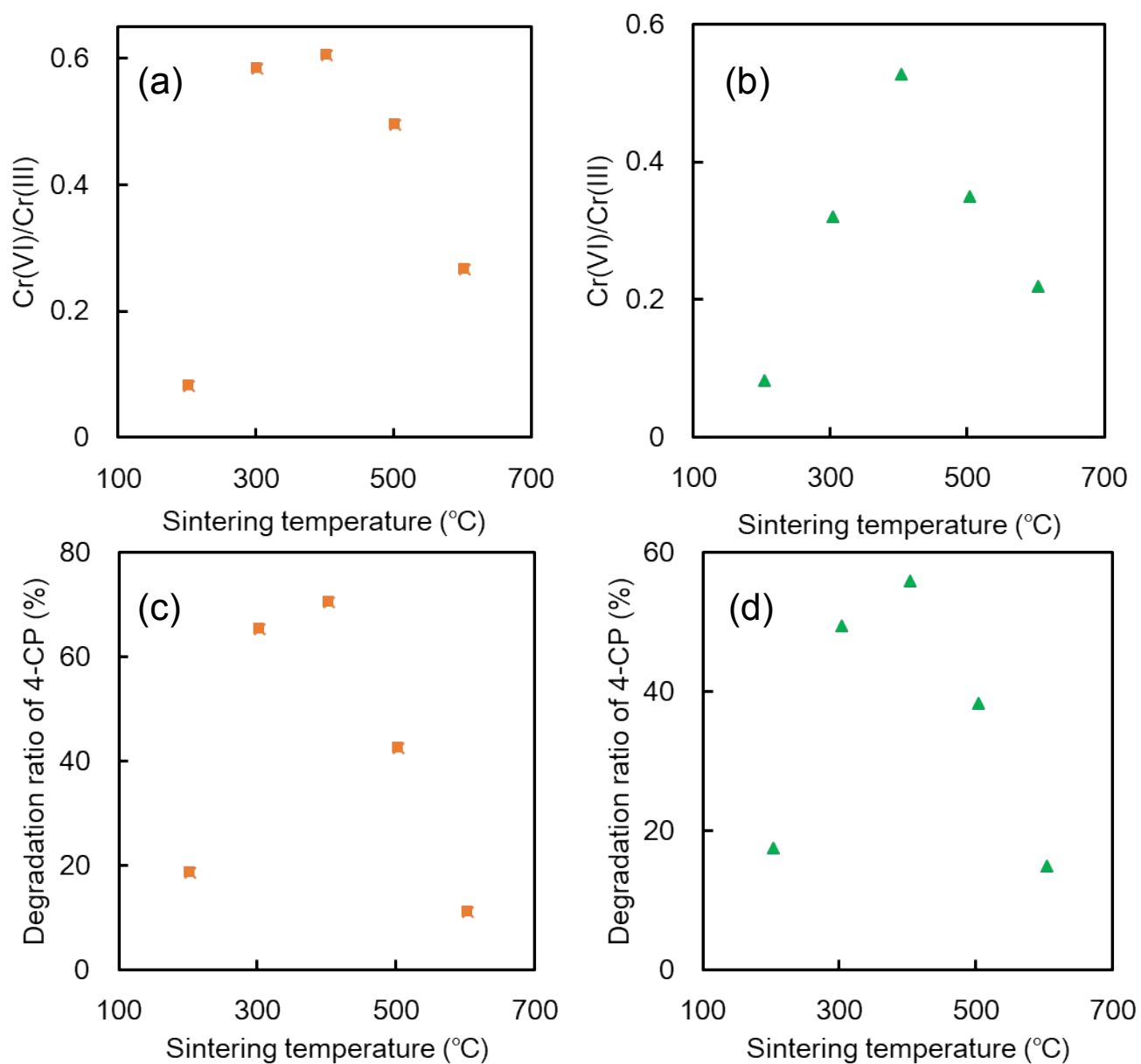


Fig. S4 Plots of Cr(VI)/Cr(III) ratios or 4-CP degradation ratio against sintering temperature for 2.9 atom% (a), (c) and 6.6 atom% Cr-TiO₂ (b), (d), after visible light irradiation for 150 min.

