Supporting Information

Exploration of the oxygen reduction reaction activity of four transition metal borates: synthesis, structure and characterization

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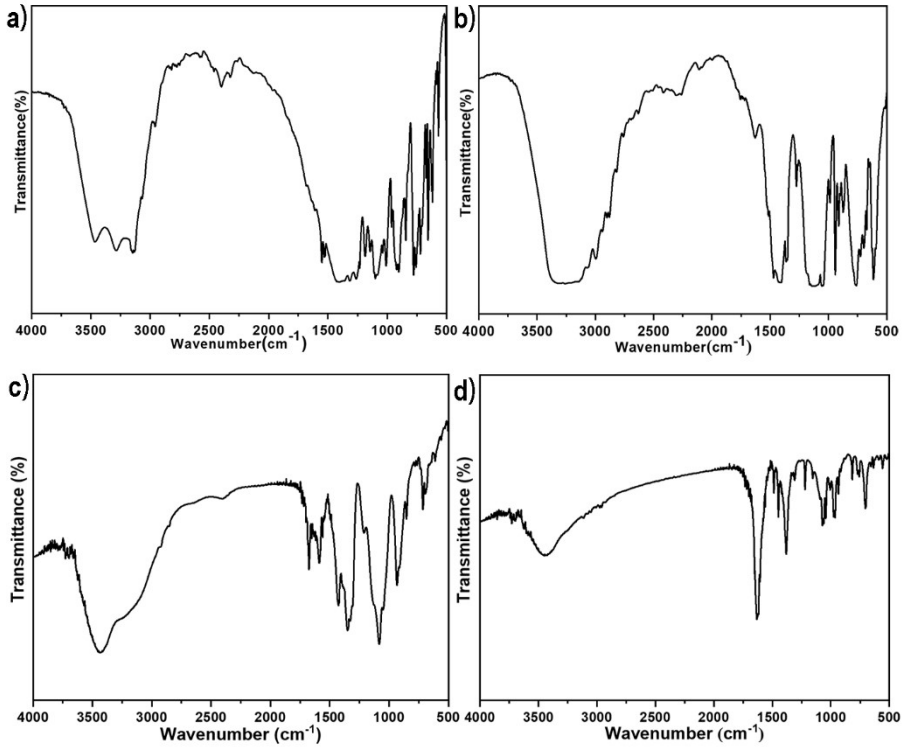

Fig. S1 The FTIR spectra of **1**(a), **2**(b), **3**(c) and **4**(d).

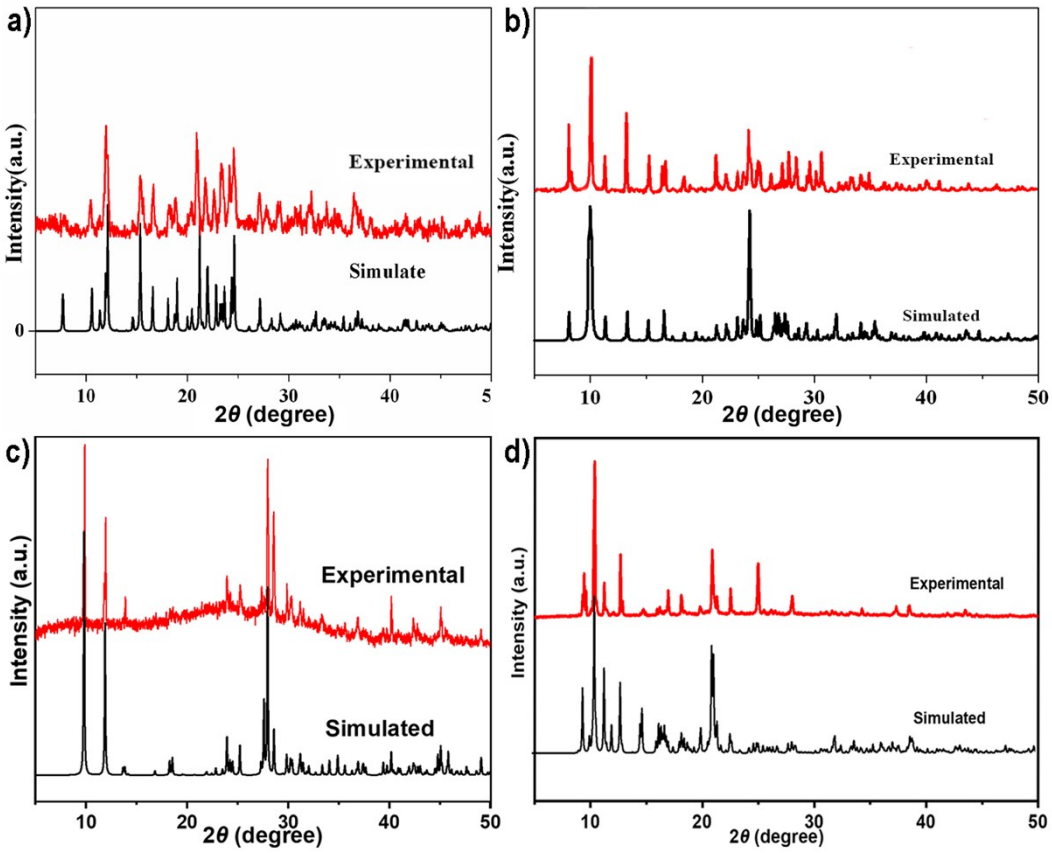

Fig. S2 The PXRD patterns of **1**(a), **2**(b) **3**(c) and **4**(d).

