Electronic Supplementary Information

Structural evolution and electrocatalytic application of nitrogen-doped carbon shells synthesized by pyrolysis of near-monodisperse polyaniline nanospheres

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**Fig. S1** N₂ adsorption/desorption isotherms (77 K) and the corresponding BJH pore size distribution (inset) of the PANI-1.5 colloidal spheres.

**Fig. S2** TEM images of NCS-1.5-400 synthesized by pyrolyzing the PANI-1.5 colloids at 400 °C.
Fig. S3 Particle size distribution of various NCS-1.5-\(y\) samples synthesized at different pyrolysis temperature \(y\) = (a) 550 °C, (b) 650 °C, (c) 750 °C, and (d) 950 °C.
**Fig. S4** TEM images of (a) NCS-0.7-950 and (b) NCS-2.0-950 synthesized at a pyrolysis temperature of 950 °C using PANI-0.7 and PANI-2.0 colloids as template and precursor, respectively.

**Fig. S5** $N_2$ adsorption/desorption isotherms of NCS-0.7-950 and NCS-2.0-950 synthesized at a pyrolysis temperature of 950 °C using PANI-0.7 and PANI-2.0 colloids as template and precursor, respectively. The isotherm for NCS-2.0-950 was offset vertically by 200 cm$^3$/g at STP.
**Fig. S6** STEM image of (a) NCS-1.5-950 and the corresponding elemental mappings of elements (b) C, (c) N, and (d) O.
Fig. S7 FTIR spectra of NCS-1.5-950 and XC-72.