

Electronic Supplementary Information

Evolution of Pt truncated octahedra to nanodendrites during the synthesis in methanol-water solution

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Table S1 Sizes of the Pt particles synthesized at different CH₃OH/H₂O ratios.

CH ₃ OH/H ₂ O ratio	Crystallite size (nm) ^a	Particle size (nm) ^b
Pure CH ₃ OH	4.0	4.7
9/1	3.1	3.5
6/4	4.5	7.5
5/5	4.9	9.7
4/6	5.4	13.5

^aCalculated from the {111} diffraction lines by Scherrer's equation.

^bDetermined by statistical analysis of around 900 particles in the TEM images.

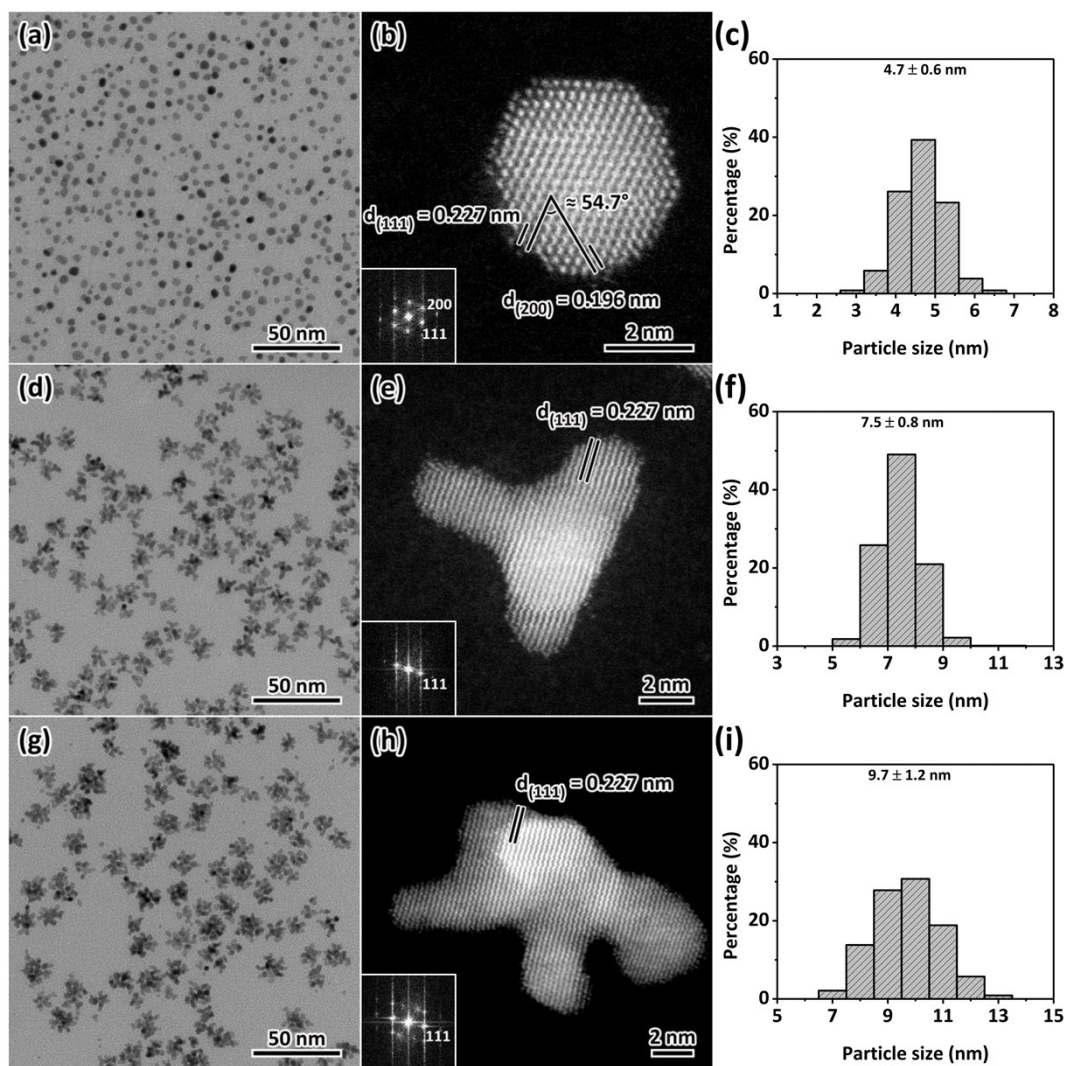


Fig. S1 TEM/STEM images and size distributions of the Pt particles synthesized in pure CH₃OH (a-c), and at CH₃OH/H₂O ratios of 6/4 (d-f) and 5/5 (g-i). The size distributions were determined by counting about 900 particles in the TEM images for each sample.

