Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information：

Palladium-doped Ceria@Carbon Core-sheath Nanowire Network: A Promising Catalyst Support for Alcohol Electrooxidation Reaction

Qiang Tan, Chunyu Du, Yongrong Sun, Lei Du, Geping Yin and Yunzhi Gao*

School of Chemical Engineering and Technology, Harbin Institute of Technology,

Harbin, 150001, China

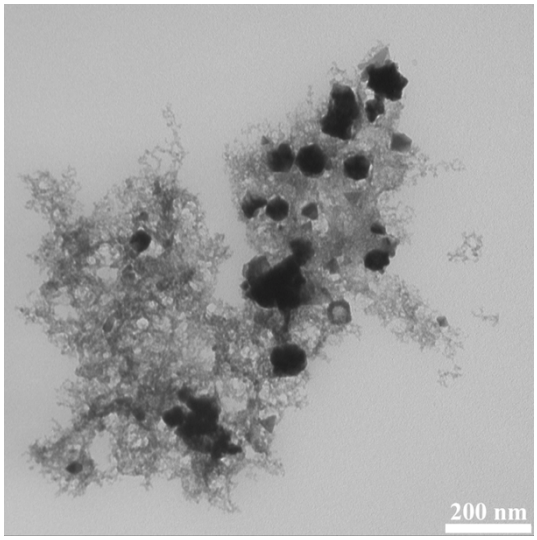


Fig. S1. TEM image of the palladium-doped CeO_2 product with Pd^{2+}/Ce^{2+} ratio of 5%.

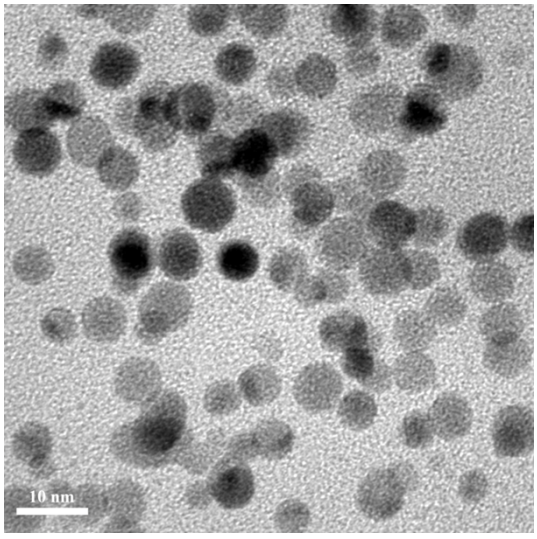


Fig. S2. TEM image of the palladium-doped CeO_2 product with HNO_3 concentration of 5 mM.

