Supporting Information for

Pt@Mesoporous PtRu Yolk-Shell Nanostructured Electrocatalyst for Methanol Oxidation Reaction

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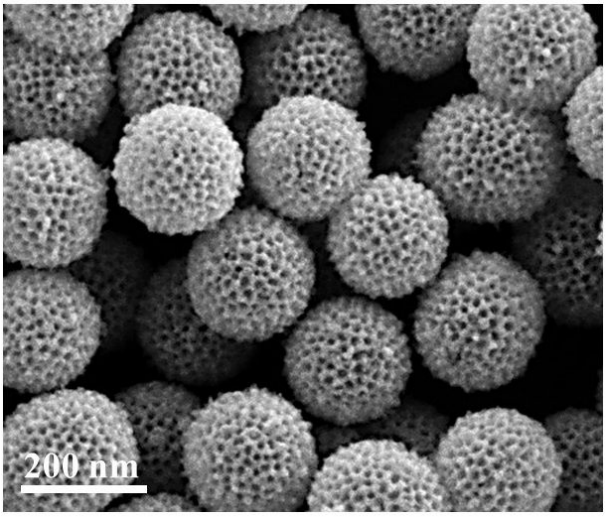

Figure S1. SEM image of the Pt@SiO_2@mPtRu nanoparticles.

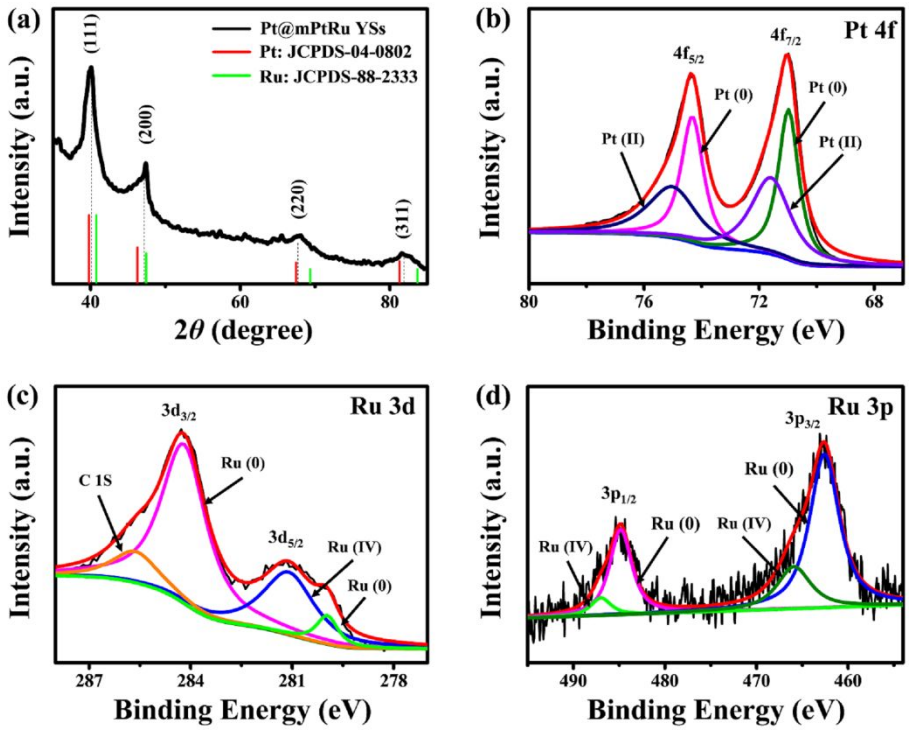

Figure S2. (a) XRD pattern and (b-d) XPS spectra of the Pt@mPtRu YSs.

