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Supporting Information

Three dimensionally ordered mesoporous hydroxylated $Ni_xCo_{3-x}O_4$ spinels for oxygen evolution reaction: on the hydroxyl-induced surface restructuring effect.

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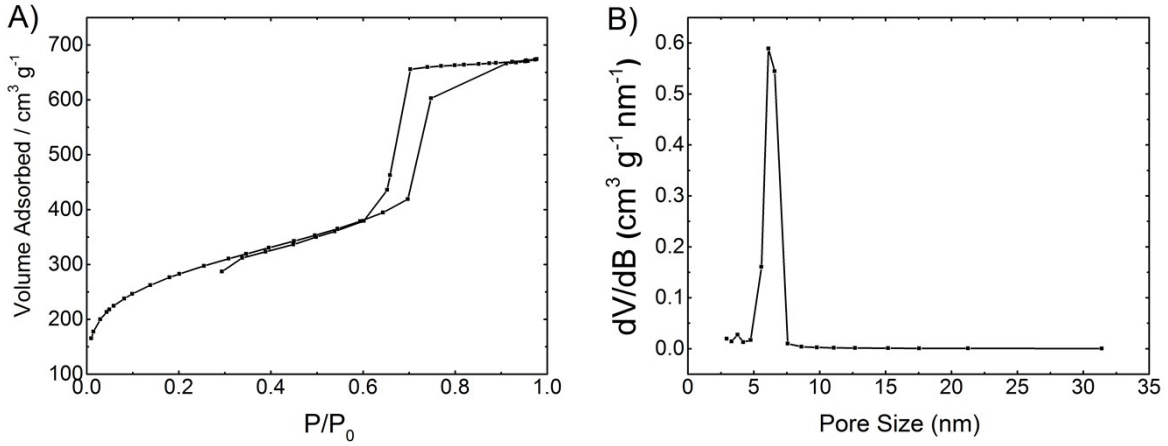

Figure S1. N_2 adsorption-desorption isotherm (A) and corresponding pore size distribution curve of KIT-6 silica template (B).

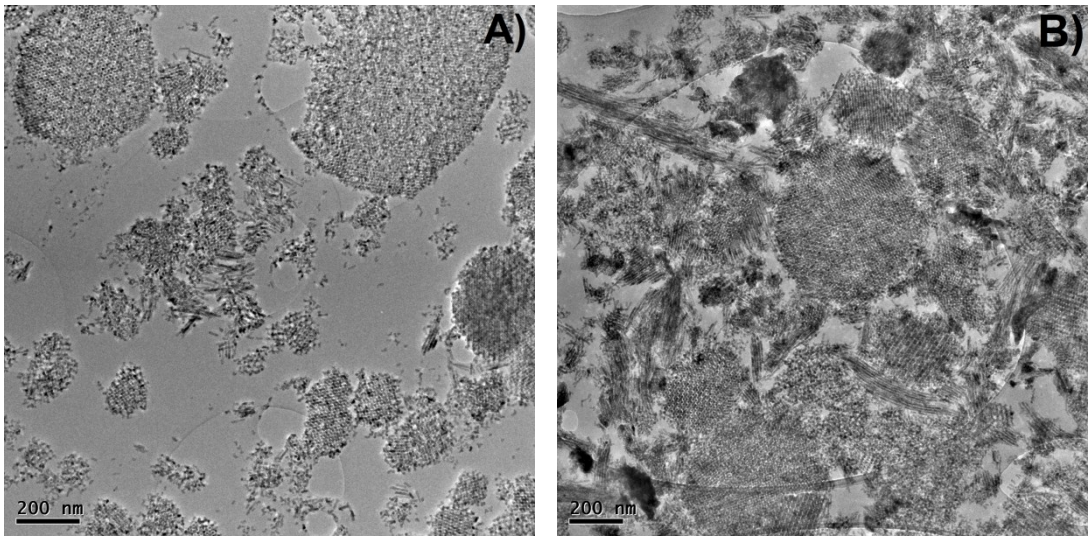

Figure S2. Low-magnification TEM images of as-prepared spinel oxides (A) $Ni_{0.18}Co_{2.82}O_4$, (B) $Ni_{1.00}Co_{2.00}O_4$.