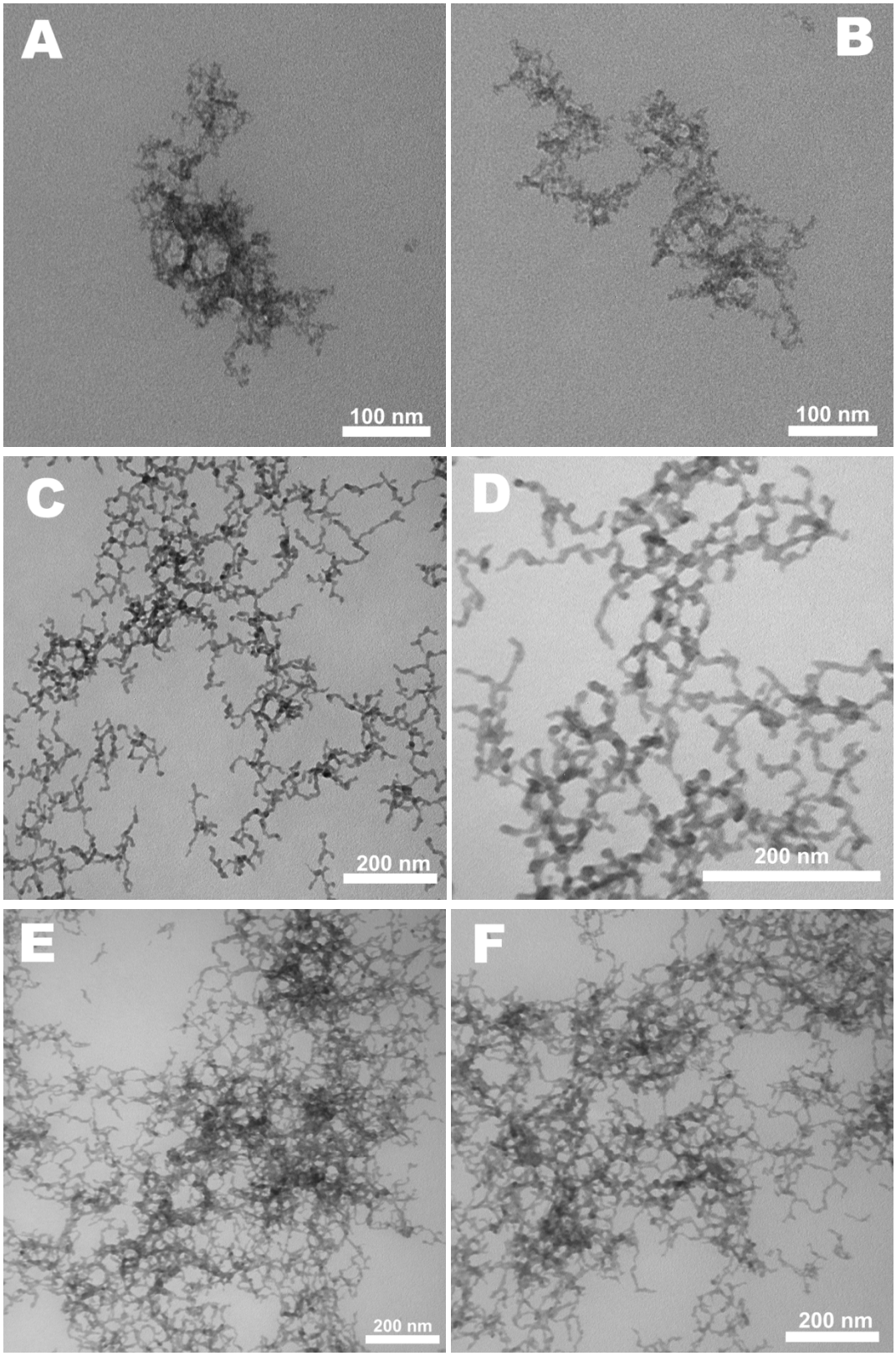


Fig. S3. TEM images of the Pd-CeO_2 NWN synthesized at different periods of time (A and B: 1h; C and D: 2h; E and F: 3h).

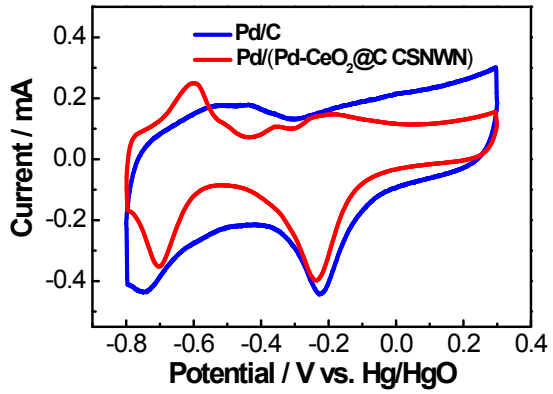


Fig. S4. CV curves for the Pd/C and Pd/(Pd-CeO_2@C CSNWN) catalyst in 1.0 M KOH solution.

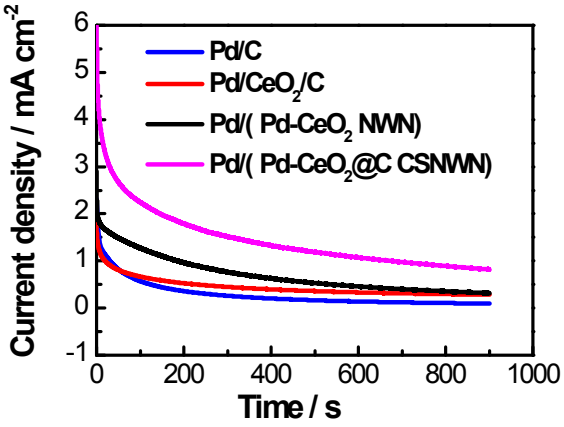


Fig. S5. CA curves for Pd/C, Pd/CeO_2/C, Pd/(Pd-CeO_2 NWN) and Pd/(Pd-CeO_2@C CSNWN) catalysts in 1.0 M KOH + 0.5 M C_2H_5OH solution at -0.2 V vs Hg/HgO.

