Supporting Information Available

One-step Synthesis and Catalytic Properties of thePorous Palladium Nanospheres

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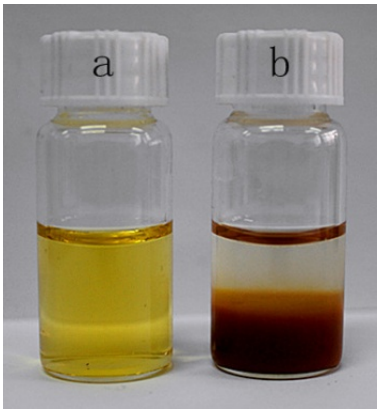

Fig. S1 Photographs of (a) $PdCl_2$ aqueous solution (pH 2.0) and (b) the red $PdO \cdot H_2O$ precipitation obtained by adjusting the pH value of $PdCl_2$ aqueous solution to 9.0.

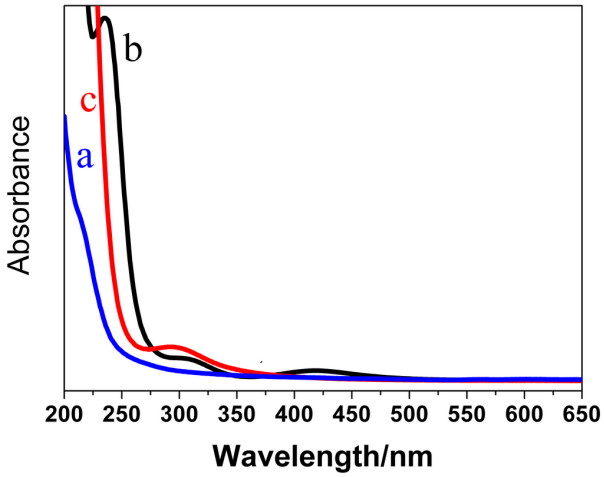

Fig. S2 UV–vis absorption spectra of (a) PAH solution (pH 2.0), (b) $PdCl_2$ solution (pH 2.0), and (c) the mixture solution of PAH and $PdCl_2$ (pH 9.0, molar ratio of PAH monomer to palladium is 9:1).

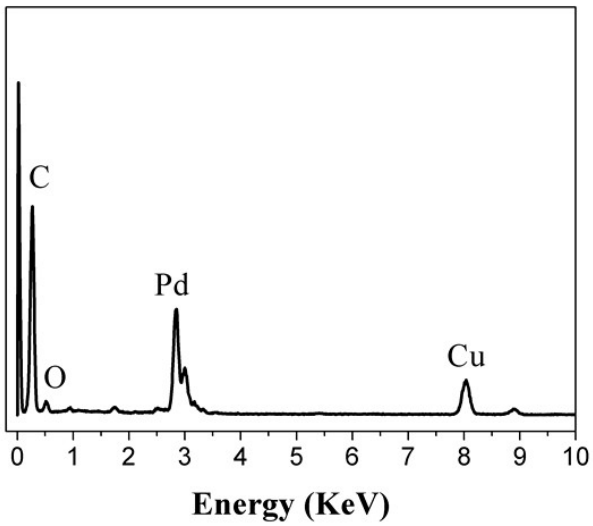

Fig. S3 EDX spectrum of Pd-NSS.

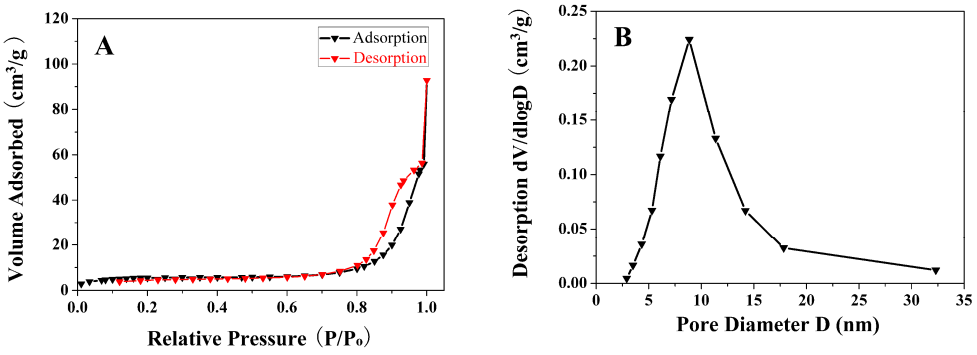

Fig. S4 (A) The typical nitrogen adsorption–desorption isotherm of the Pd-NSS and (B) the corresponding pore-size distribution curve obtained from the BJH method.

