Ce^{3+} Self-Doped CeOx/FeOCl: An Efficient Fenton Catalyst for Phenol Degradation Under Mild Conditions

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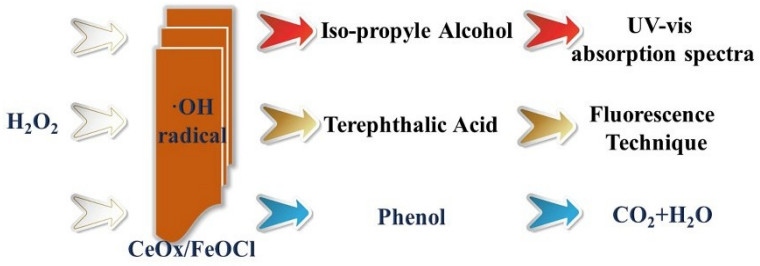

Fig.S1 schema of the catalytic reactions process

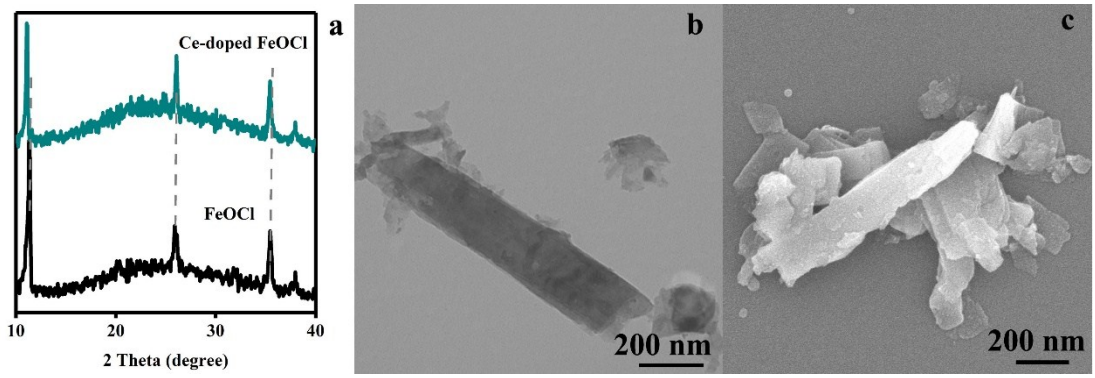

Fig.S2 (a) XRD patterns of FeOCl and CeOx/FeOCl, (b) TEM image and (c) SEM image of FeOCl

