Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Anti-Counterfeiting Applications by Photochromism induced Modulation of Reversible upconversion Luminescence in TiO_2: Yb^{3+}, Er^{3+} ceramic

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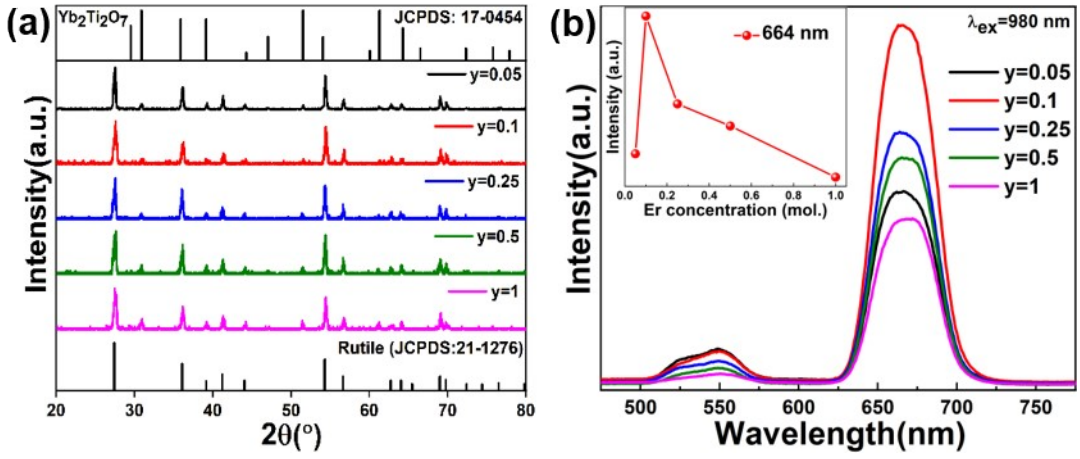

Figure S1. (a)The XRD patterns of TiO_2:1 mol % Yb^{3+}, y mol % Er^{3+} (y=0.05, 0.1, 0.25, 0.5, and 1) ceramics. (b) Under 980 nm excitation, the UCL spectra of TiO_2:1 mol % Yb^{3+}, y mol % Er^{3+} (y=0.05, 0.1, 0.25, 0.5, and 1) ceramics.

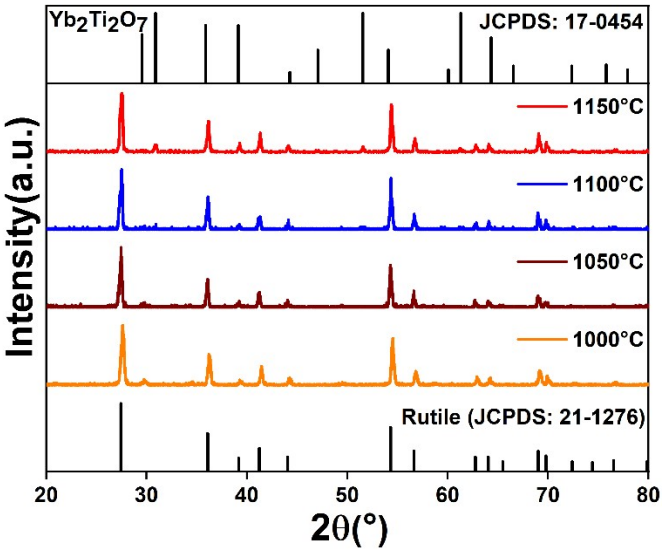

Figure S2. XRD patterns of TO-1000, TO-1050, TO-1100, and TO-1150.

