

**Hierarchical nanostructured hollow spherical carbon with mesoporous shell as a
unique cathode catalyst support in proton exchange membrane fuel cell**

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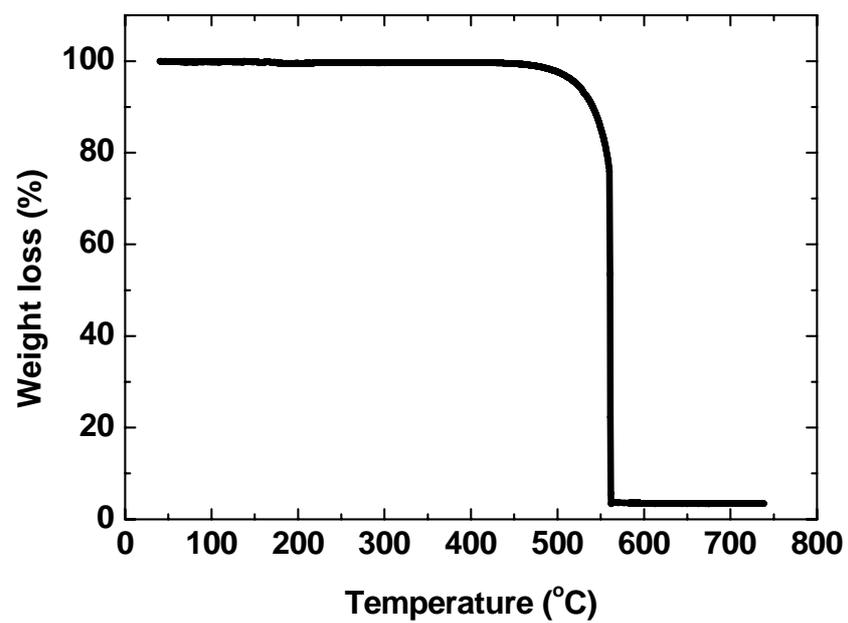


Fig. S1 Thermo-gravimetric analysis of the HCMSC.

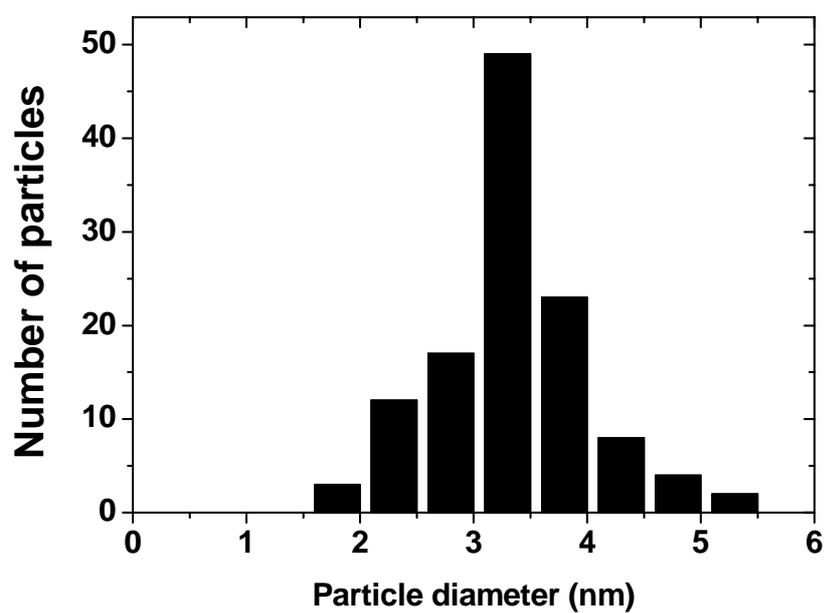


Fig. S2 A size distribution diagram for the Pt (60 wt%)/HCMSC.