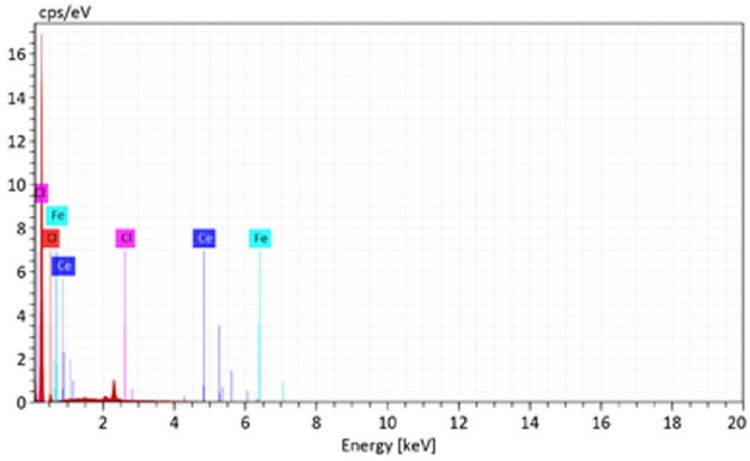

Fig.S3 EDS spectrum of CeOx/FeOCl

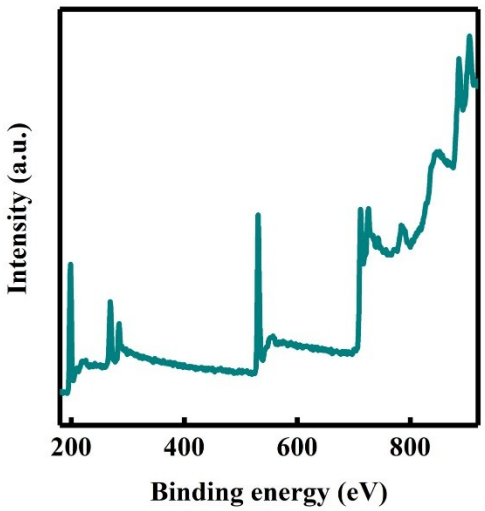

Fig.S4 XPS spectrums of CeOx/FeOCl

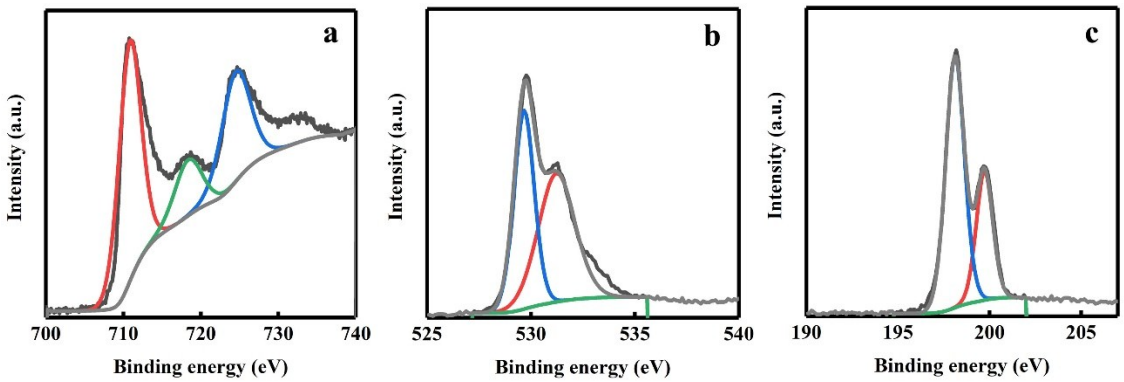

Fig.S5 XPS spectrums of (a) Fe 2p, (b) O 1s and (c) Cl 2p of FeOCl

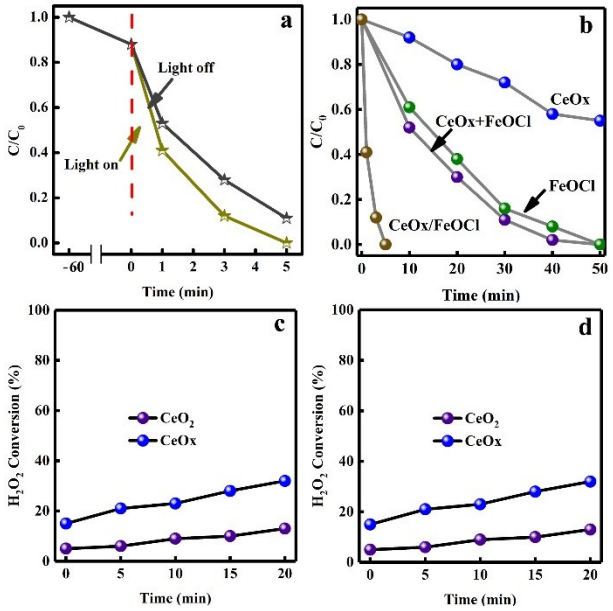

Fig.S6 (a) catalytic degradation of phenol over CeOx/FeOCl in the Fenton reaction, (b) Fenton catalytic activity of CeOx, FeOCl, FeOCl+CeOx and CeOx/FeOCl, (c) H_2O_2 decomposition over CeO_2 and CeOx, (d) H_2O_2 decomposition over CeO_2 and CeOx

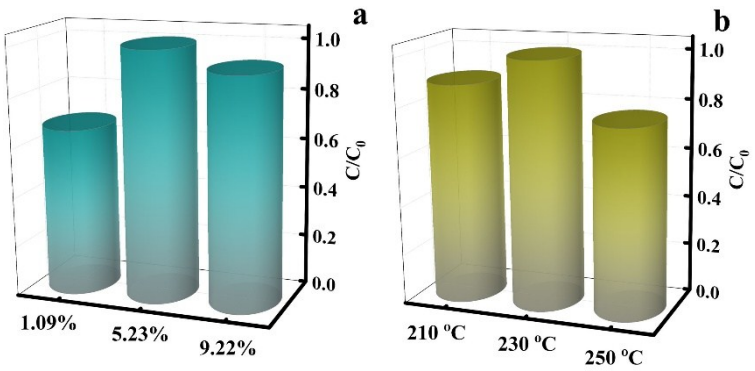

Fig.S7 catalytic degradation rate over CeOx/FeOCl with different (a) Ce content and (b) calcination temperature