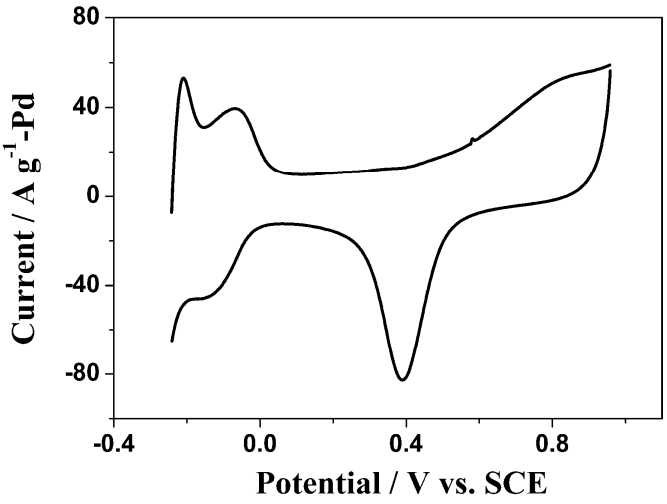

Fig. S5 Cyclic voltammogram of the Pd-NSS modified electrode in the N_2-saturated 0.1 M $HClO_4$ solution at 50 mV s^{-1}.

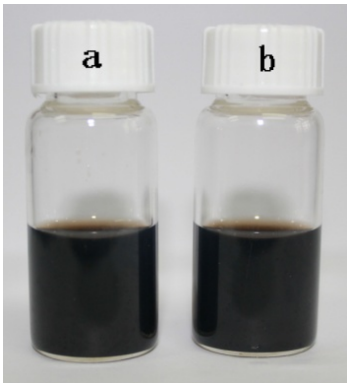

Fig. S6 Digital photographs of 0.5 mg mL^{-1} Pd-NSS after (a) 1 min and (b) 3 months of storage under ambient temperature.

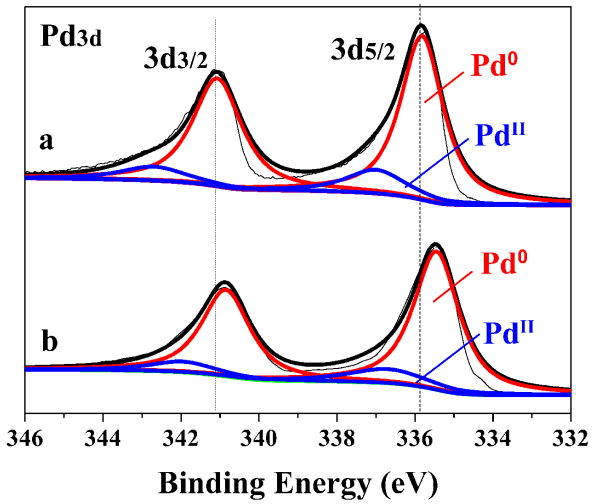

Fig. S7 XPS spectra of (a) solid Pd nanoparticles and (b) Pd-NSS in the Pd 3d region.

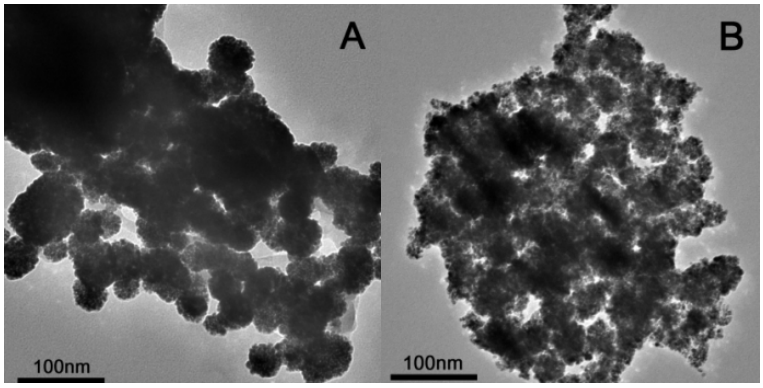

Fig. S8 TEM images of Pd-NSS prepared at (A) 0 ^{o}C and (B) 75 ^{o}C.

