Supporting Information

Table S1 Physical properties of as-prepared CeO_2 and His-CeO_2

Sample	Lattice parameter (Å) [a]	Size (nm) [a]
CeO_2	5.4	10.65
His-CeO_2	5.42	12.26

[a] calculated from XRD.

Table S2 The binding energies and relative content of Ce species in CeO_2 and His-CeO_2

Species	CeO_2		His-CeO_2	
	Binding energy (eV)	Content (%)	Binding energy (eV)	Content (%)
Ce(IV)	882.2	83.07	882.2	80.24
Ce(IV)	888.7		888.6	
Ce(IV)	898.3		898.1	
Ce(IV)	900.9		900.7	
Ce(IV)	907.9		907.6	
Ce(IV)	916.8		916.6	
Ce(III)	884.9	16.93	884.7	19.76
Ce(III)	903.7		903.5	

Table S3 The loadings of Pt species determined by ICP-OES

Catalysts	Pt (wt%)
Pt/C-JM	19.4
Pt/C-Z	18.3
Pt/CeO_2-C	18.7
Pt/His-CeO_2-C	18.6

Table S4 The relative content of Pt species in catalysts determined by XPS spectra

Catalysts	Pt^0 (%)
Pt/C-Z	60.35
Pt/CeO_2-C	66.16
Pt/His-CeO_2-C	67.87

Table S5 The positive scan peak current density normalized as mass activity for Pt/His-CeO_2-C and other recently reported catalysts

Sample	Mass activity / A g_{Pt}^{-1}	Scanning Rate / mV S^{-1}	Condition	References
Pt/CeO_2/graphene	366	100	0.5 M H_2SO_4 + 1 M CH_3OH	1
Pt/CeO_2/PANI	361.3	100	0.5 M H_2SO_4 + 0.5 M CH_3OH	2
Pt/TiO_2-C	102.8	50	0.5 M H_2SO_4 + 0.5 M CH_3OH	3
Pt-MoO_x/CNTs	246.2	20	0.5 M H_2SO_4 + 1 M CH_3OH	4
Pt/MnO_x-MWCNTs	1367.3	50	0.5 M H_2SO_4 + 1 M CH_3OH	5
Pt-SiO_2/graphene	1047	50	0.5 M H_2SO_4 + 1 M CH_3OH	6
Pt/$Ce_{0.7}Mo_{0.3}O_{2-\delta}$-C	1888.4	50	0.5 M H_2SO_4 + 1 M CH_3OH	7
Pt/$Ce_{0.8}Sn_{0.2}O_{2-\delta}$-C	502	50	0.5 M H_2SO_4 + 0.5 M CH_3OH	8
Pt/His-CeO_2-C	1116.9	50	0.5 M H_2SO_4 + 1 M CH_3OH	This work

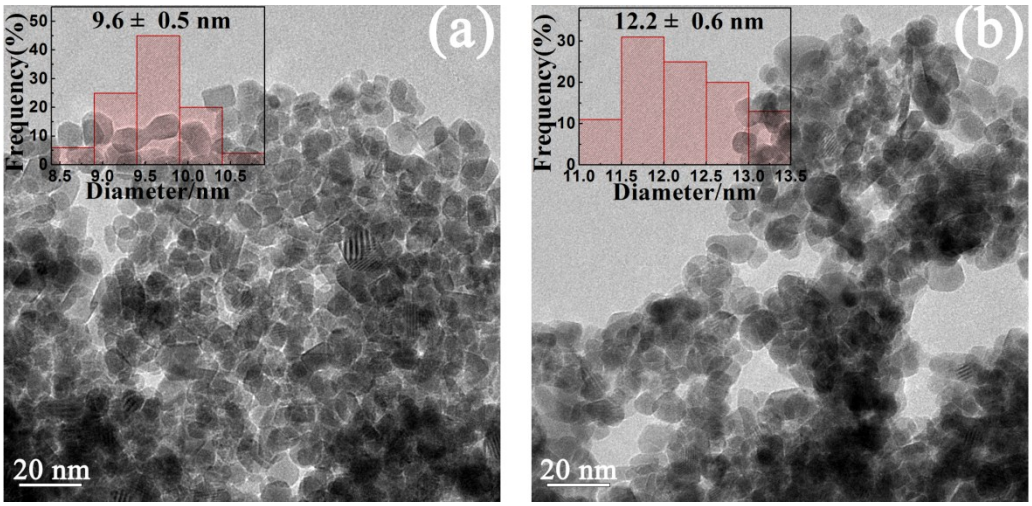

Fig. S1 TEM images of (a) CeO_2 and (b) His-CeO_2, the scar bar is 20 nm.

