

Assembling Graphene-Encapsulated Pd/TiO₂ Nanosphere with Hierarchical Architecture for High Performance Visible-light Assisted Methanol Electro-Oxidation Material

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Additional Figures and Figure Captions

Figure S1.

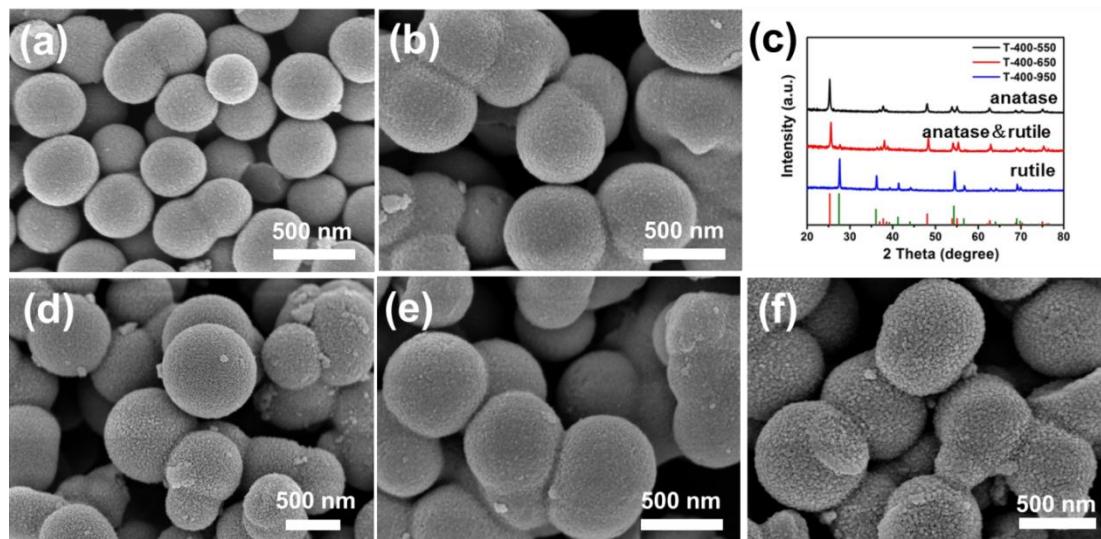


Figure S1. SEM images of (a) T-200-650, (b) T-600-650 and (d) T-400-650 (e) T-400-550 and (f) T-400-950; (c) XRD patterns of the T-400-550, T-400-650 and T-400-950.

Figure S2.

