

Supporting Information:

High oxygen-reduction activity and durability of nitrogen and sulfur dual doped porous carbon microspheres

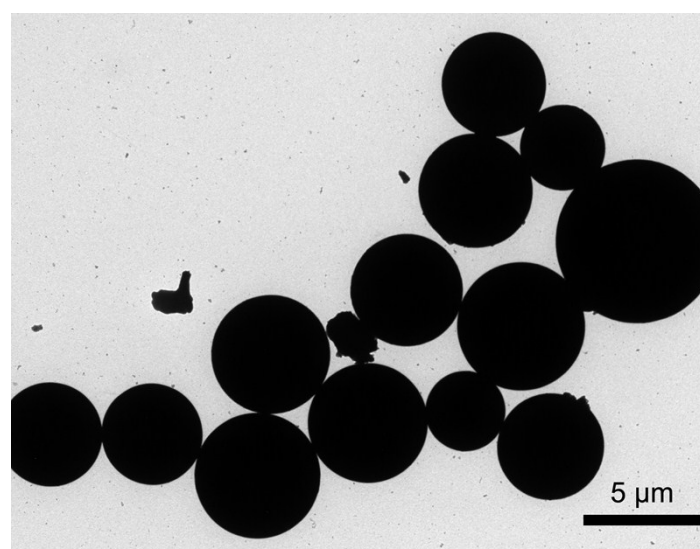


Fig. S1. TEM image of NS-CMSs

Table S1

Physicochemical properties of the heteroatom-doped CMSs.

Catalyst	BET surface area (m ² g ⁻¹)	XPS(at%)					
		Pore volume (cm ³ g ⁻¹)	Pore size (nm)	C	O	N	S
N-CMSs	-	-	-	63.5	35.57	0.93	-
N-CMSs-800	-	-	-	59.76	39.18	1.06	-
NS-CMSs	-	-	-	66.97	22.49	5.24	5.29
NS-CMSs-700	542.4	0.147	1.026	81.13	15.89	2.43	0.55
NS-CMSs-800	830.4	0.682	1.484	80.72	16.83	1.99	0.46
NS-CMSs-900	394.4	0.218	1.030	80.01	18.92	0.98	0.09

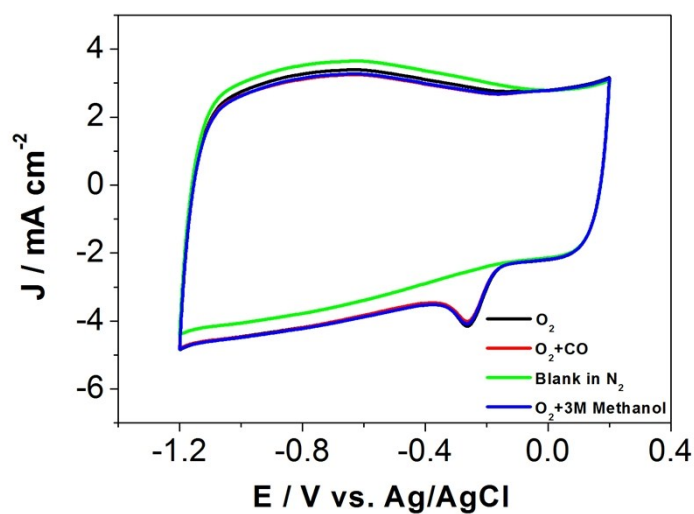


Fig. S2 . CVs of NS-CMSs-800 in N_2 -saturated, O_2 -saturated, 3 M methanol O_2 -saturated, CO and O_2 -saturated 0.1 M KOH with scan rate of 50 mV s^{-1} .