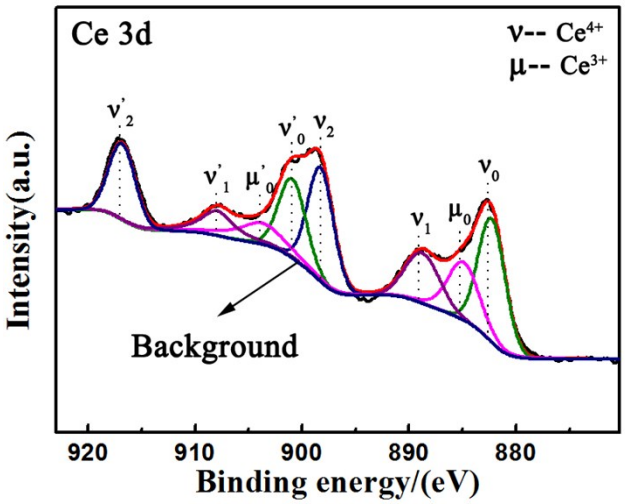

Fig. S2 XPS spectra for Ce 3d core level regions of CeO_2.

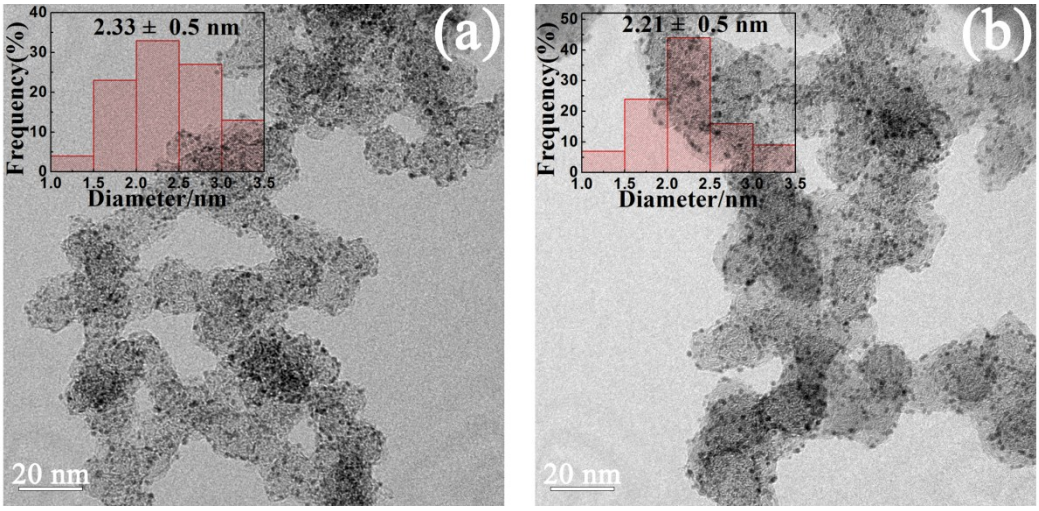

Fig. S3 TEM images of (a) Pt/C-Z and (b) Pt/CeO_2-C. Inserts are the size distribution of Pt NPs.

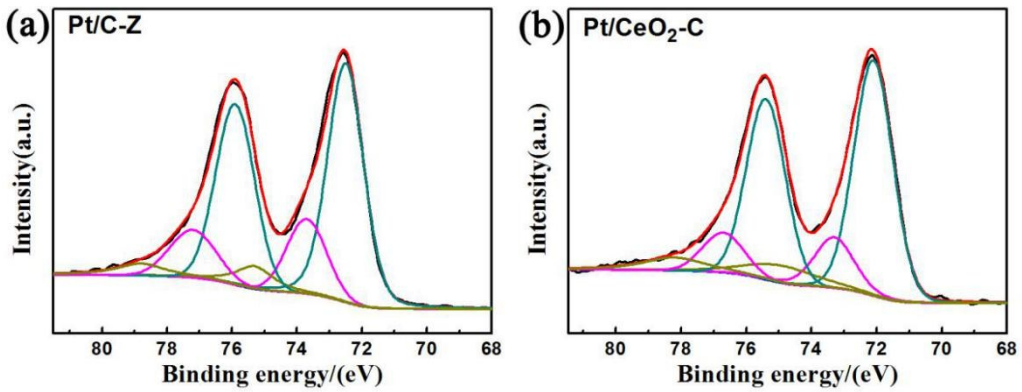

Fig. S4 Pt 4f XPS spectra of (a) Pt/C-Z; (b) Pt/CeO_2-C; The black, red, dark cyan, magenta, dark yellow lines represent the raw, the fitted, the Pt^0, the Pt^{2+} and the Pt^{4+} components' curves, respectively.