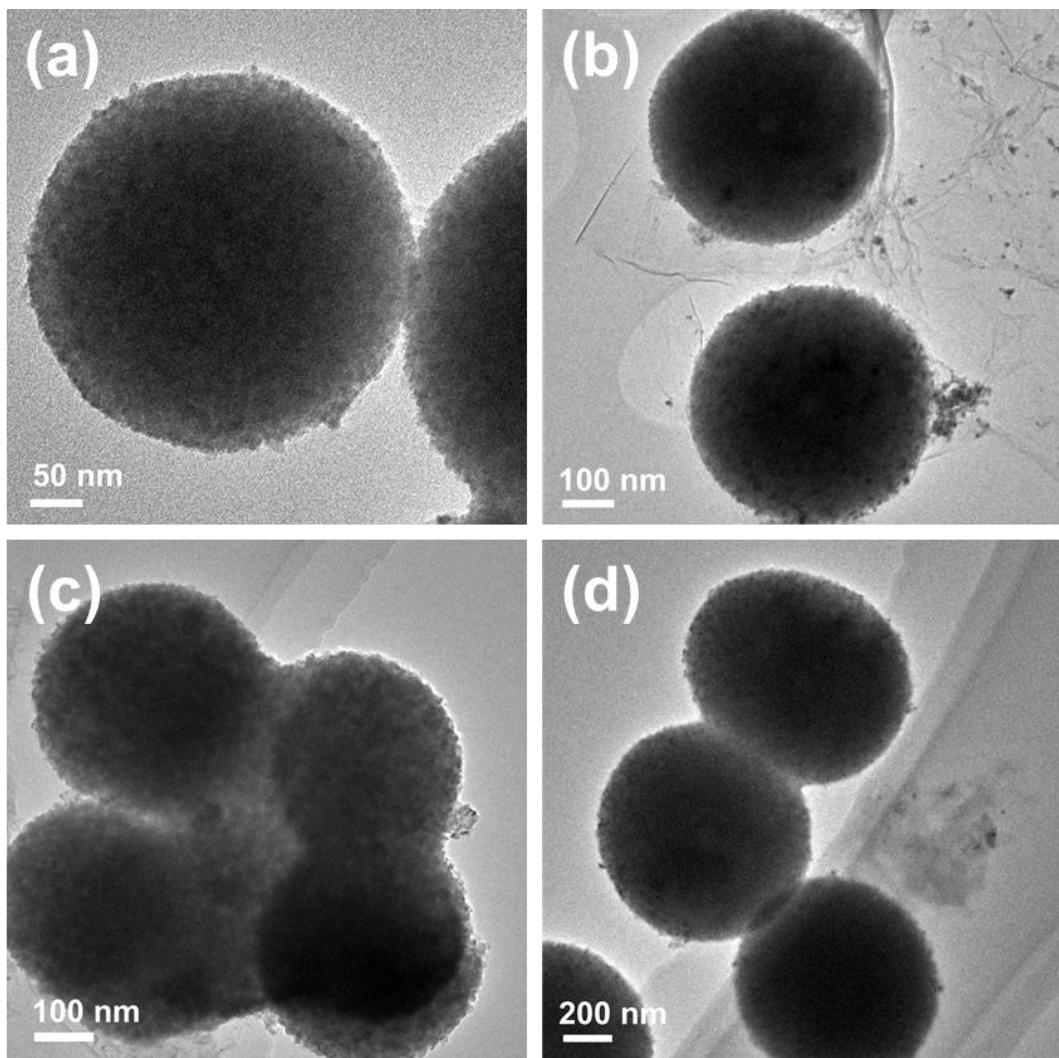


Figure S2. TEM images of PTG-200-650, PTG-400-550, PTG-400-950 and PTG-600-650.

Figure S3.