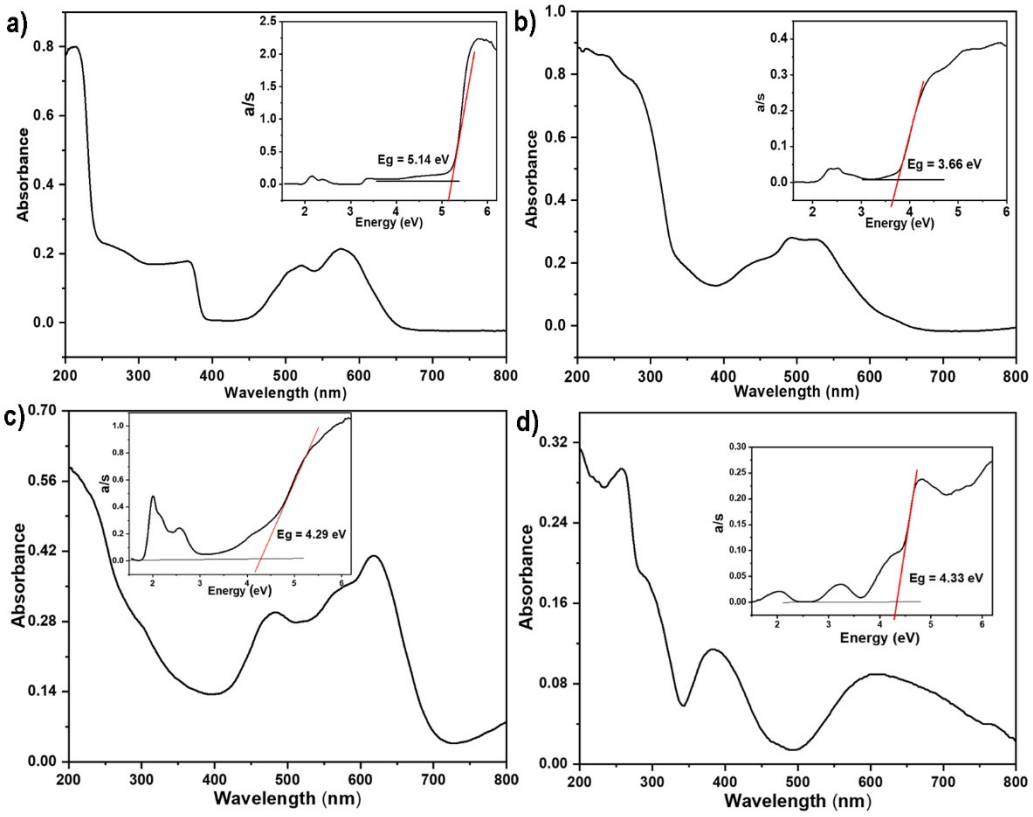

Fig. S3 The solid-state UV-vis-NIR absorption spectra of compound **1**(a), **2**(b), **3**(c) and **4**(d) (the insets show the Tauc plots of *α/S* vs. photon energy).

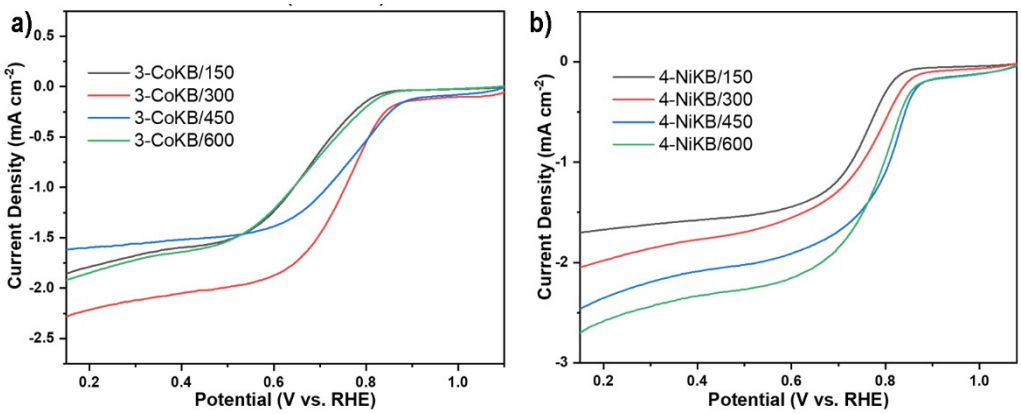

Fig. S4 a) LSV curves of 3-CoKB/150, 3-CoKB/300, 3-CoKB/450 and 3-CoKB/600; b) LSV curves of 4-NiKB/150, 4-NiKB/300, 4-NiKB/450 and 4-NiKB/600. (5 mV s^{-1}, 1600 rpm).

Table S1 Hydrogen bonds for **1**

D–H···A	d(D–H) (A˚)	d(H···A) (Å)	d(D···A) (Å)	∠D—H···A (°)
O3–H3···O5[1]	0.84	1.84	2.678(2)	174.3
O8–H8···O3[2]	0.84	2.03	2.826(2)	159.0
O10–H10···O7[3]	0.84	1.92	2.758(2)	172.4

[1]1-X, -Y, -Z; [2]-1+X, +Y, +Z; [3]1-X,1-Y, -Z

Table S2 Hydrogen bonds for **2**

D–H···A	d(D–H) (Å)	d(H···A) (Å)	d(D···A) (Å)	∠D—H···A (°)
N16—H16—O1[1]	0.88	2.05	2.820(11)	144.8
O9—H9A—O7	0.84	1.88	2.661(9)	153.8
O11—H11A—O13	0.84	1.85	2.688(9)	171.7
O12—H12B—O10	0.84	1.93	2.758(9)	169.4
O13—H13A—O6[2]	0.858	1.87	2.702(8)	164.3
O14—H14B—O1[3]	0.84	1.89	2.715(9)	169.0

[1]+X, +Y, -1+Z; [2]1+X, +Y, +Z; [3]1+X, -1+Y, +Z