

Supporting Information

Octahedral Pt-Pd Alloy Catalysts with Enhanced Oxygen Reduction Activity and Stability in Proton Exchange Membrane Fuel Cells

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Additional Data

Figure S1: TEM images of as-synthesized octahedral Pt-Pd alloy NPs

Figure S2: Particle size histograms of as-prepared NPs

Figure S3: CVs of as-prepared catalysts

Figure S4: ORR polarization curves of as-prepared catalysts

Figure S5: TEM images of S-Pt₃Pd₁/C

Figure S6 ORR polarization curves of S-Pt₃Pd₁/C

Figure S7 TEM images of Octa-Pt₃Pd₁/C before and after durability test

Figure S8 TEM images of S-Pt₃Pd₁/C before and after durability test

Figure S9: TEM images of Pt/C before and after durability test

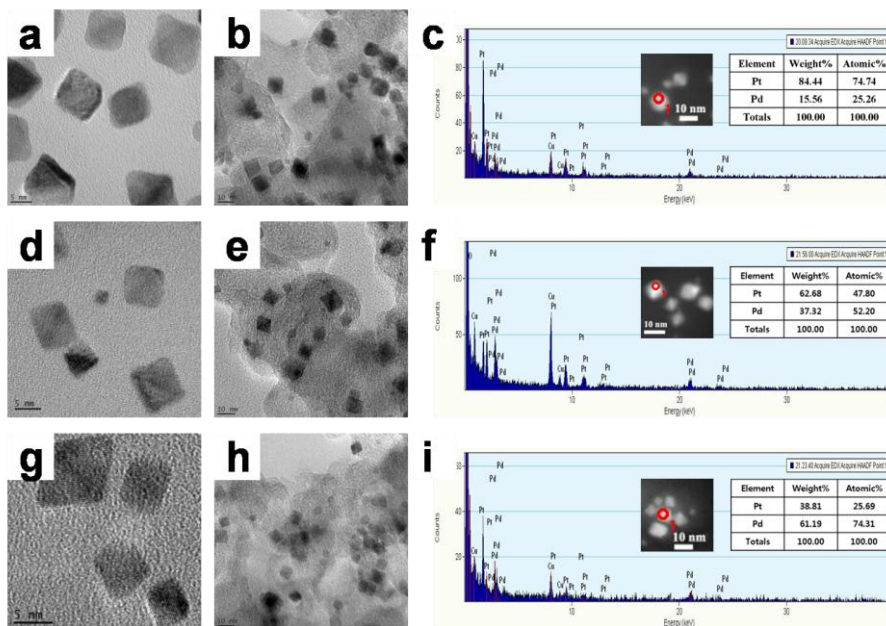


Figure S1. TEM images of octahedral Pt₃Pd₁ (a); Pt₁Pd₁ (d); and Pt₁Pd₃ (g) NPs. TEM images of as-prepared Pt-Pd deposited on carbon black (Vulcan XC-72R): Pt₃Pd₁/C (b), Pt₁Pd₁/C (e), and Pt₁Pd₃/C (h). EDX spectra of as-synthesized Pt-Pd alloy NPs: Pt₃Pd₁ (c), Pt₁Pd₁ (f), and Pt₁Pd₃ (i).

