

## Supporting Information

### Investigation of ZnCo<sub>2</sub>O<sub>4</sub>-Pt hybrids with different morphologies towards catalytic CO oxidation

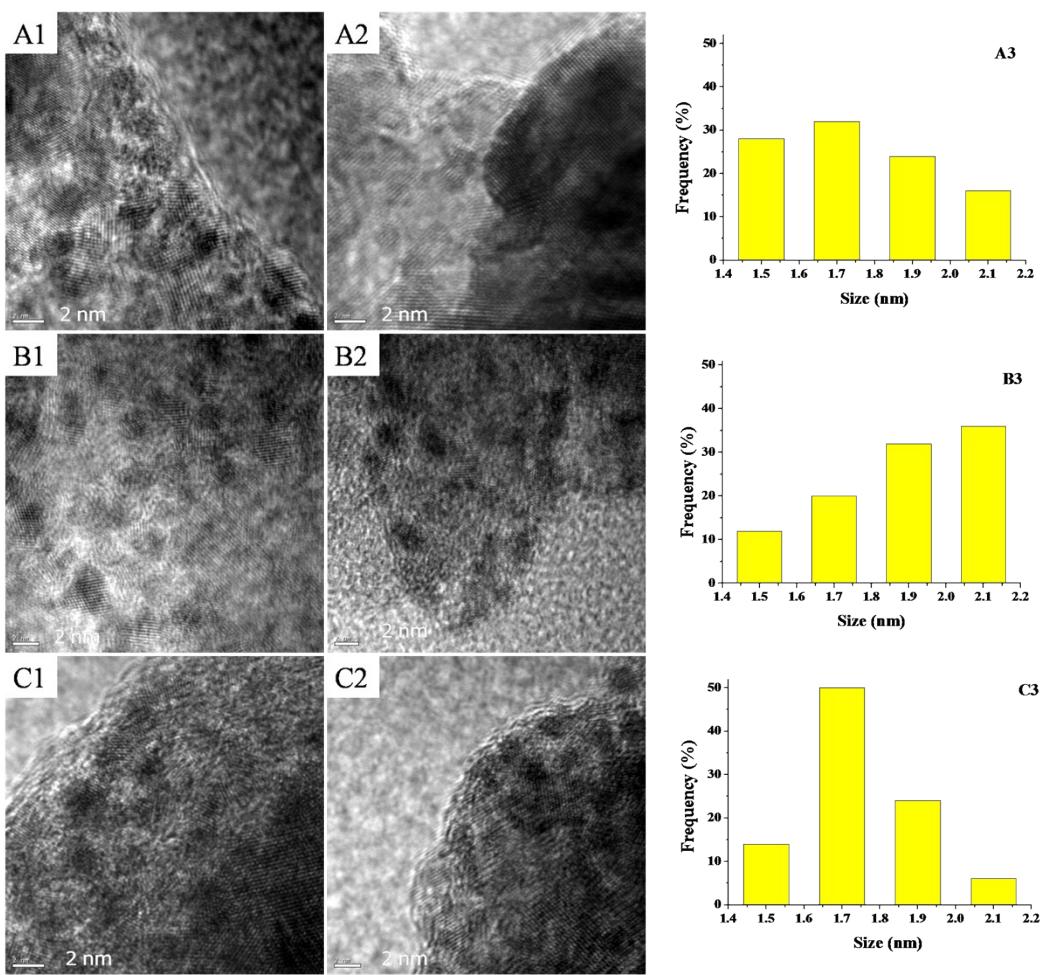
Fan Wang,<sup>[a,b]</sup> Xiao Wang,<sup>[a]</sup> Dapeng Liu,<sup>[c]\*</sup> Jiangman Zhen,<sup>[a]</sup> Junqi Li,<sup>[a,b]</sup> Hongjie Zhang<sup>[a]\*</sup>

<sup>a</sup>*State Key Laboratory of Rare Earth Resource Utilization, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022 Jilin, China.*

