Electronic Supplementary Information for

Mesoporous Pt@PtM (M = Co, Ni) cage-bell nanostructure toward methanol electro-oxidation

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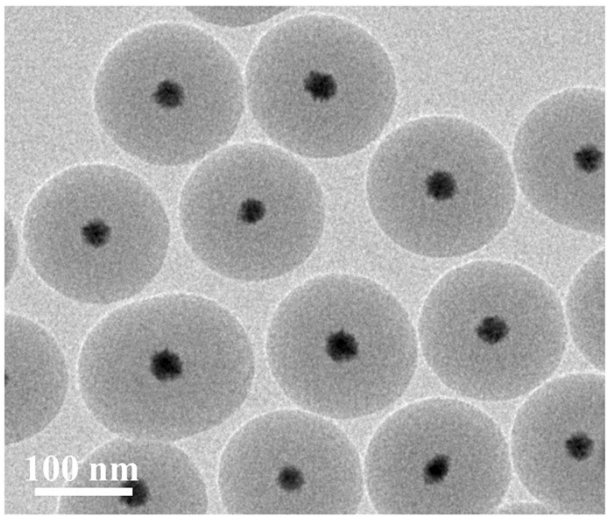

Fig. S1 TEM image of $Pt@SiO_2$ nanoparticles.

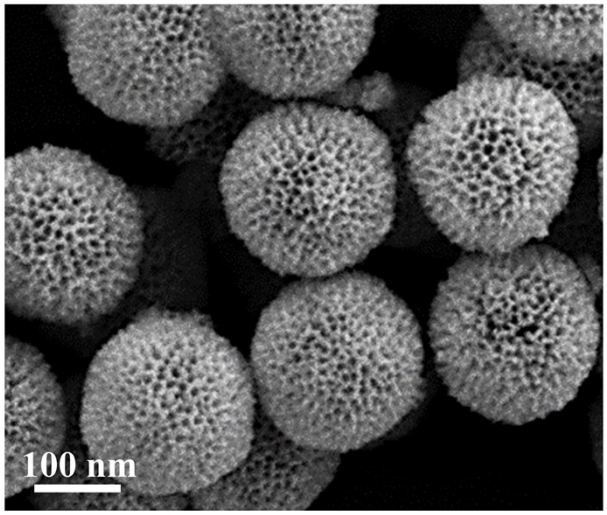

Fig. S2 TEM image of $Pt@SiO_2@mPtCo$ nanoparticles.

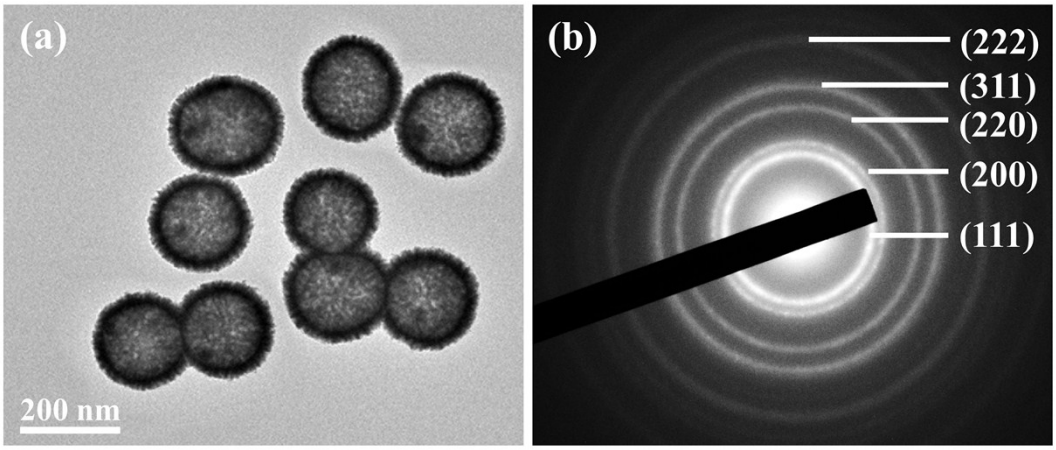

Fig. S3 (a) TEM image and (b) SAED pattern of the Pt@mPtCo CBs.

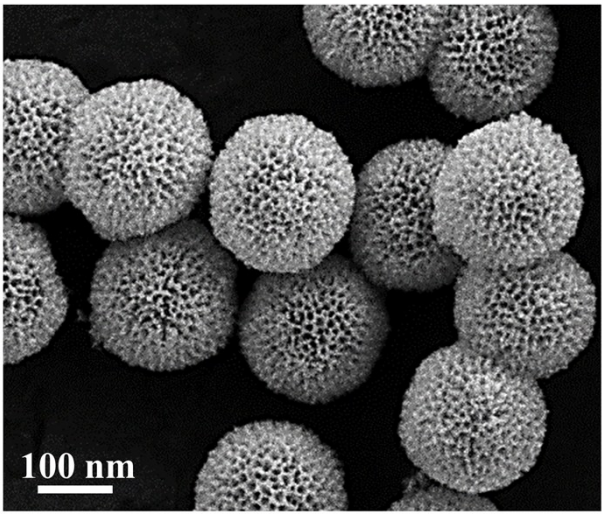

Fig. S4 SEM image of the mPtCo NCs.