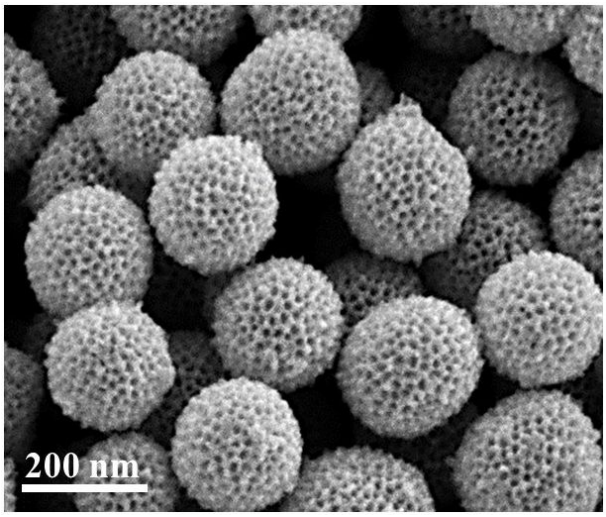

Figure S3. SEM image of the mPtRu NCs.

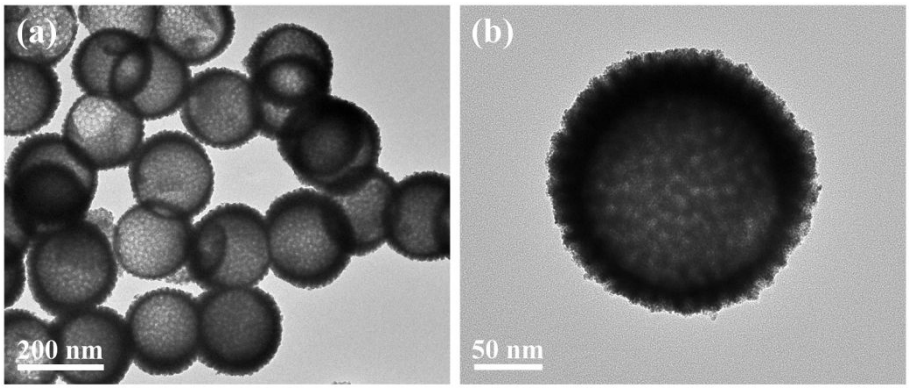

Figure S4. TEM images of the mPtRu NCs.

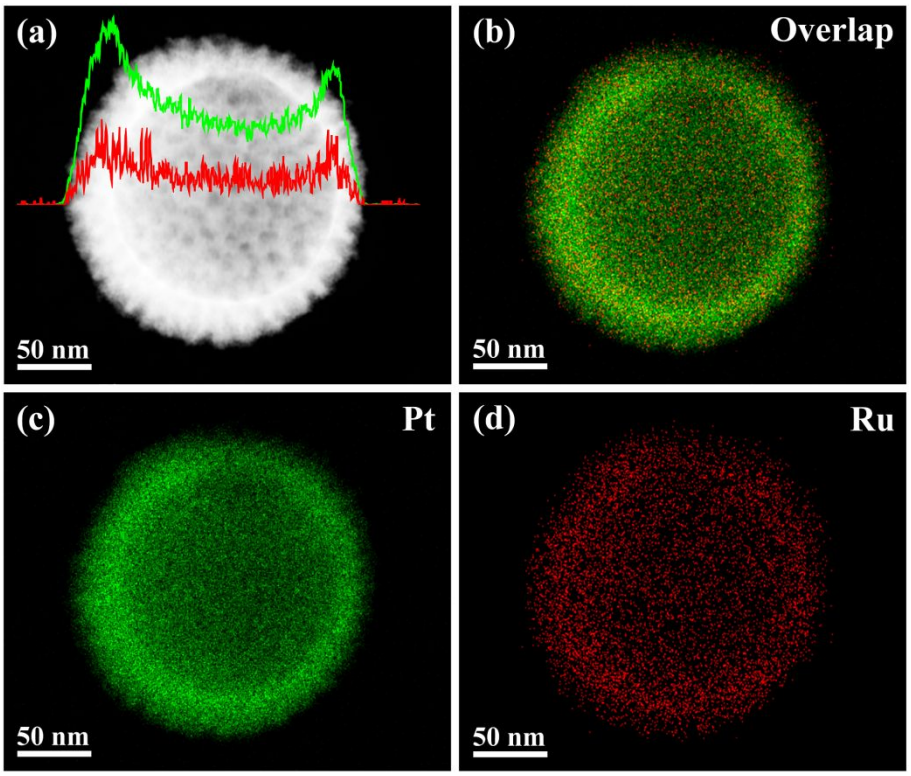

Figure S5. (a) HAADF-STEM image and compositional line profiles of a mPtRu NC. (b-d) elemental mapping images of the mPtRu NC.