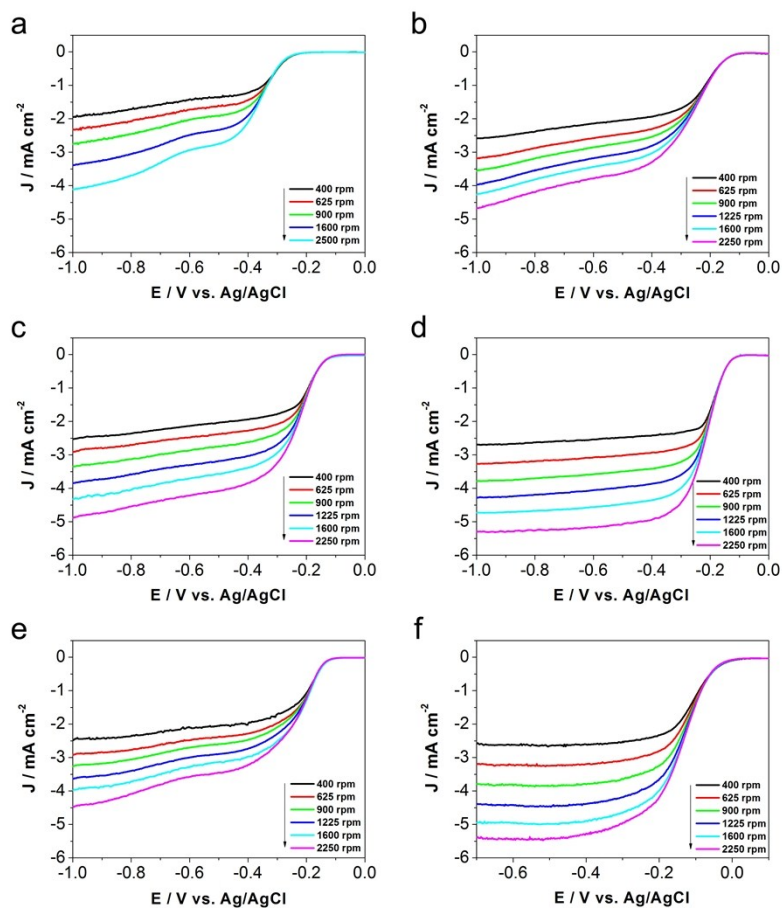


Fig. S3 . RDE linear sweep voltammograms for (a) NS-CMSs, (b) N-CMSs-800, (c) NS-CMSs-700, (d) NS-CMSs-800, (e) NS-CMSs-900 and (f) Pt/C at various rotation speeds and scan rate of 10 mV s^{-1} .

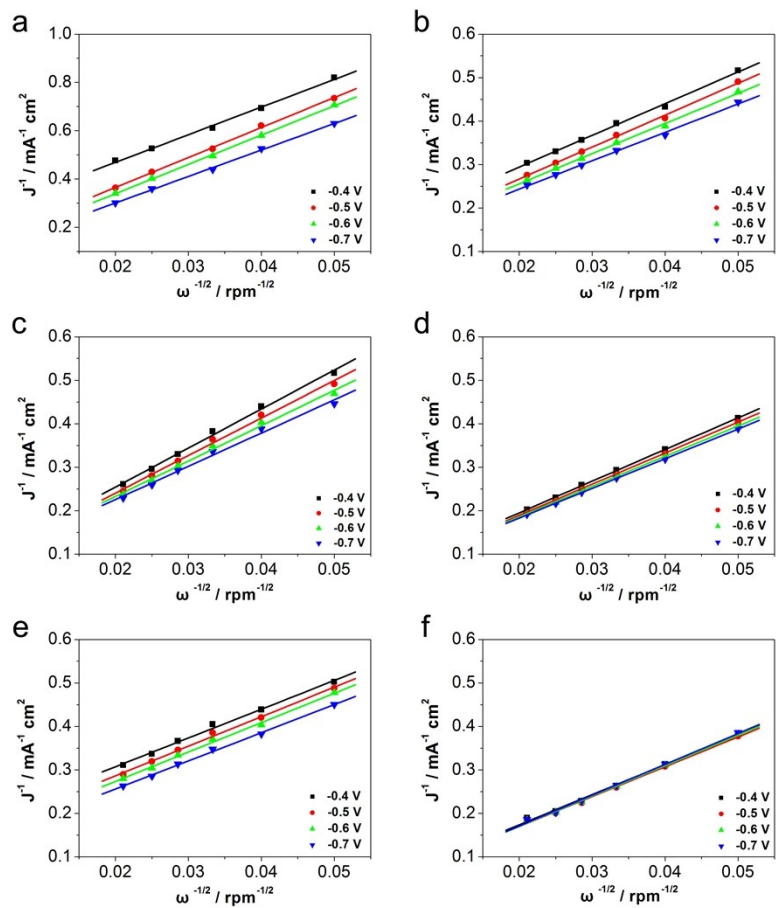


Fig. S4 . K-L plots of (a) NS-CMSs, (b) N-CMSs-800, (c) NS-CMSs-700, (d) NS-CMSs-800, (e)NS-CMSs-900 and (f) Pt/C.