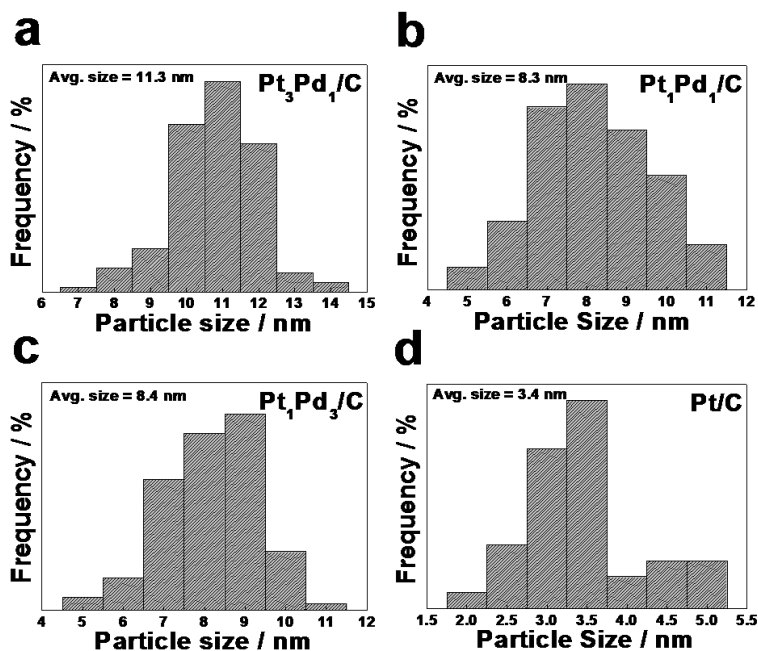


Figure S2. Particle size histograms of Pt₃Pd₁/C (a), Pt₁Pd₁/C (b), Pt₁Pd₃/C (c), and Pt/C (d).

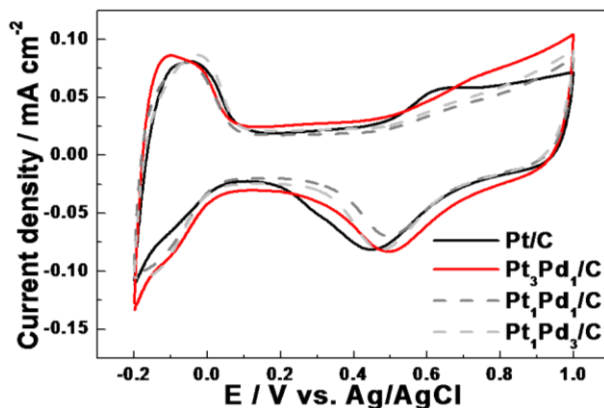


Figure S3. CVs of octahedral Pt-Pd alloy catalysts and Pt/C in Ar-saturated 0.1 M HClO₄ with a scan rate of 50 mV s⁻¹ at 25 °C.

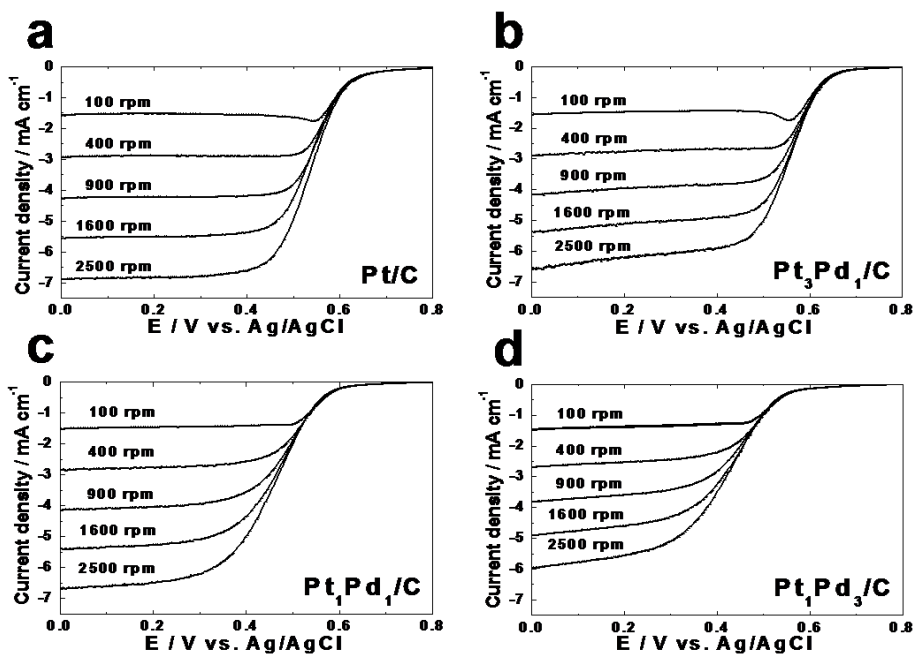


Figure S4. ORR polarization curves of Pt/C (a), Pt₃Pd₁/C (b), Pt₁Pd₁/C (c), and Pt₁Pd₃/C (d) in O₂-saturated 0.1 M HClO₄ solution by sweeping the potential from 0.8 to 0 V with a scan rate of 5 mV s⁻¹.

