Electronic Supplementary Material (ESI) for RSC Advances

SUPPORTING INFORMATION

Polypyrrole-derived Mesoporous Nitrogen-doped Carbons with Intrinsic Catalytic Activity in the Oxygen Reduction Reaction

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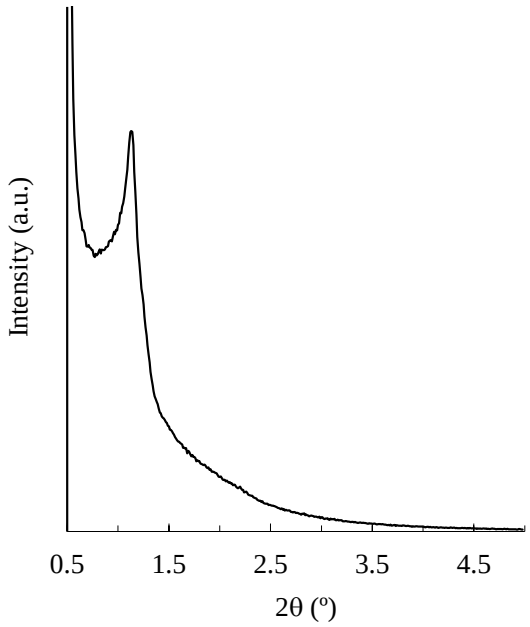

Figure S1. XRD pattern in the low-angle region of the CS900 sample.

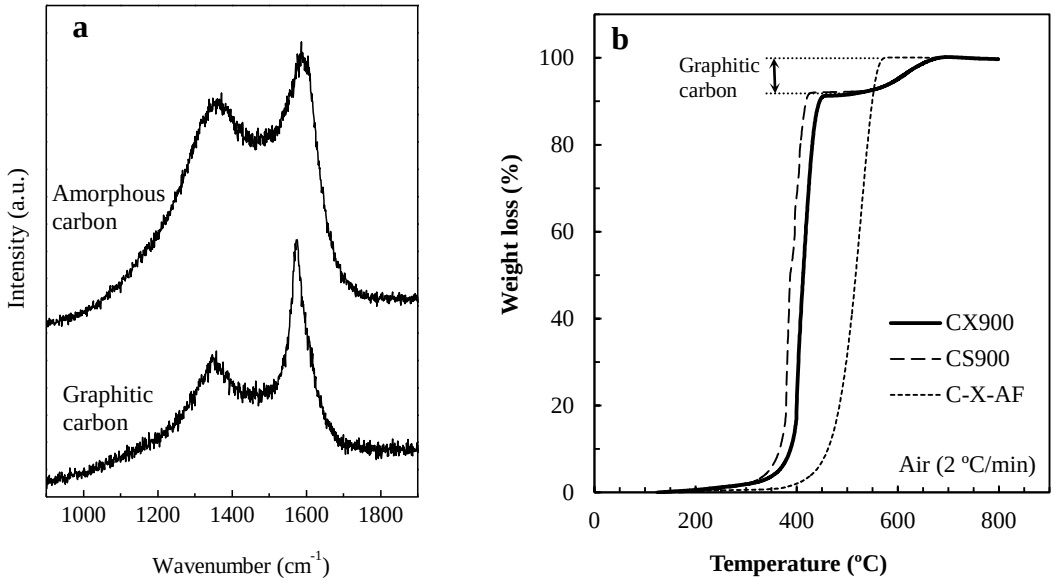

Figure S2. a) Raman spectra of graphitized and amorphous carbon regions of CX900, and b) thermogravimetric analysis of the N-doped mesoporous carbons CX900 and CS900. A templated mesoporous carbon prepared using SBA-15 as template and furfuryl alcohol as carbon precursor (C-X-AF) was employed for comparison in Fig. S2. This thermogravimetric analysis reveals that the N-doped mesoporous carbons contain no iron residue which may catalyze the ORR reaction.

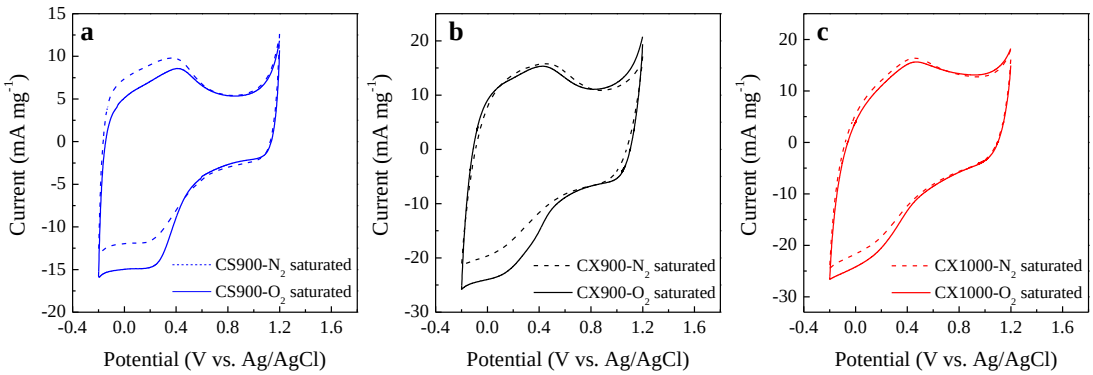

Figure S3. Cyclic voltammograms of the N-doped mesoporous carbons at a scan rate of 50 mV s^{-1} in 0.05 M H_2SO_4. a) CS900, b) CX900, and c) CX1000.

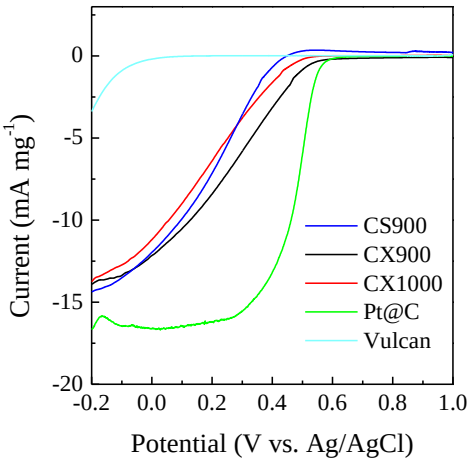

Figure S4. RDE polarization curves of the N-doped mesoporous carbons, Vulcan, and 20 wt% Pt@C in 0.05 M H_2SO_4 at a constant rotation rate of 1600 rpm.