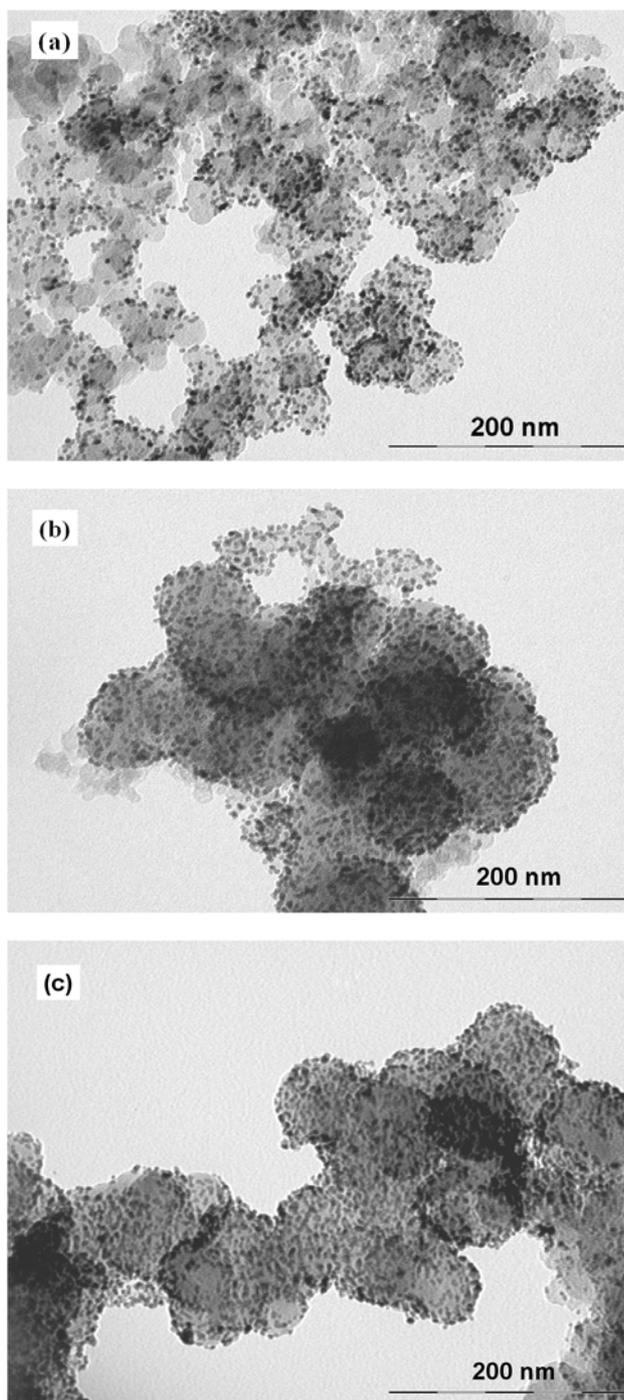


Fig. S3 TEM images for the in-house VC-supported Pt catalysts with various loadings of 20 wt% (a), 40 wt% (b) and 60 wt% (c).