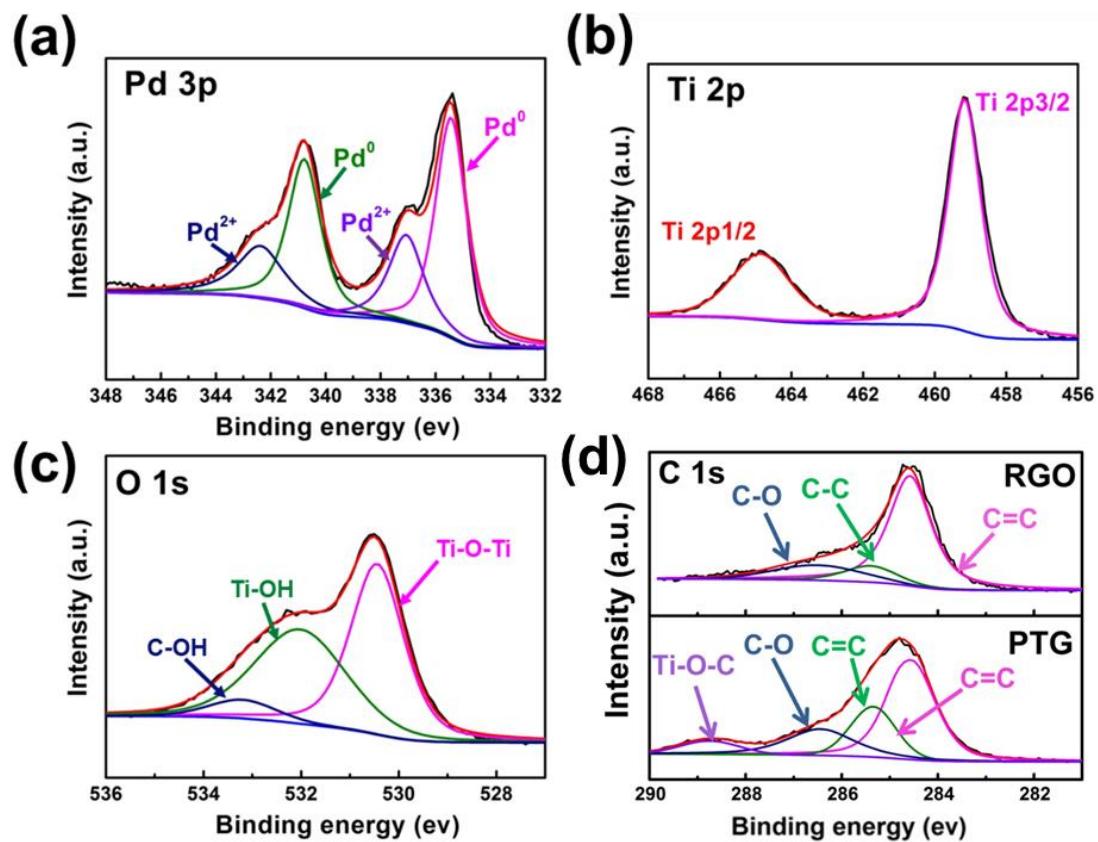


Figure S3. XPS spectra (a) Pd 3p, (b) Ti 2p, (c) O 1s of the PTG-400-650 nanocomposites and (d) C 1s of the RGO and PTG-400-650.

Figure S4.

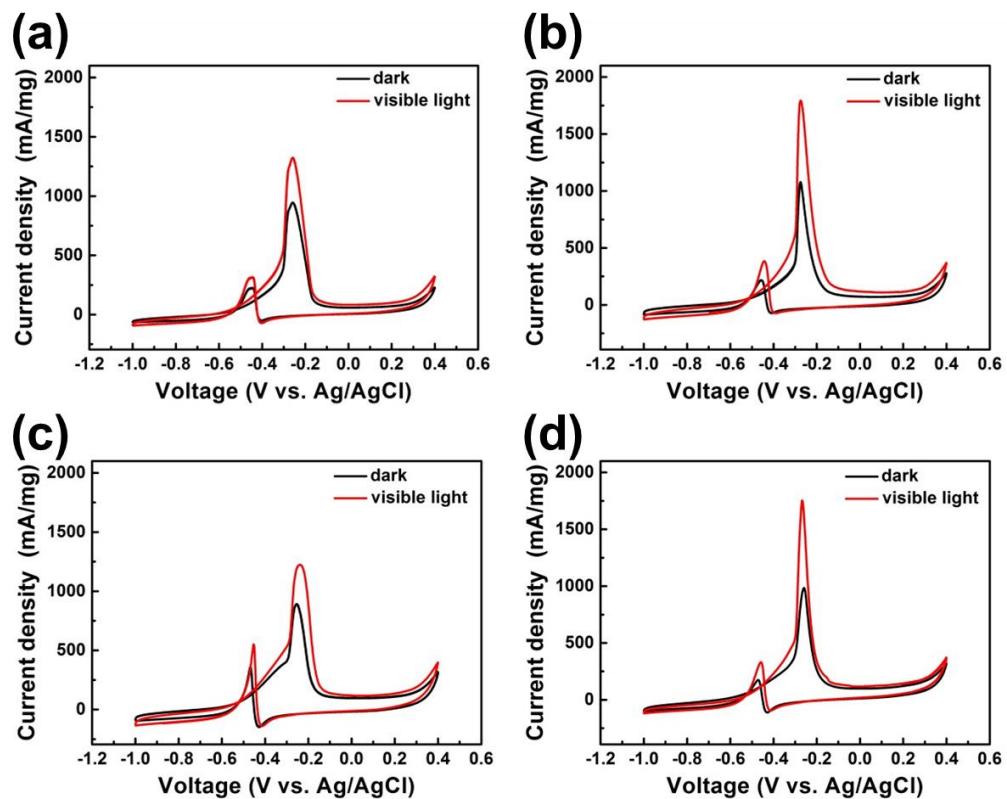


Figure S4. CVs of PTG-400-550, PTG-400-950, PTG-200-650 and PTG-600-650 in 1.0 M CH₃OH+1.0 M KOH solution under light irradiation and dark condition.

Figure S5.