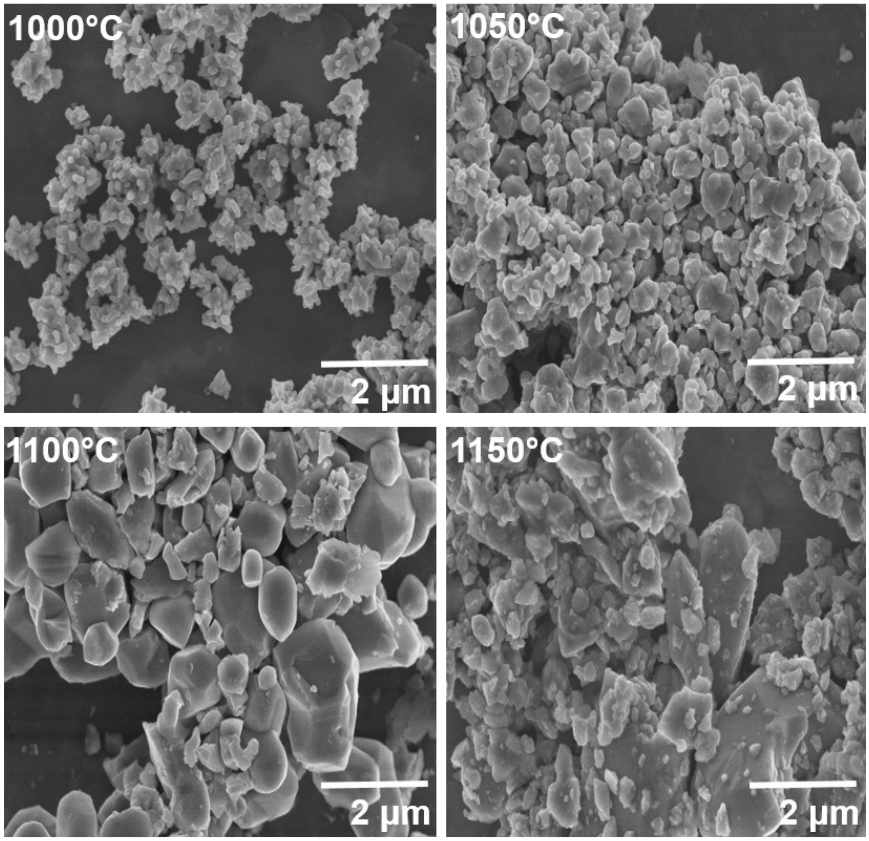

Figure S3. FESEM images of TO-1000, TO-1050, TO-1100, and TO-1150.

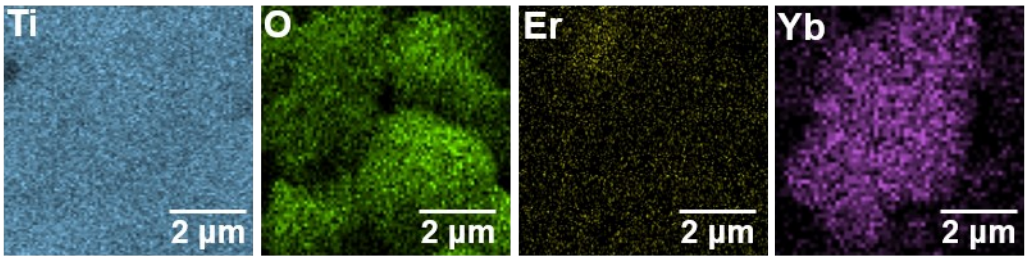

Figure S4. The SEM-EDS elemental mapping images of Ti, O, Yb, and Er in TO-1150 ceramic.

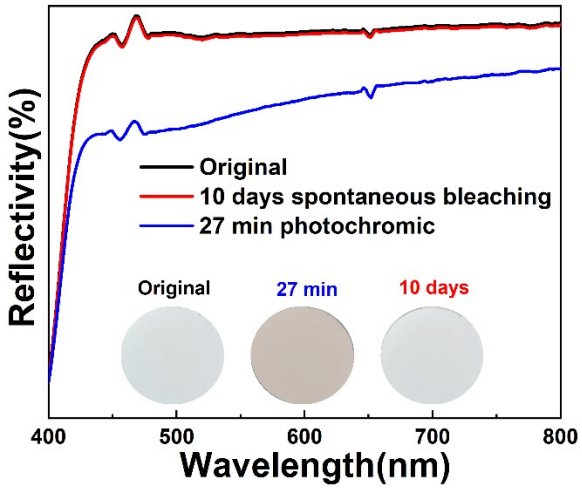

Figure S5. The diffuse reflection spectra and corresponding photos of original TO-1150, photochromic TO-1150, and spontaneous bleaching TO-1150.

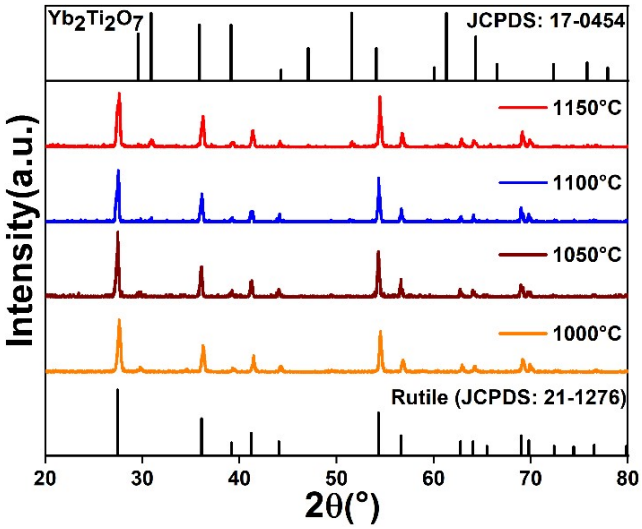

Figure S6. XRD patterns of photochromic TO-1000, TO-1050, TO-1100, and TO-1150.