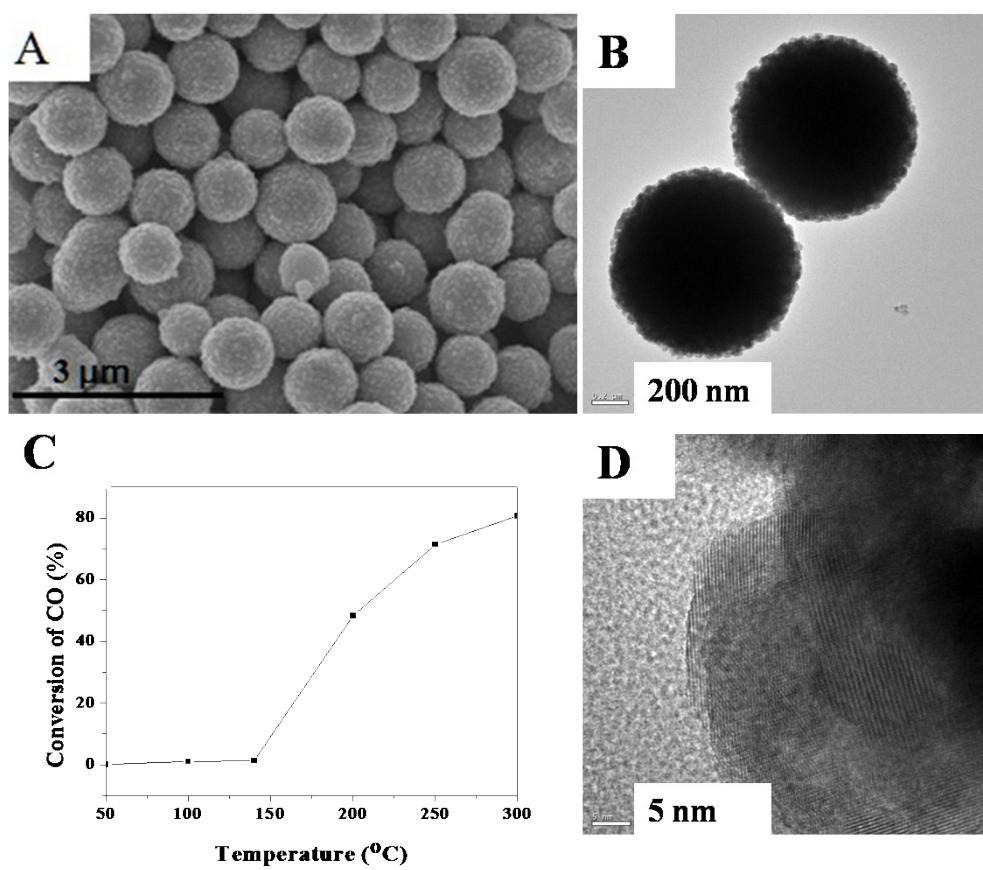
<sup>b</sup>*Graduate University of Chinese Academy of Sciences, Beijing 100039, P.R. China*

<sup>c</sup>*Key Laboratory of Bio-Inspired Smart Interfacial Science and Technology of Ministry of Education, School of Chemistry and Environment, Beihang University, Beijing 100191, China.*

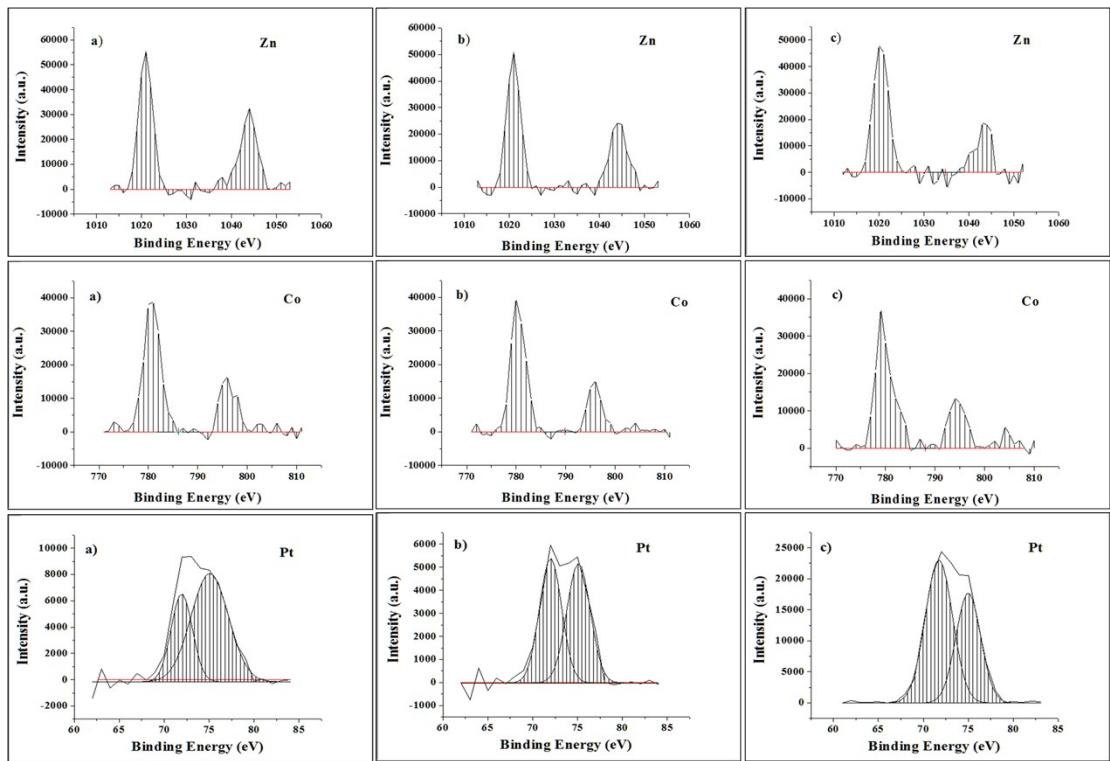
E-mail: liudp@buaa.edu.cn; hongjie@ciac.ac.cn