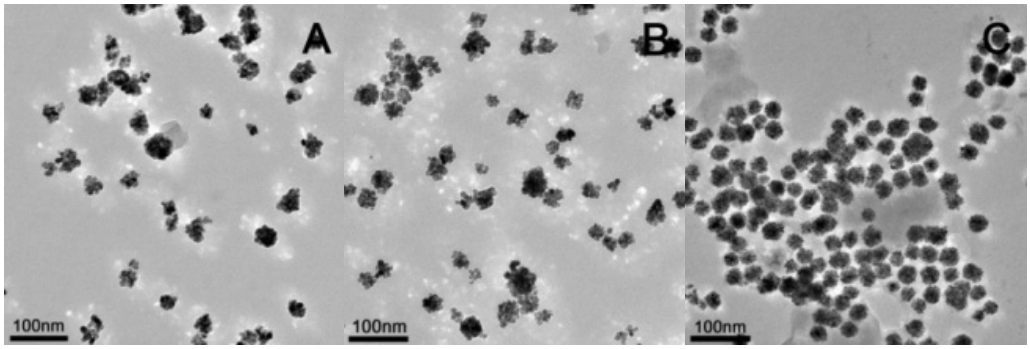

Fig. S9 TEM images of the Pd-NSS prepared at (A) pH 3.0, (B) pH 6.0 and (C) pH 9.0.

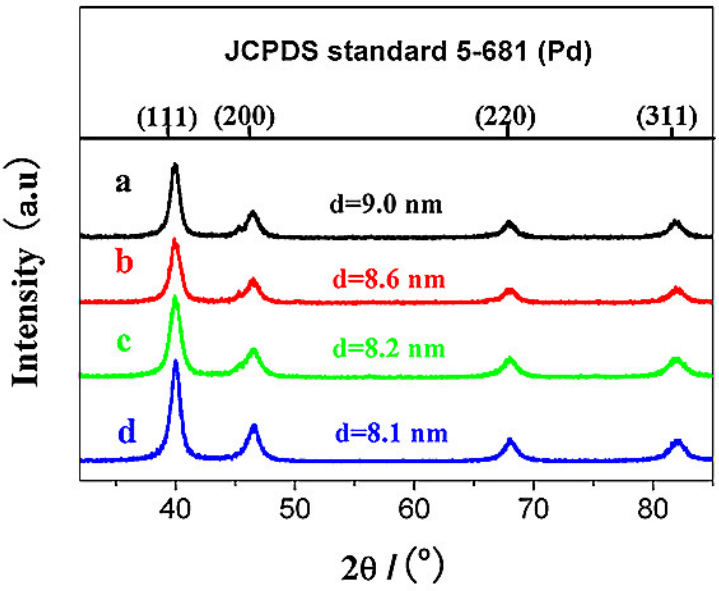

Fig. S10 XRD patterns of Pd-NSS synthesized by varying PAH/Pd^{II} feeding ratio of (a) 9:1, (b) 14:1, (b) 19:1 and (d) 40:1 at pH 9.0.

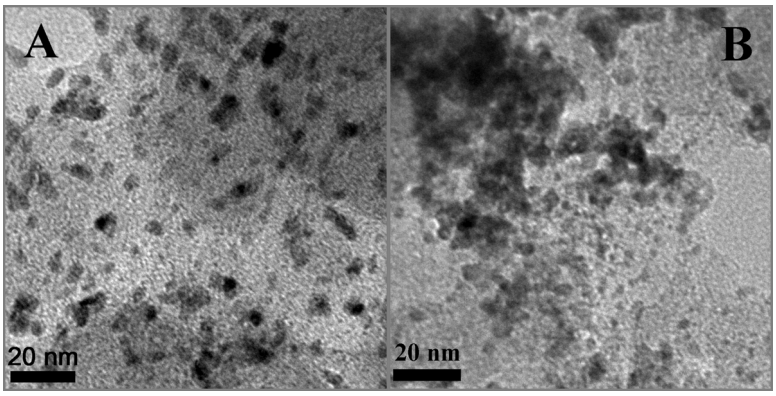

Fig. S11 TEM images of (A) the original Pd/C catalyst and (B) the reused Pd/C catalyst after fifth recycle. Pd/C catalyst with 20.0 wt% metal Pd was prepared according to our previous work [Ma et al., Applied Surface Science 2011, 257, 10483].