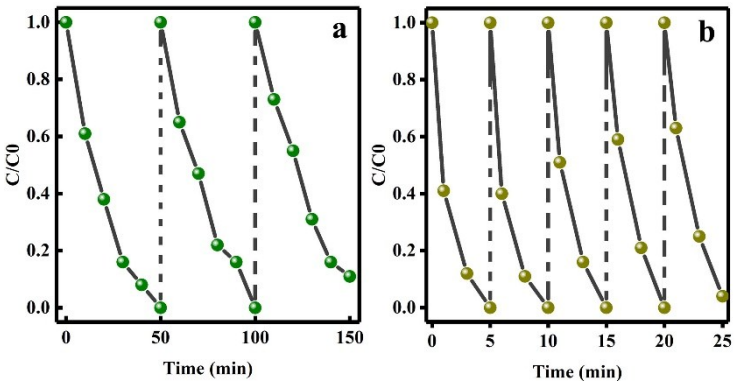

Fig.S8 Cycling degradation performance of (a) FeOCl and (b) CeOx/FeOCl

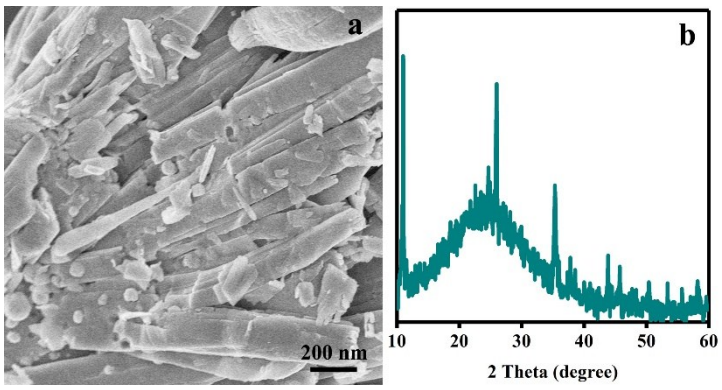

Fig.S9 (a) SEM image and (b) XRD pattern of CeOx/FeOCl after degradation

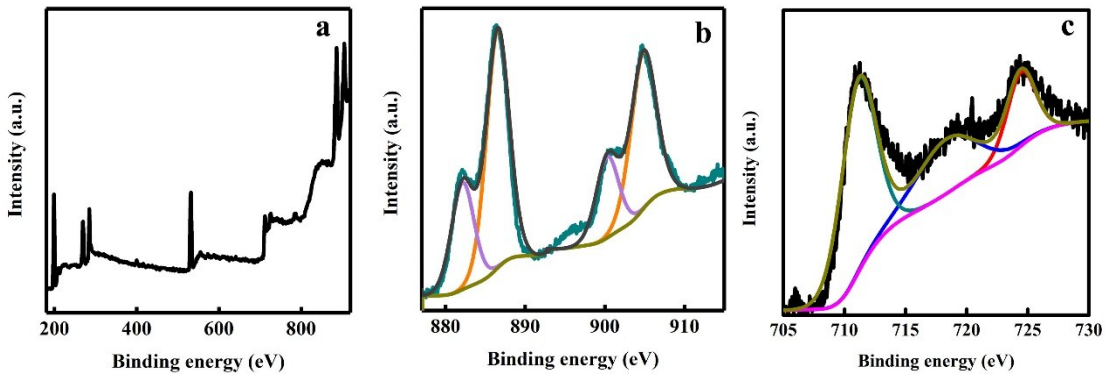

Fig.S10 XPS of (a) CeOx/FeOCl, (b) Ce 3d and (c) Fe 2p

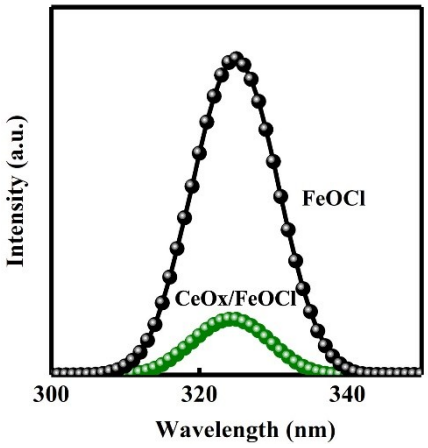

Fig.S11 PL emission intensities of FeOCl and CeOx/FeOCl

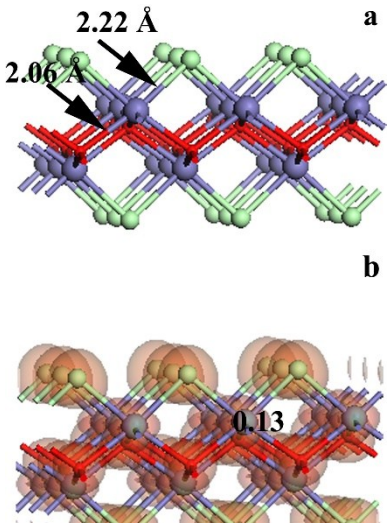

Fig.S12 (a) optimized structures and (b) total charge densities of FeOCl. The isosurface level is 0.8.

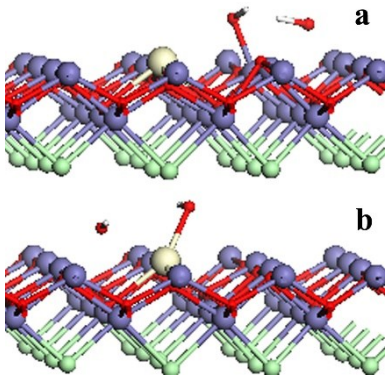

Fig.S13 optimized structures of H_2O_2 on CeOx/FeOCl with (a) Fe-site and (b) Ce-site