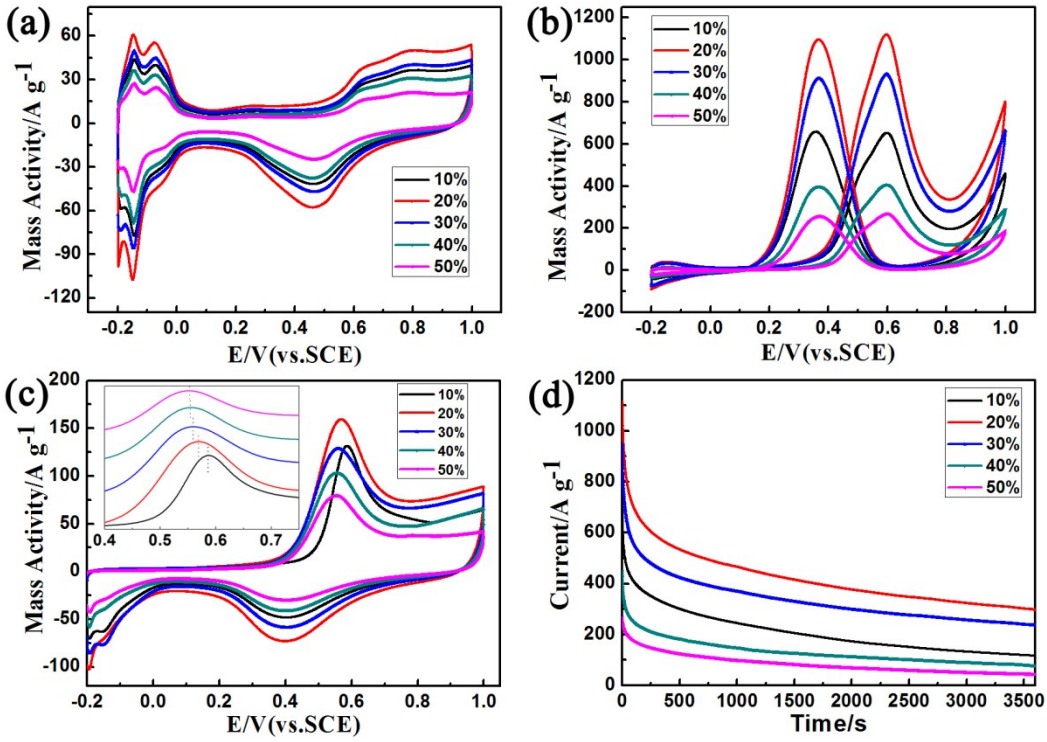

Fig. **S5** (a) CV curves of Pt/His-CeO_2-C with various loadings of His-CeO_2 in 0.5 M H_2SO_4 at 50 mV s^{-1}; (b) Mass activities of MOR recorded in 0.5 M H_2SO_4 + 1.0 M CH_3OH at 50 mV s^{-1}; (c) CO stripping curves in 0.5 M H_2SO_4 at 50 mV s^{-1} in the first forward scan. Inset: magnified areas in the range of 0.4 ~ 0.75 V. (d) Chronoamperometric curves of the prepared catalysts tested at 0.6 V.

References

1 X. Wang, X. Li, D. Liu, S. Song, H. Zhang, *Chem. Commun.*, 2012, 48, 2885-2887.

2 H. Xu, A. L. Wang, Y. X. Tong, G. R. Li, *Acs Catal.*, 2016, 6, 5198-5206.

3 Y. Fan, Z. Yang, P. Huang, X. Zhang, Y. M. Liu, *Electrochim. Acta*, 2013, 105, 157-161.

4 Z. M. Cui, S. P. Jiang, C. M. Li, *Chem. Commun.*, 2011, 47, 8418-8420.

5 A. Nouralishahi, A. A. Khodadadi, Y. Mortazavi, A. Rashidi, M. Choolaei, *Electrochim. Acta*, 2014, 147, 192-200.

6 T. H. T. Vu, T. T. T. Tran, H. N. T. Le, L. T. Tran, P. H. T. Nguyen, H. T. Nguyen, N. Q. Bui, *Electrochim. Acta*, 2015, 161, 335-342.

7 G. Zhang, Z. Yang, W. Zhang, Y. Wang, *J. Mater. Chem. A*, 2017, 5, 1481-1487.

8 Y. Gu, C. Liu, Y. Li, X. Sui, K. Wang, Z. Wang, *J. Power Sources*, 2014, 265, 335-344.