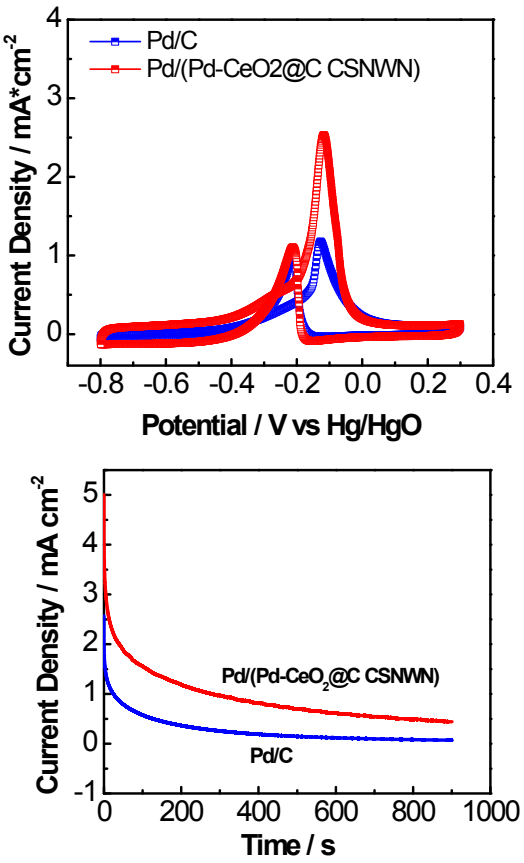
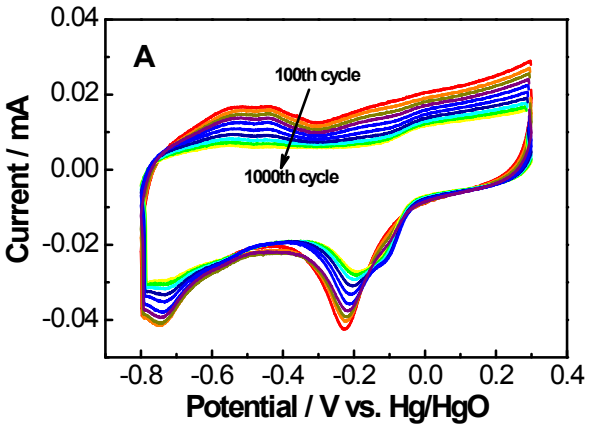
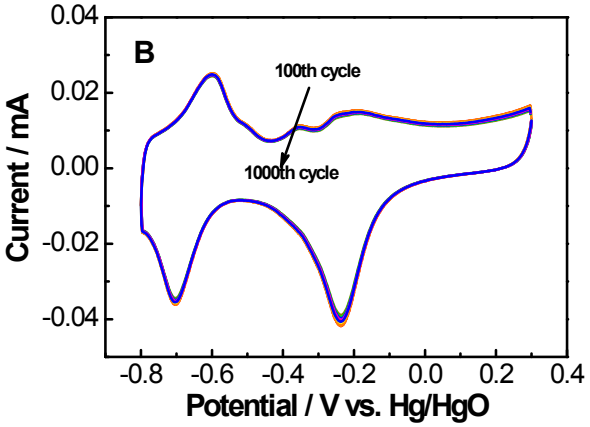
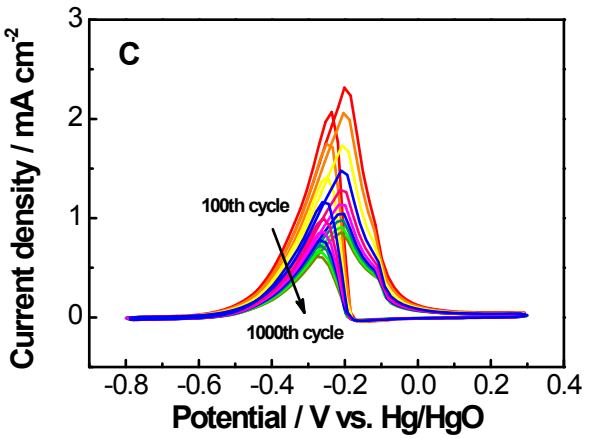


Fig. S6. CV curves and CA curves at -0.2 V vs Hg/HgO for Pd/C and Pd/(Pd-CeO_2@C CSNWN) catalyst in 1.0 M KOH+0.5 M CH_3OH solution.