**FigureS1.** TEM images of A: ZnCo<sub>2</sub>O<sub>4</sub>-Pt rods and size distribution of Pt NPs, B: ZnCo<sub>2</sub>O<sub>4</sub>-Pt plates and size distribution of Pt NPs, C: ZnCo<sub>2</sub>O<sub>4</sub>-Pt spheres and size distribution of Pt NPs.



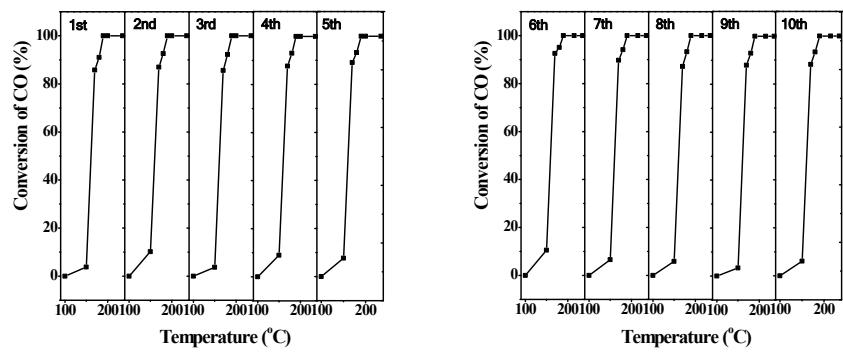
**Figure S2.** (A): SEM images of  $\text{ZnCo}_2\text{O}_4$ -Pt spheres without PVP; (B) and (D): TEM images of  $\text{ZnCo}_2\text{O}_4$ -Pt spheres without PVP; (C): CO conversion curves of  $\text{ZnCo}_2\text{O}_4$ -Pt spheres without PVP.



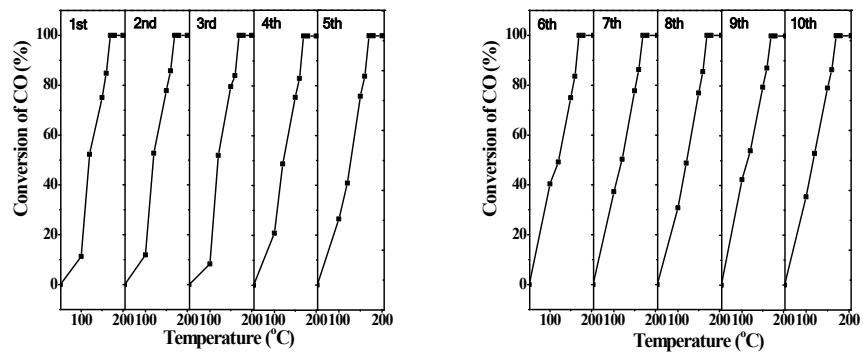
**FigureS3.** Normalized XPS spectra (a): ZnCo<sub>2</sub>O<sub>4</sub>-Pt rods, (b): ZnCo<sub>2</sub>O<sub>4</sub>-Pt plates, (C): ZnCo<sub>2</sub>O<sub>4</sub>-Pt spheres.

Sample	Pt (ev.s)	Zn (ev.s)	Co (ev.s)	Zn:Co:Pt
ZnCo <sub>2</sub> O <sub>4</sub> -Pt rod	62664	347777	244761	1.42 : 1.00 : 0.26
ZnCo <sub>2</sub> O <sub>4</sub> -Pt plate	33724	287218	200559	1.43 : 1.00 : 0.17
ZnCo <sub>2</sub> O <sub>4</sub> -Pt sphere	148706	259436	221544	1.17 : 1.00 : 0.67

**Table S1.** The integrals of the peaks of the three samples.



**Figure S4.** Cycling test of  $\text{ZnCo}_2\text{O}_4$ -Pt rod for CO conversion.



**Figure S5.** Cycling test of  $\text{ZnCo}_2\text{O}_4$ -Pt plate for CO conversion.