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Supporting information

## Enhanced Electrocatalytic Activity and Stability of Pd<sub>3</sub>V/C Nanoparticles by a Trace Amount of Pt Decoration for the Oxygen Reduction Reaction

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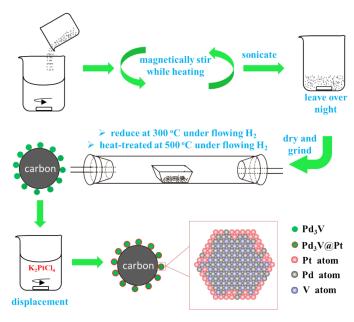


Fig. S1. Illustration of the synthesis procedure for Pd<sub>3</sub>V@Pt//C nanoparticles.

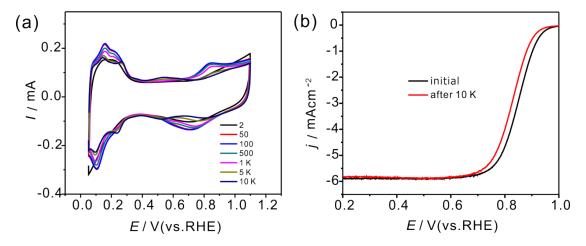


Fig. S2 (a) CV curves of Pt/C after different cycles. (b) The corresponding ORR polarization curves of Pt/C after cycling.

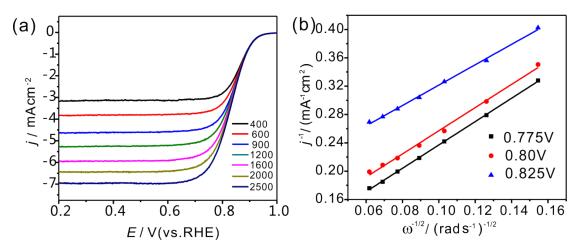


Figure S3 (a) The rotation-rate-dependent current-potential curves of  $Pd_3V@Pt/C$ . (b) The Koutecky-Levich plots at 0.775 V, 0.80 V and 0.825 V.

Table S1 The EDS results of Pd<sub>3</sub>V@Pt/C and Pt-Pd<sub>3</sub>V/C.

Sample	Weight%	Atom%
Pd <sub>3</sub> V@Pt/C (Pt:Pd:V)	5.72:86.33:7.95	2.94:81.41:15.65
Pt-Pd <sub>3</sub> V/C (Pt:Pd:V)	4.52:86.81:8.67	2.3:80.84:16.86

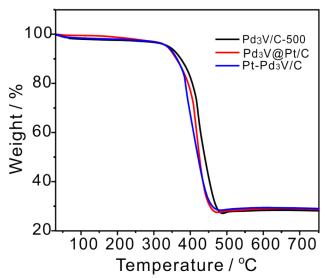


Figure S4 TGA of Pd<sub>3</sub>V/C-500, Pd<sub>3</sub>V@Pt/C and Pt-Pd<sub>3</sub>V/C catalysts.