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

Ce^{4+}/Ce^{3+} Redox-Controlled Luminescence 'Off/On' Switching of Highly Oriented $Ce(OH)_2Cl$ and Tb-doped $Ce(OH)_2Cl$ Films

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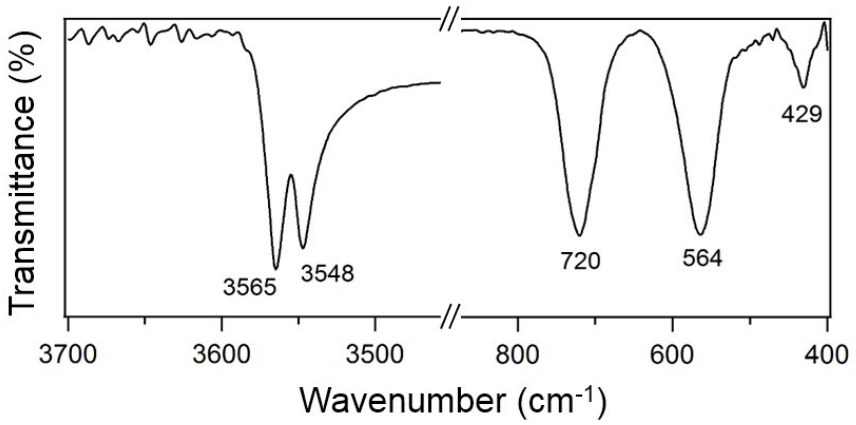

Fig. S1 FT-IR spectra of $Ce(OH)_2Cl$.

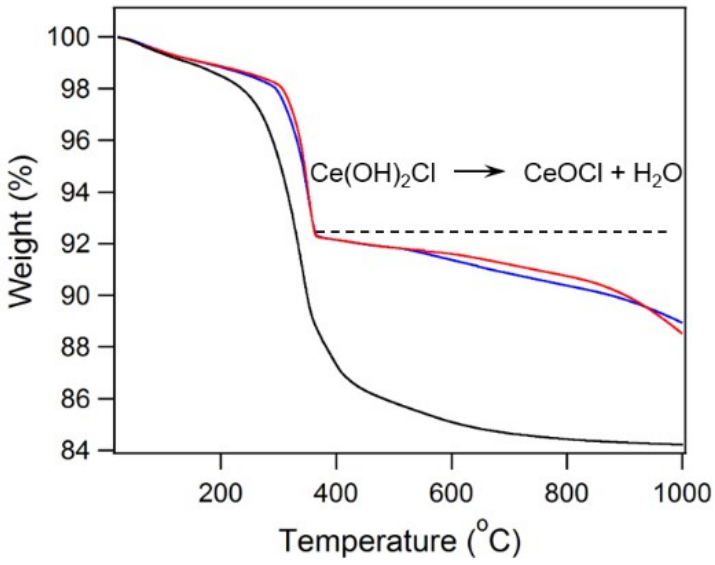

Fig. S2 Thermogravimetric curves of $Ce(OH)_2Cl$ under air (black), N_2 (red), and Ar gas (red) flowing.

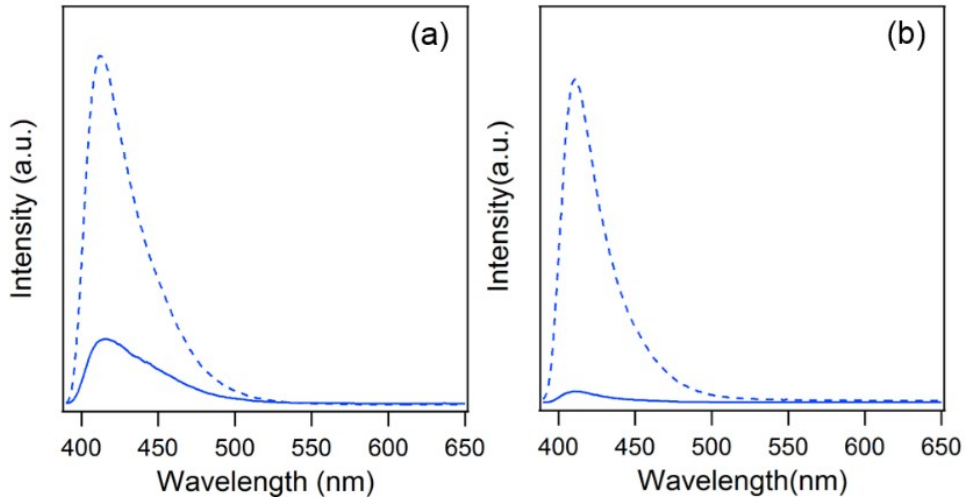

Fig. S3 Comparison of emission spectra (λ_{ex} = 312 nm) of $Ce(OH)_2Cl$ films deposited on (a) common quartz glass and (b) FTO glass before (dotted line) and after (solid line) the oxidation reaction in 10.0 mM aqueous $KMnO_4$ solution for 5 min.