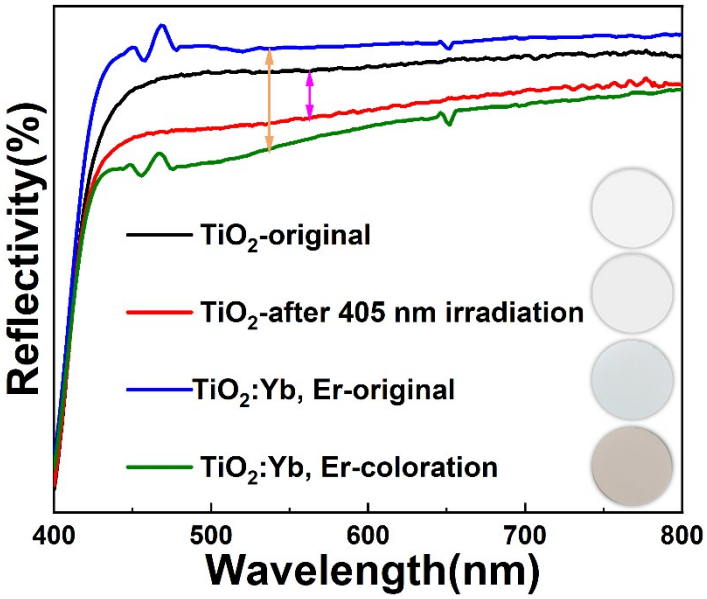

Figure S7. The diffuse reflection spectra and corresponding photos for undoped TiO_2 and TO-1150 ceramics before and after 405 nm LED irradiation for 27 min.

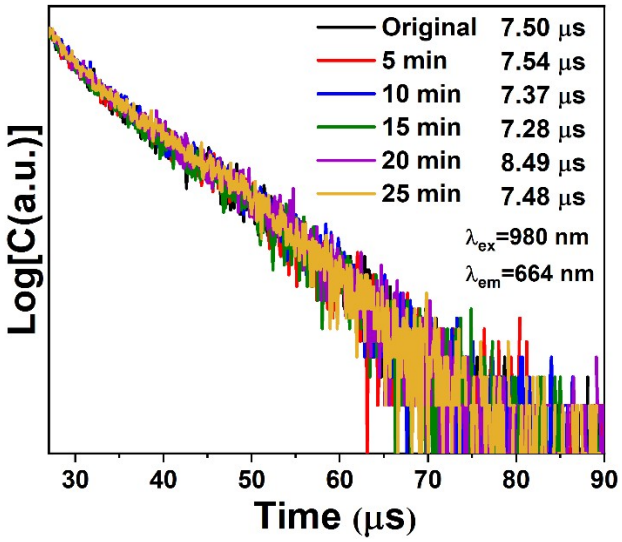

Figure S8. Under 980 nm laser excitation, the decay curves (λ_{em} = 664 nm) of TO-1150 after 405 nm LED irradiating from 0 to 25 min.

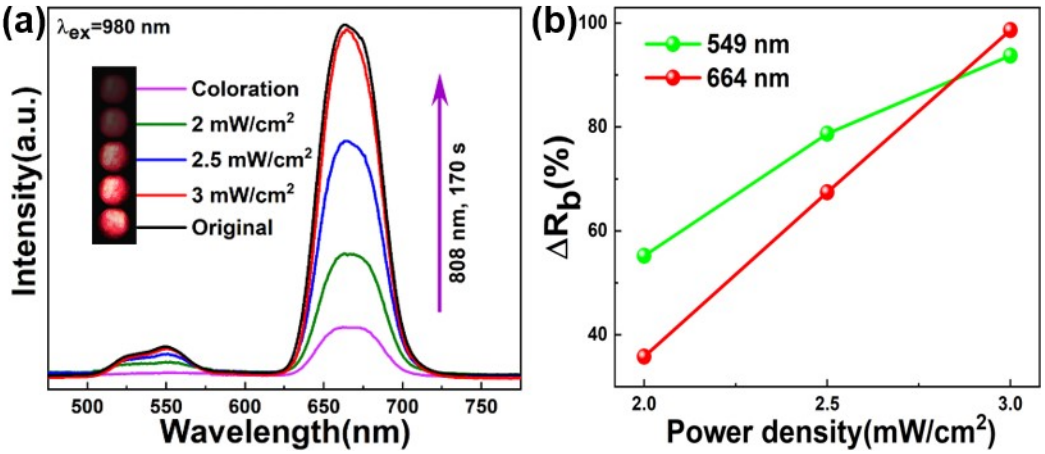

Figure S9. (a) Under 980 nm excitation, the UCL spectra of TO-1150-PC as a function of laser power density. (b) The plot of ΔR_b with the 808 nm laser power density.