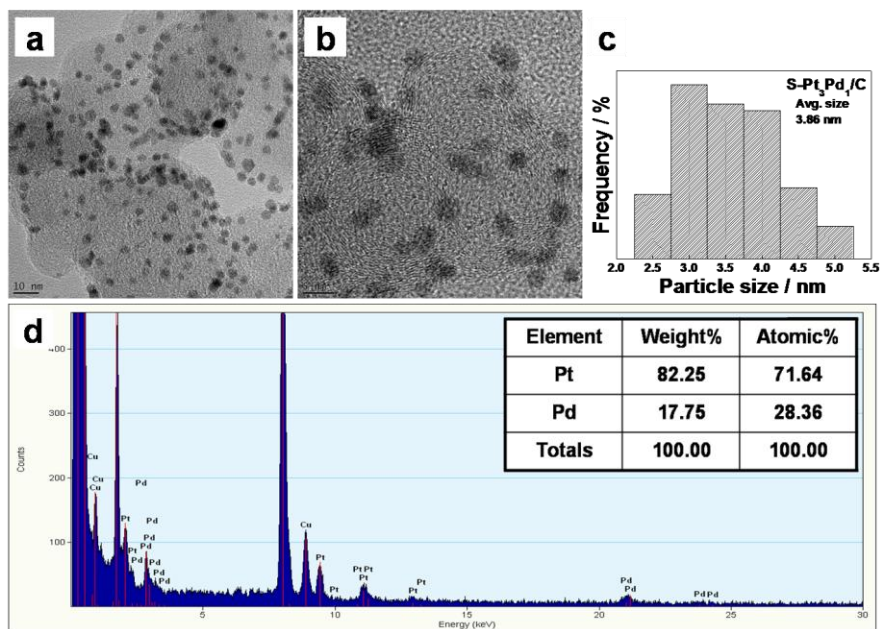


Figure S5. (a) and (b) TEM images of the spherical Pt_3Pd_1 NPs deposited on Vulcan XC-72R (S- $\text{Pt}_3\text{Pd}_1/\text{C}$). (c) Size distribution and (d) EDX spectra of spherical Pt_3Pd_1 alloy NPs.

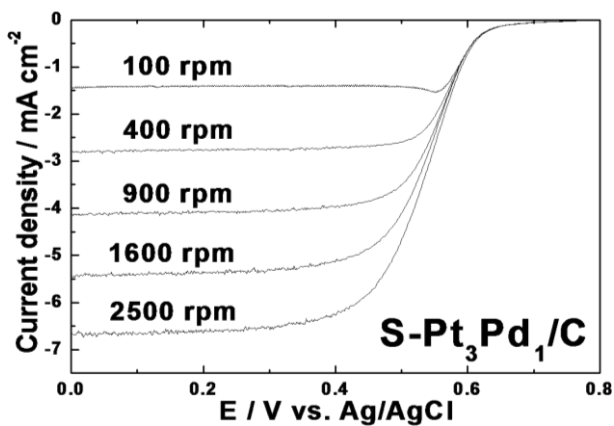


Figure S6. ORR polarization curves of S- $\text{Pt}_3\text{Pd}_1/\text{C}$ in O_2 -saturated 0.1 M HClO_4 solution by sweeping the potential from 0.8 to 0 V with a scan rate of 5 mV s^{-1} .

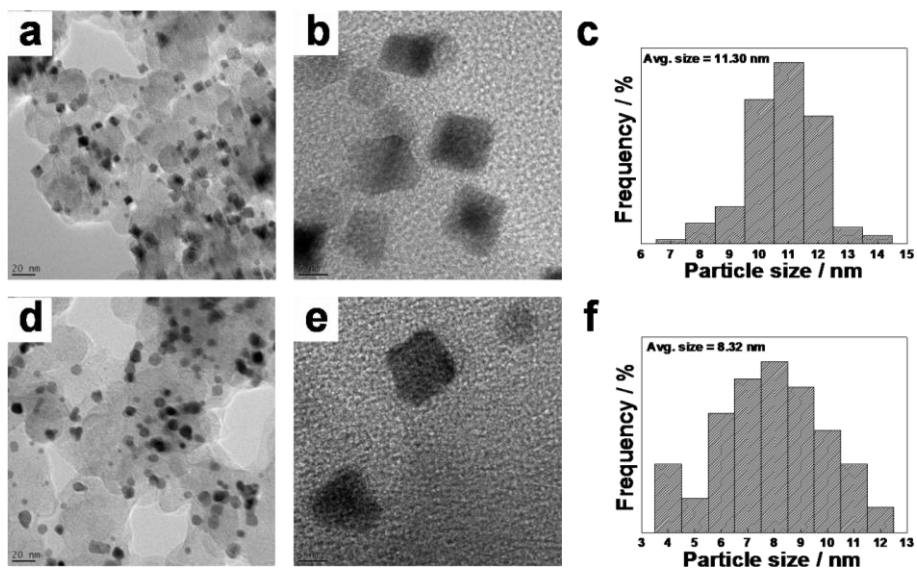


Figure S7. TEM images and particle size histograms of Octa-Pt₃Pd₁/C before (a-c) and after (d-f) durability test.