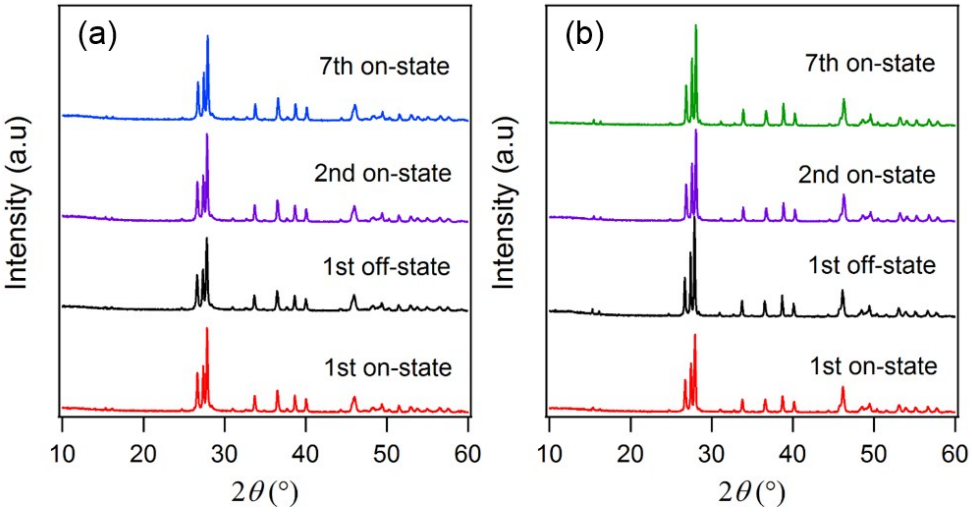

Fig. S4 XRD patterns of (a) $Ce(OH)_2Cl$ and (b) $Ce(OH)_2Cl$:Tb films on FTO glass as a function of the 'off/on' switching cycle.

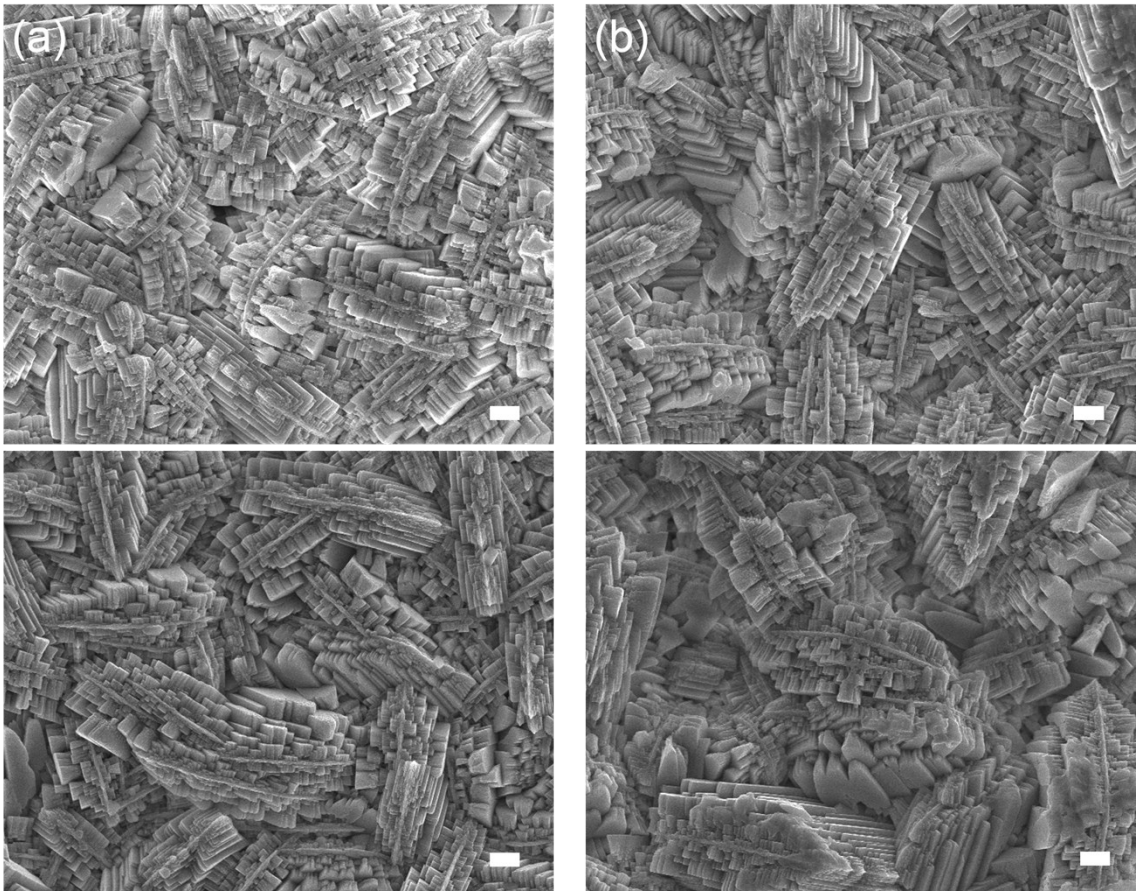

Fig. S5 SEM images of (a) $Ce(OH)_2Cl$ and (b) $Ce(OH)_2Cl$:Tb films on FTO glass before (top) and after (bottom) six cycles of oxidation and reduction. (bar = 1 μm)