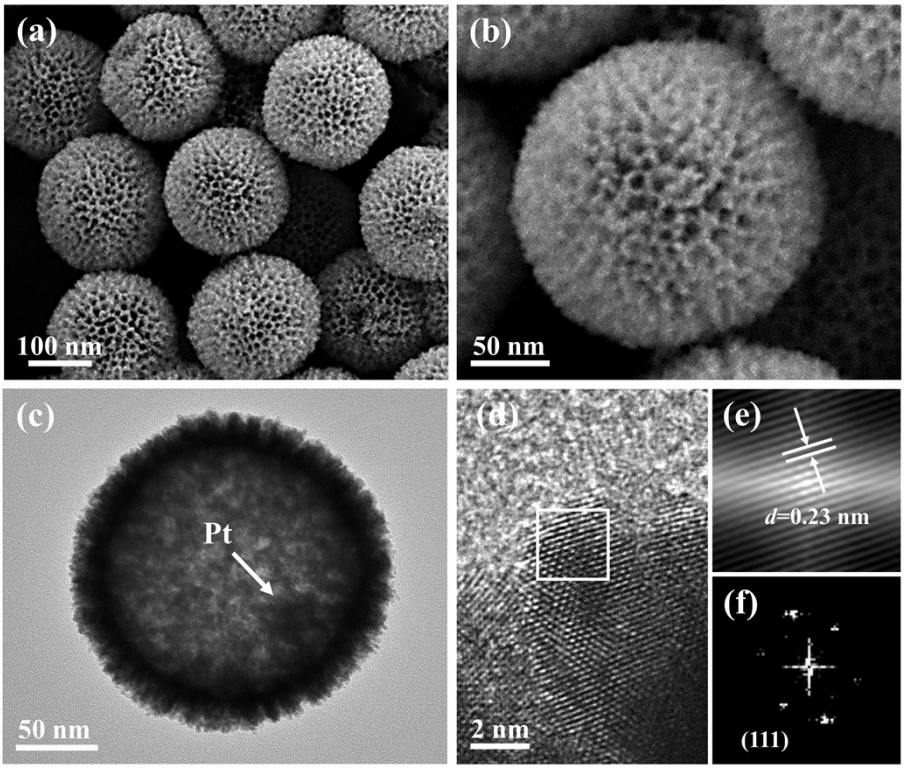

Fig. S5 (a, b) SEM images of Pt@mPtNi CBs. (c) TEM image of a single Pt@mPtNi CB. (d) HRTEM image of the Pt@mPtNi CBs. (e) Fourier-filtered lattice fringe image and (f) the corresponding FFT pattern.

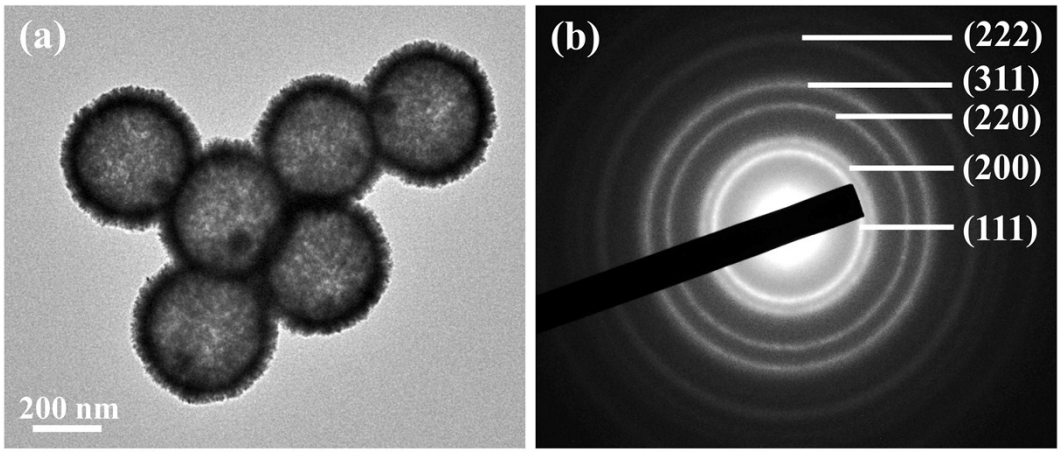

Fig. S6 (a) TEM image and (b) corresponding SAED pattern of the Pt@mPtNi CBs.

