Supporting Information for

High Performance Layer-by-Layer Pt₃Ni(Pt-skin)-modified Pd/C for Oxygen Reduction Reaction

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Figures S1-S3



Fig. S1 TEM images of (a)(b)(c) pristine Pd_{20}/C and (d)(e)(f) $Pt_3Ni(Pt-skin)/Pd_{20}/C$ catalysts.

Figure S2.



Fig. S2 The representative HRTEM image of (a) a core (Pd)/shell (Pt₃Ni(Pt-skin)) nanoparticle and (c) a core (Pd)/shell (PtNi)₃ nanoparticle; (b)(d) the corresponding EDS line-scan profiles along the red dash line shown in (a) and (c). (e) Comparison of layer-by-layer surface configurations for core (Pd)/shell (Pt₃Ni(Pt-skin)) and core (Pd)/shell (PtNi)₃ nanoparticles.



Fig. S3 (a) High-angle annular dark-field scanning TEM (HAADF-STEM) image of a core (Pd)/shell (Pt₃Ni(Pt-skin)) electrocatalyst (b)(c) Corresponding HAADF-STEM images of the regions marked in a. (These images show clear contrast between the shell and the core).