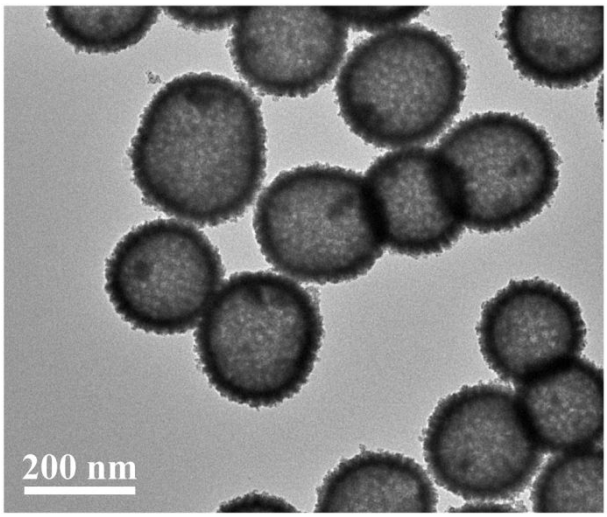

Figure S6. TEM image of the Pt@mPtRu YSs after durability test.

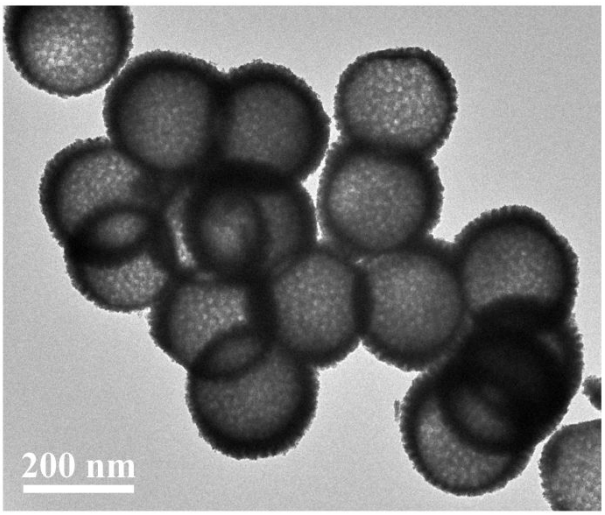

Figure S7. TEM image of the mPtRu NCs after durability test.

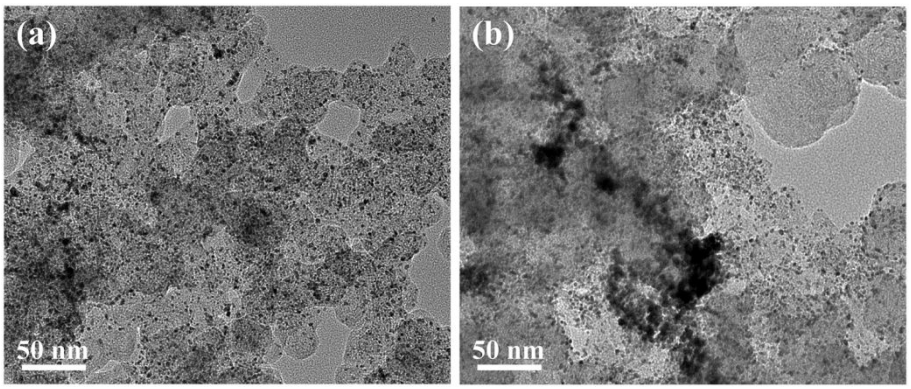

Figure S8. TEM images of the Pt/C (a) before and (b) after durability test.

Table S1. The specific activity and mass activity comparisons of MOR on various Pt-based electrocatalysts.

Catalysts	Specific activity ($mA\ cm^{-2}$)	Mass activity ($mA\ \mu g^{-1}_{Pt}$)	Ref.
Pt@mPtRu YSs	1.81	0.56	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)

References

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