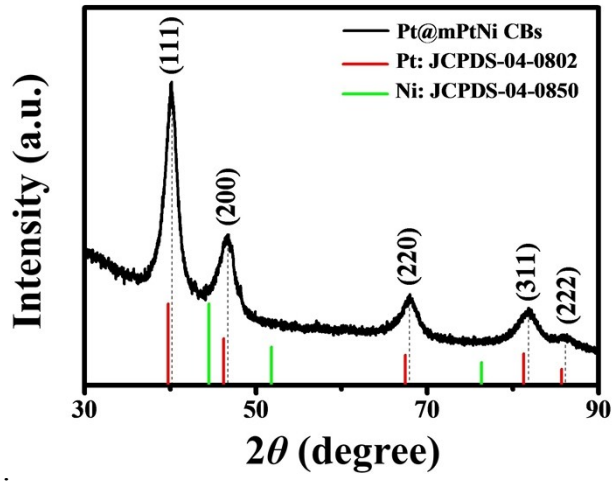

Fig. S7 XRD pattern of Pt@mPtNi CBs.

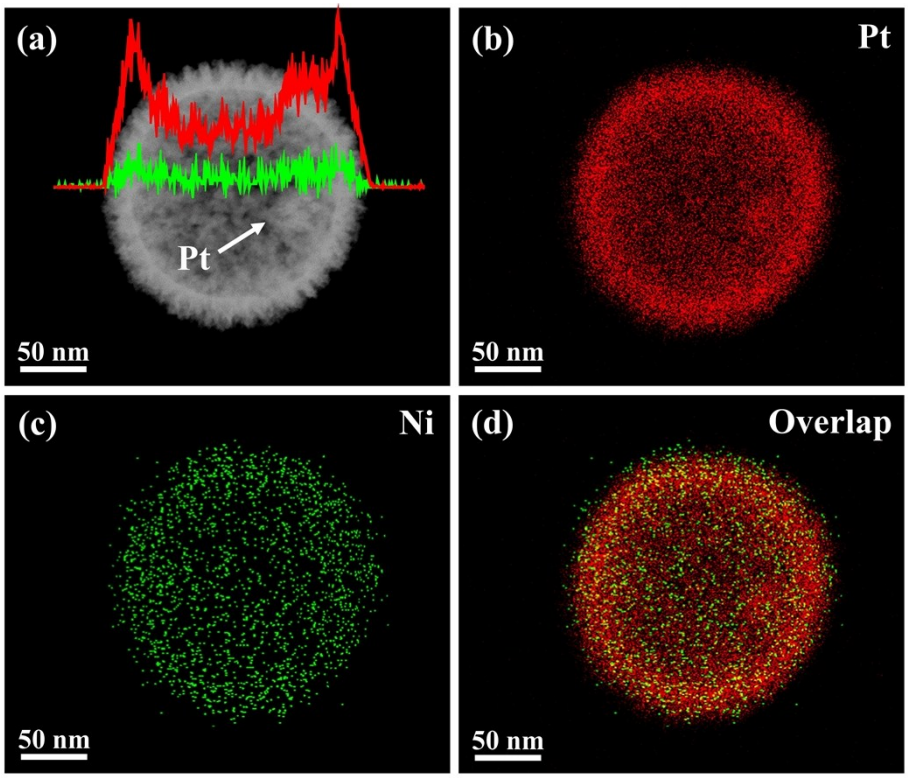

Fig. S8 (a) HAADF-STEM image and compositional line profiles, and (b-d) EDS elemental mapping images of a single Pt@mPtNi CB.

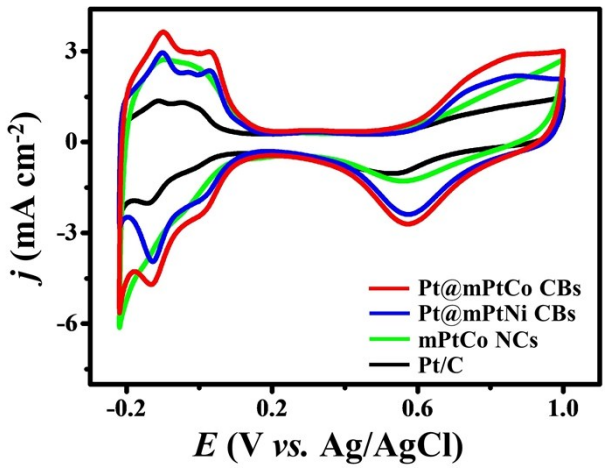

Fig. S9 CVs of different catalysts measured in 0.5 M H_2SO_4 at a scan rate of 50 mV s^{-1}.

Table S1 The performance comparisons of MOR on various Pt-based electrocatalysts.

Catalyst	Specific activity ($mA\ cm^{-2}$)	Mass activity ($mA\ \mu g^{-1}_{Pt}$)	Ref.
Pt@mPtCo CBs	**1.84**	**0.58**	**This work**
Pt@mPtNi CBs	**1.58**	**0.45**	**This work**
Dendritic Au@Pd@Pt nanoparticles	1.02	0.43	1
Pt nanostructured wire arrays	/	0.45	2
Au-Pt nanodendrites	1.28	0.45	3
PtRh nanosponges	1.28	0.2991	4
Hollow Pd@Pt nanoparticles	/	0.50	5
Pt_1Ru_3 nanosponge	/	0.41	6

Refereneces

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