Support information

Hierarchical micro/nanostructured C doped Co/Co₃O₄ hollow spheres derived from PS@Co(OH)₂ for oxygen evolution reaction

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Fig. S1 Fourier transform infrared Spectrum (FTIR) of polystyrene microspheres.

Fig. S2 The X-ray diffraction pattern of PS@Co(OH)₂ core-shell nanoparticles.
Fig. S3 The survey X-ray photoelectron spectroscopy (XPS) spectra of Co/Co$_3$O$_4$ hollow nanospheres, and the high-resolution XPS spectra of C 1s and O 1s.

Fig. S4 is the high-resolution spectrum of Co 2p$_{3/2}$ peak.
Fig. S5 The EDS spectrum of C doped Co/Co$_3$O$_4$ hollow nanoparticle.

Fig. S6 Coating of Co LDH on the surface of PS microspheres at different temperature, (a) the synthesis temperature at room temperature (25 °C); (b) the synthesis temperature at 40 °C.

Fig. S7 XRD pattern of Co$_3$O$_4$ hollow micro/nanostructured spheres.
Fig. S8 Raman spectrum of micro/nanostructured Co$_3$O$_4$ hollow spheres.

Fig. S9 The impedance curves of hierarchical micro/nanostructured C doped Co/Co$_3$O$_4$ hollow spheres, micro/nanostructured Co$_3$O$_4$ hollow and C-Co/Co$_3$O$_4$ nanoparticles.
Fig. S10 The SEM image of C-Co/Co$_3$O$_4$ nanoparticles.

Fig. S11 N$_2$ sorption-desorption isotherm of different samples.