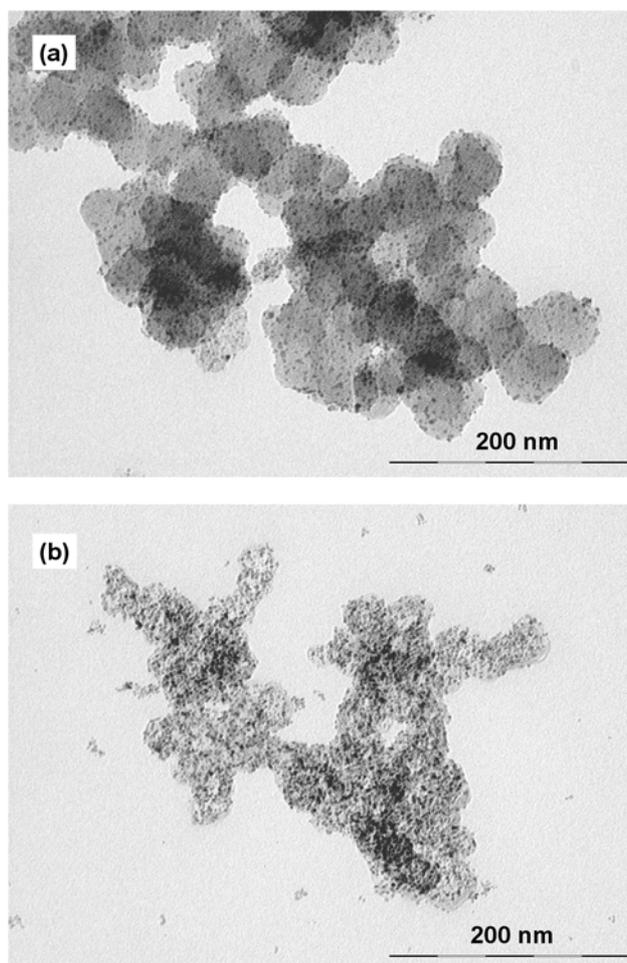


Fig. S4 TEM images for the Pt(20wt%)/VC (J.M.) (a), and Pt(60wt%)/VC (J.M.) (b).

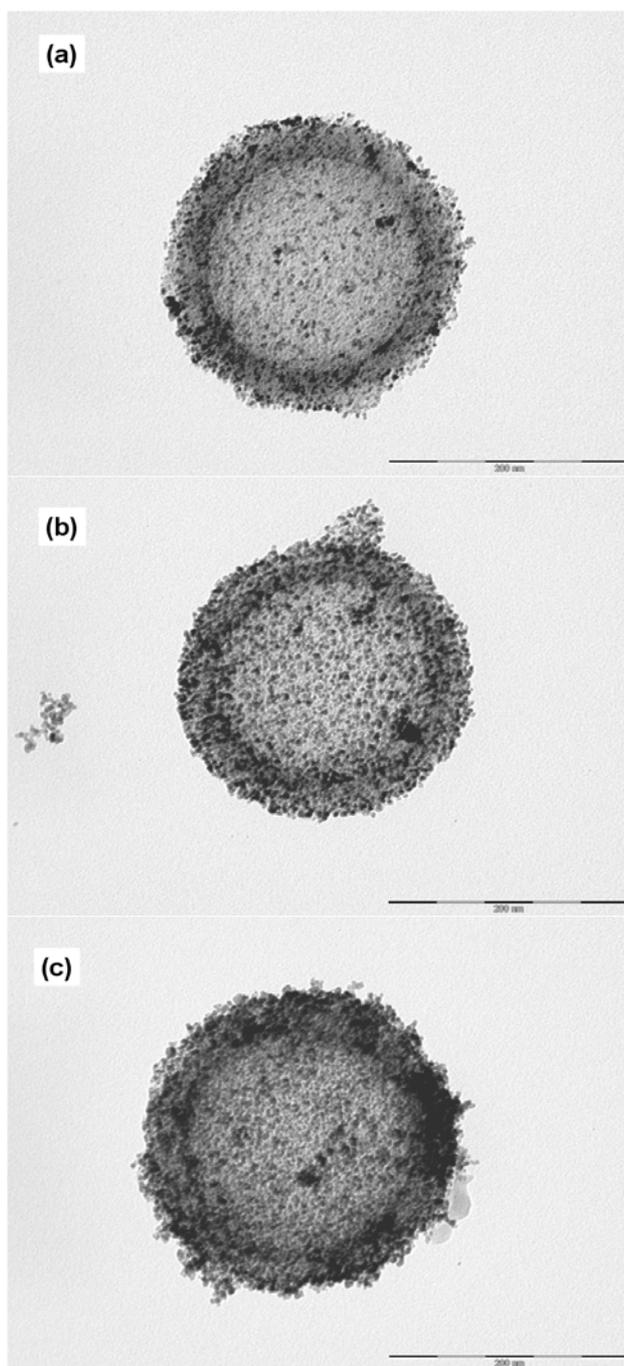


Fig. S5 TEM images for the HCMSC supported Pt catalysts with various loadings of 20 wt% (a), 40 wt% (b) and 60wt% (c). Scale bars: 200 nm.