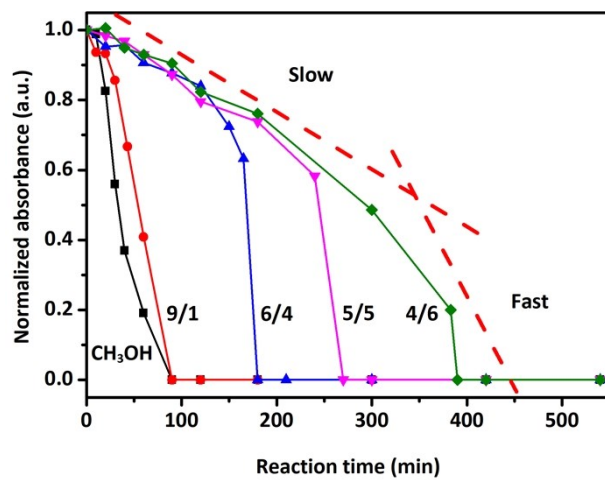


Fig. S2 The normalized absorption of PVP-[PtCl_{6-x}(H₂O)_x]^{x-2} species during the synthesis at varying CH₃OH/H₂O ratios.

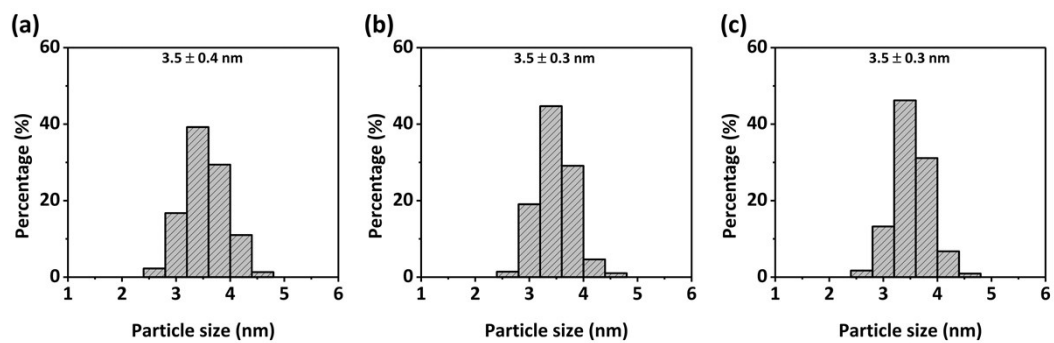


Fig. S3 Size distributions of the intermediate products at 60 min (a), 300 min (b), and 540 min (c) during the synthesis at the CH₃OH/H₂O ratio of 9/1.