A
100th cycle
1000th cycle
Current / mA
Potential / V vs. Hg/HgO
0.04
0.02
0.00
-0.02
-0.04
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4


B
100th cycle
1000th cycle
Current / mA
Potential / V vs. Hg/HgO
0.04
0.02
0.00
-0.02
-0.04
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4


C
100th cycle
1000th cycle
Current density / mA cm-2
Potential / V vs. Hg/HgO
3
2
1
0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4

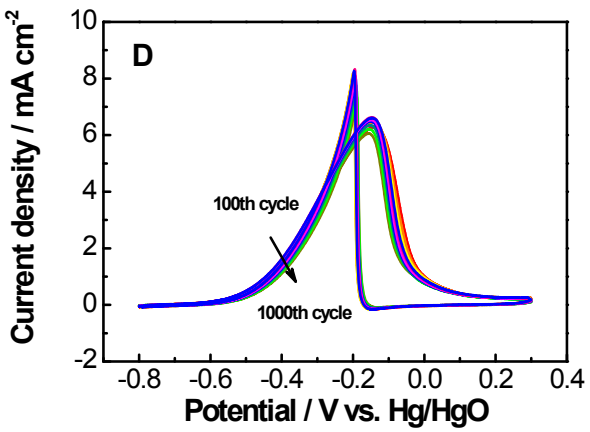

D
100th cycle
1000th cycle
Current density / mA cm-2
Potential / V vs. Hg/HgO
10
8
6
4
2
0
-2
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4

Fig. S7. The accelerated durability test of (A, C) Pd/C and (B, D) Pd/(Pd-CeO_2@C CSNWN) in 1.0 M KOH and 1.0 M KOH+0.5 M C_2H_5OH solution, respectively.

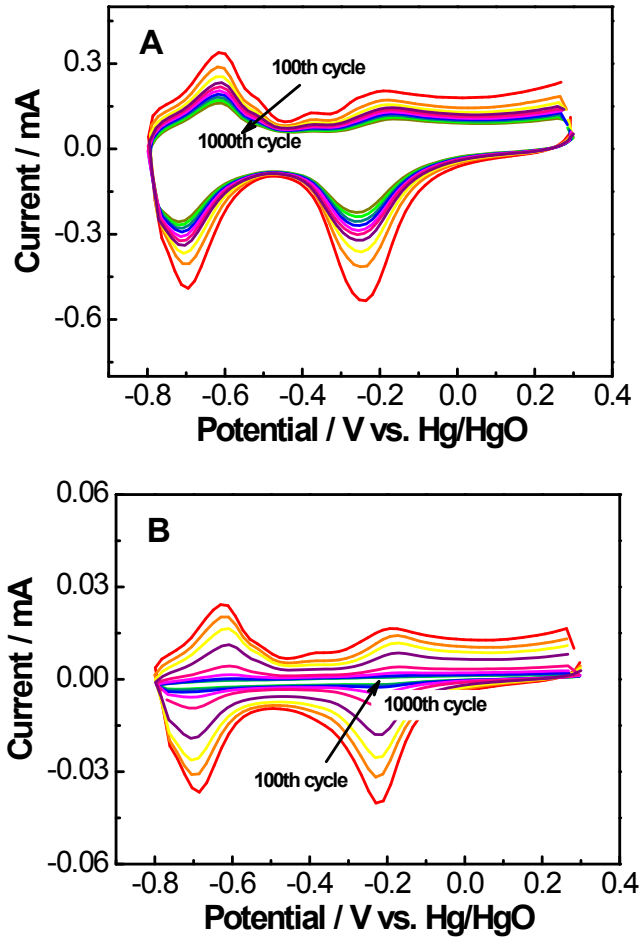


Fig. S8. Accelerated durability test of (A) Pd/(Pd-CeO_2 NWN) and (B) Pd/(Pd-CeO_2@C NP) catalysts in 1.0 M KOH solution.