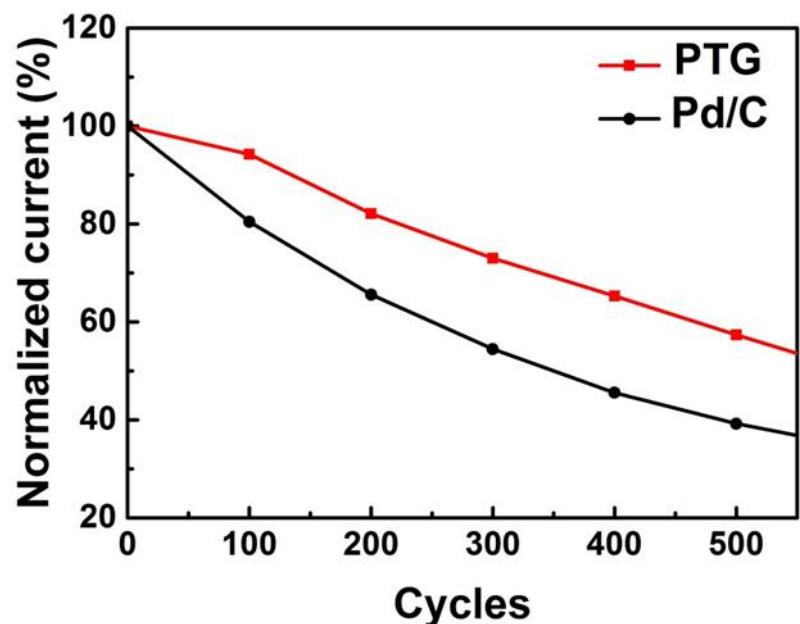


Figure S5. Long-term stability comparison of PTG-400-650 as well as commercial Pd/C catalysts for successive CVs of 500 cycles.

Figure S6.

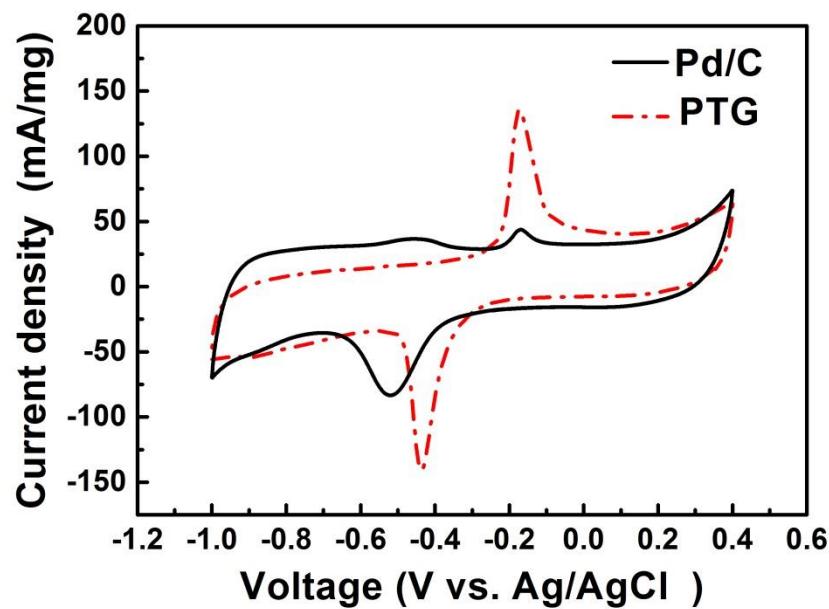


Figure S6. CO-Stripping voltammograms of PTG-400-650 and commercial Pd/C.

Table S1

Catalyst	mass activity (dark, mA/mg)	Specific activity (dark, mA/cm ²)	Activity (visible light)	Reference
Pd/TiO ₂ @rGO	1052	10.2	1995.6 mA/mg	This work
Pt/TNTs/C	357.4	N.A.	550 mA/mg	(1)
Pt-CuI/TiO ₂	936	N.A.	3772 mA/mg	(2)
Pd/ZnO/GNs	513.2	N.A.	818.3 mA/mg	(3)
Pt-TNTs/RGO	N.A.	1.35	4.4 mA/cm ²	(4)
Pt-CdS/FTO	N.A.	4.08	13.4 mA/cm ²	(5)
Pd/Cu ₂ O/GNs	718.0	N.A.	899.5 A/g	(6)
Pt/g-C ₃ N ₄	158.9	N.A.	520.4 mA/mg	(7)
Pt/g-C ₃ N ₄ /CdS	16.9	N.A.	127.4 mA/mg	(8)
PtAu dendrites	1226.2	N.A.	2262.1 mA/mg	(9)
PtRu/CNTs	160	N.A	N.A	(10)
Pt/graphene	199.6	N.A	N.A	(11)
Pt/TiO ₂ nanotubes	N.A	1.6	N.A	(12)
Pt-TiO ₂ /C	N.A	1.22	N.A	(13)
Pd-TiO ₂ /RGO	764.1	N.A	N.A	(14)

Reference

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