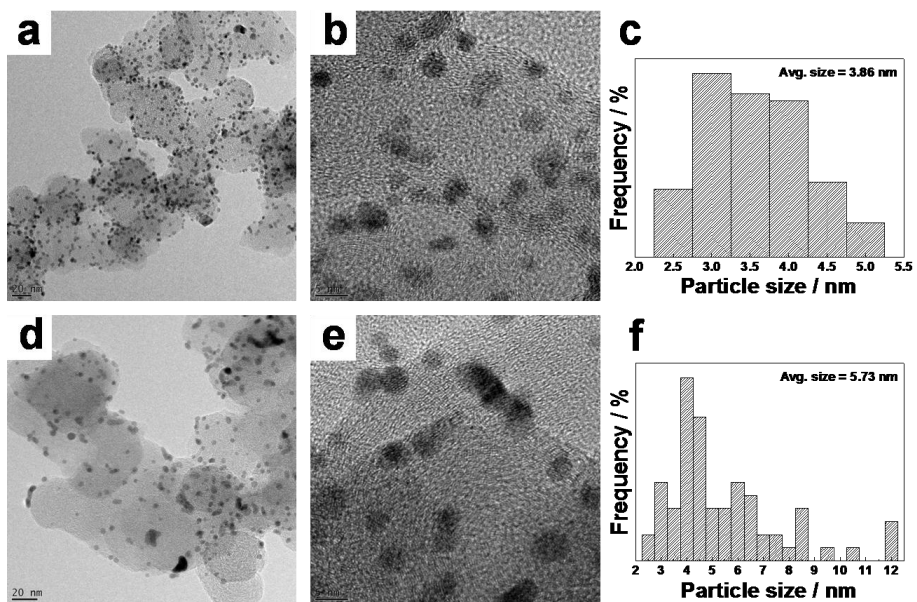


Figure S8. TEM images and particle size histograms of S-Pt₃Pd₁/C before (a-c) and after (d-f) durability test.

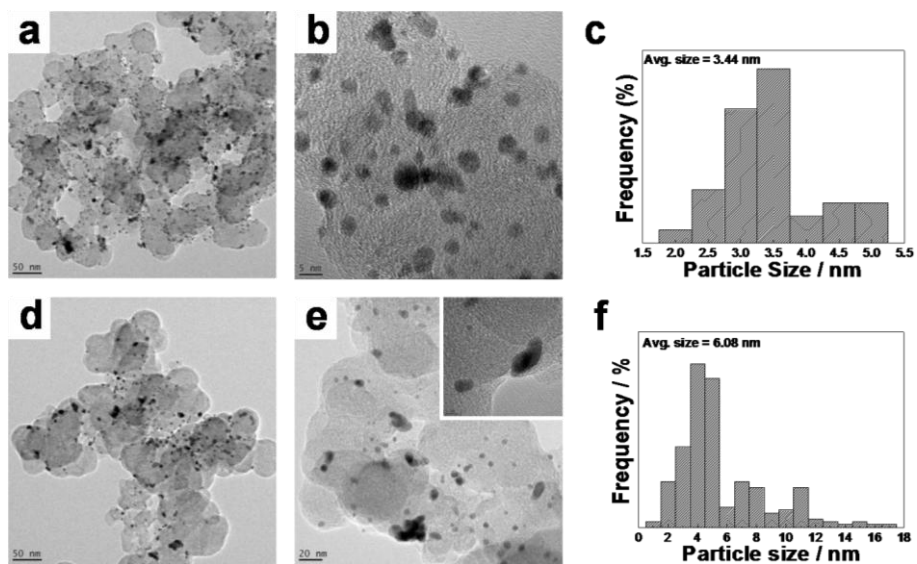


Figure S9. TEM images and particle size histograms of Pt/C before (a-c) and after (d-f) durability test.