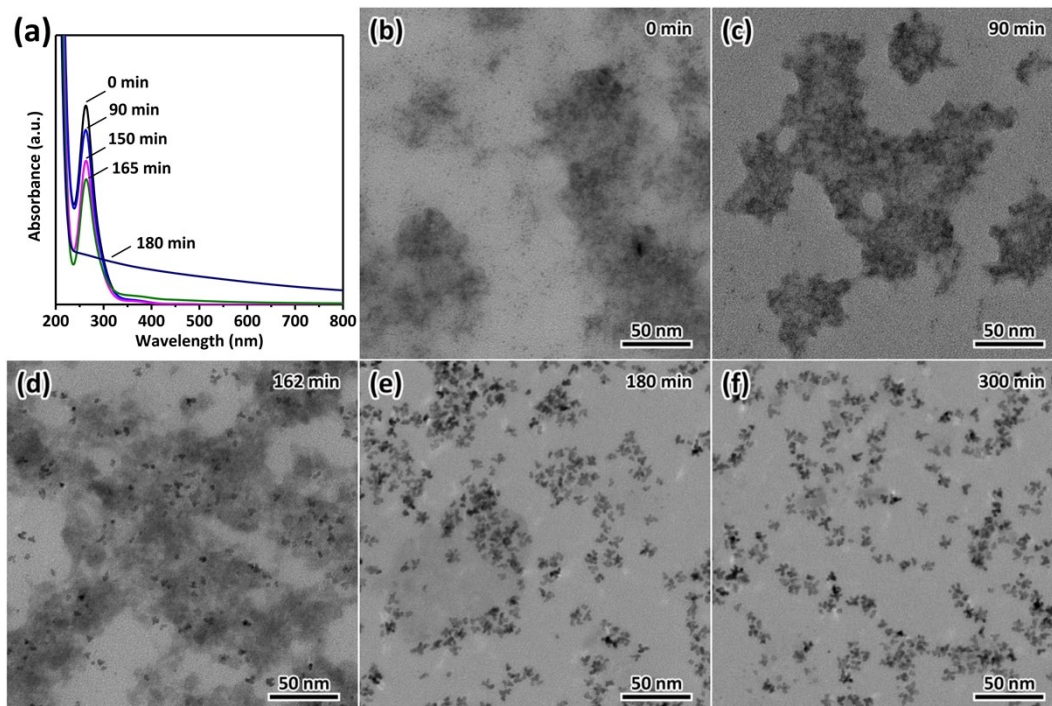


Fig. S4 UV-Vis spectra (a) of the synthetic solution and TEM images (b-f) of the intermediate products during the synthesis at the $\text{CH}_3\text{OH}/\text{H}_2\text{O}$ ratio of 6/4.

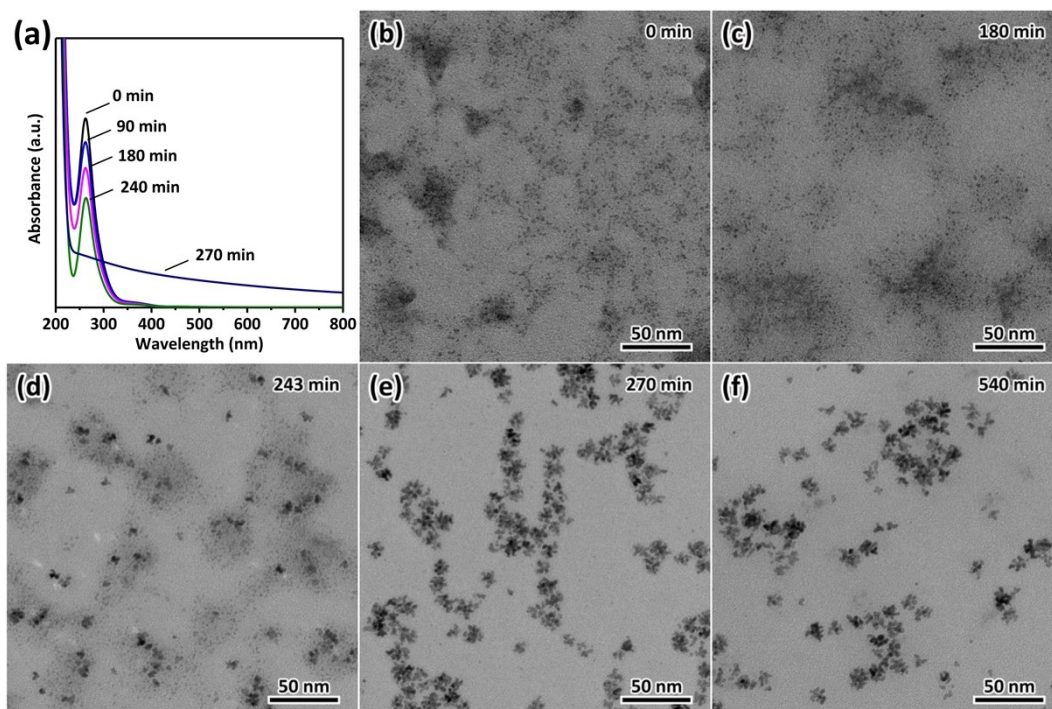


Fig. S5 UV-Vis spectra (a) of the synthetic solution and TEM images (b-f) of the intermediate products during the synthesis at the $\text{CH}_3\text{OH}/\text{H}_2\text{O}$ ratio of 5/5.

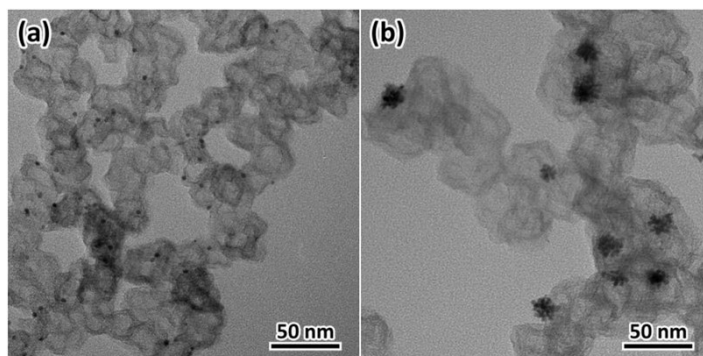


Fig. S6 TEM images of the Pt(9/1)/C (a) and Pt(4/6)/C (b) catalysts after catalytic tests.