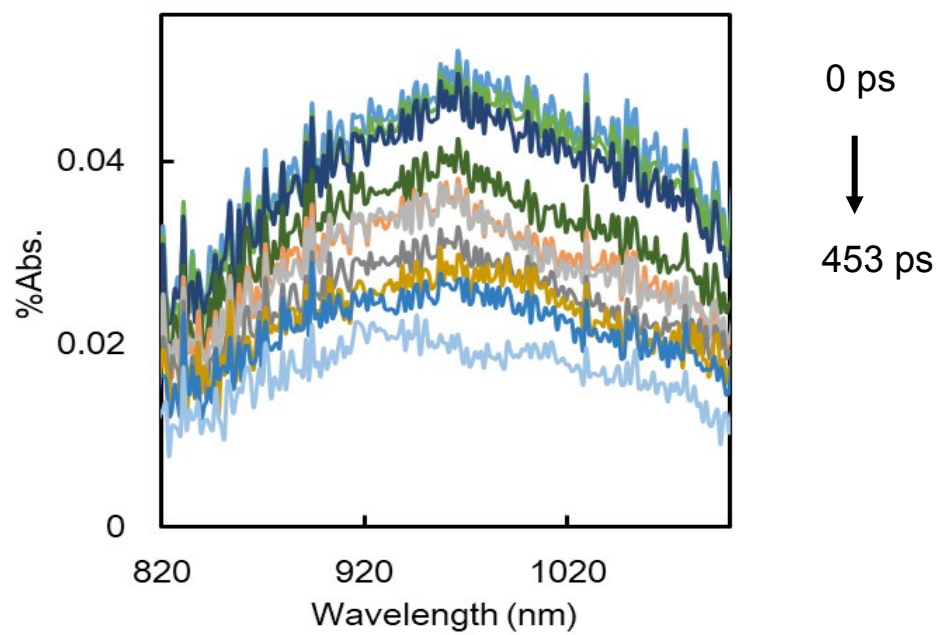


Fig. S5 TDR spectra observed after 80 fs laser flash for 6.6 atom% Cr-TiO₂ sintered at 400°C.

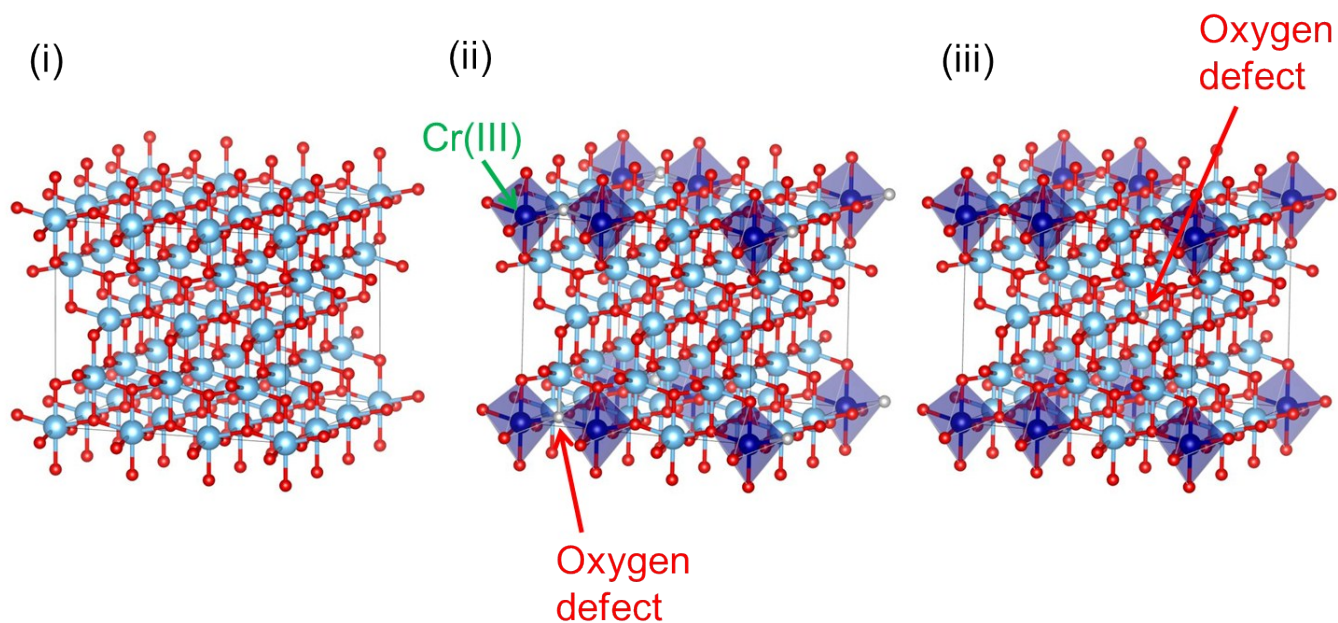


Fig. S6 Local structure models of (i) anatase TiO_2 $3 \times 3 \times 1$ supercell; (ii) model_a: two neighboring Ti(IV) were replaced with Cr(III) and oxygen between the atoms was withdrawn; and (iii) model_b: two neighboring Ti(IV) sites were replaced with Cr(III) and distant oxygen was withdrawn.