

Electronic Supplementary Information (ESI):

**Comprehensive study the promotional mechanism of  
F on the Ce-Mo/TiO<sub>2</sub> catalysts for wide temperature  
NH<sub>3</sub>-SCR performance: The activation of the surface  
≡Ti-F bonds**

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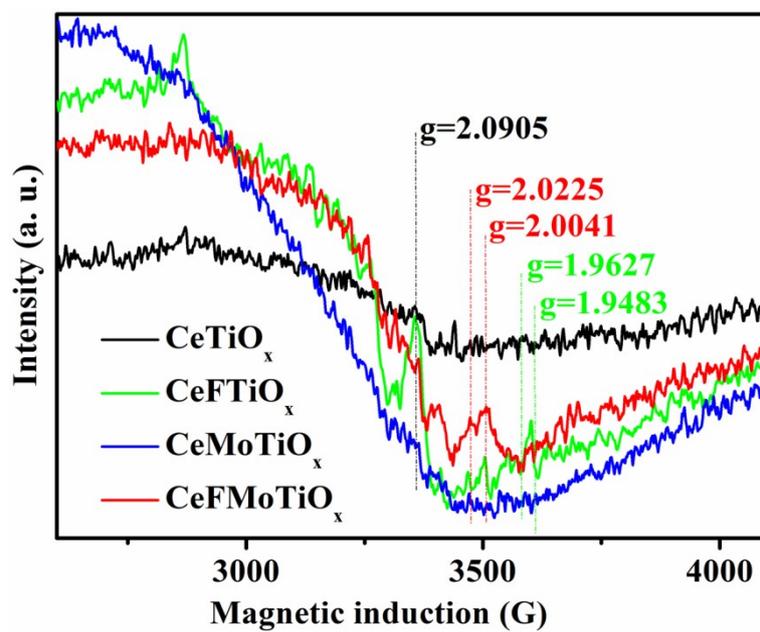


Fig. 1S EPR patterns of the  $\text{CeTiO}_x$ ,  $\text{CeFTiO}_x$ ,  $\text{CeMoTiO}_x$  and  $\text{CeFMoTiO}_x$  catalysts.

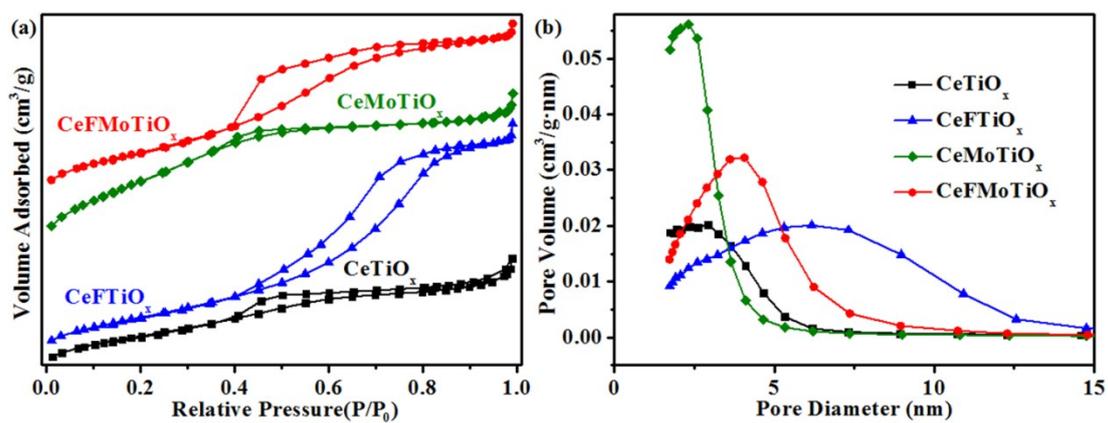


Fig. 2S  $\text{N}_2$  adsorption-desorption isotherms of the all catalysts detected at 77.3 K (a) and pore size distribution (b).

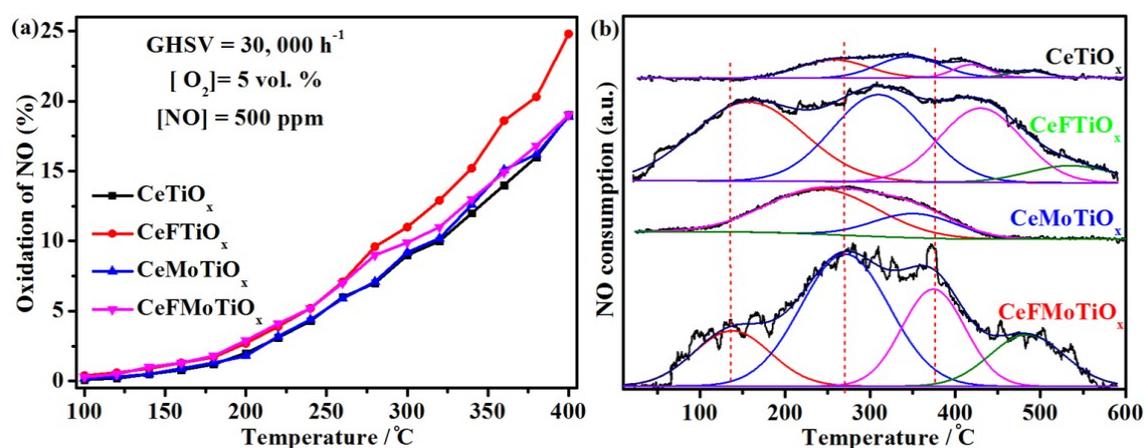


Fig. 3S The NO oxidation and the peak-fitting NO-TPD patterns of the CeFTiO<sub>x</sub>,

CeMoTiO<sub>x</sub> and CeFMoTiO<sub>x</sub> catalysts

The oxidation of NO for the CeFTiO<sub>x</sub> catalyst was significantly higher than that of other catalysts in the whole test process, while the performance of the CeFMoTiO<sub>x</sub> catalyst was close to that of the CeFTiO<sub>x</sub> catalyst in the range of 100- 260 °C. The catalyst has better adsorption performance than other catalysts via NO-TPD characterization. The peaks below 200 °C are considered to the physical adsorption of NO by the catalyst, while the peaks above 200 °C were assigned to chemisorption, for instance bridging nitrate or bidentate nitrate species [1- 3].

## References

- [1] D. Ciuparu, A. Bensalem, L. Pfefferle, *Appl. Catal. B: Environ.*, 26 (2000) 241–255.
- [2] Y. Wang, A. Zhu, Y Zhang, C.T. Au, X. Yang, C. Shi, *Appl. Catal. B: Environ.*, 81 (2008) 141–149.
- [3] R. Jin, Y. Liu, Z. Wu, H. Wang, T. Gu, *Chemosphere*, 78 (2010) 1160–1166.