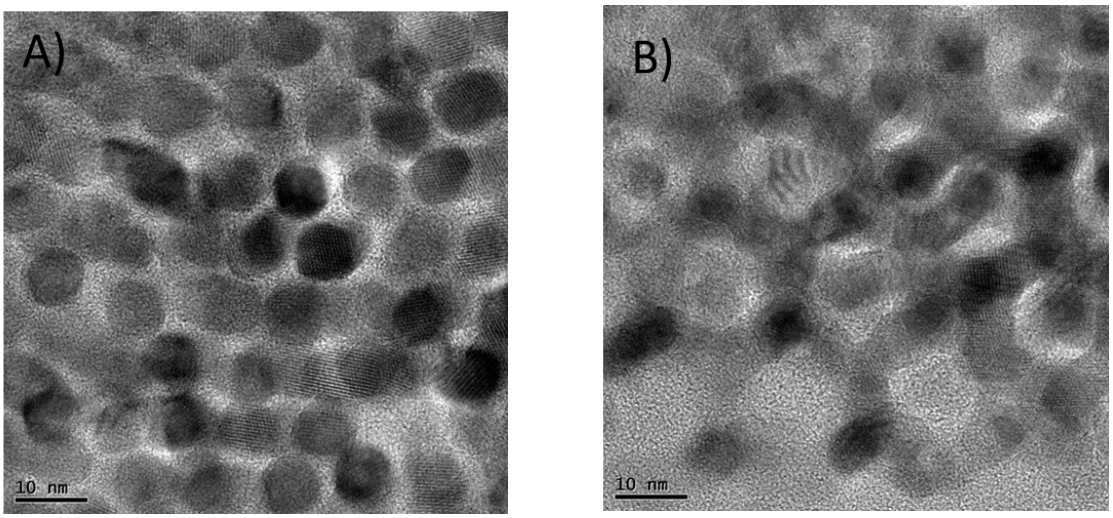

Figure S3. HRTEM images of Co_3O_4 and $Ni_{0.6}Co_{2.4}O_4$ catalysts

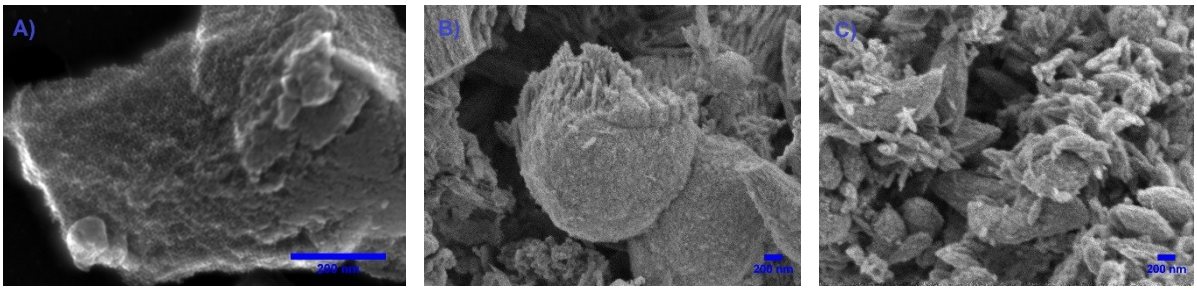

Figure S4. SEM images of (A) KIT-6, (B) Co_3O_4 and (C) $Ni_{0.6}Co_{2.40}O_4$ replicas

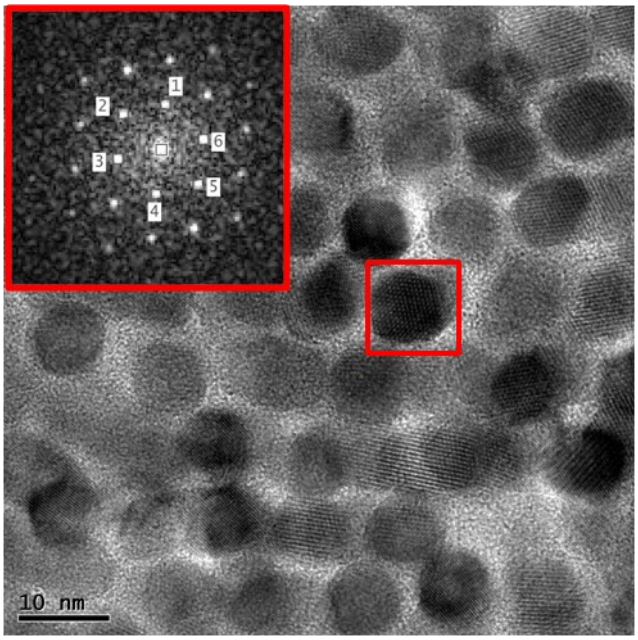

Figure S5: HRTEM image and Fourier transform of a selected area obtained on a Co_3O_4 single crystal. Zone axis : <0, 1, -1>.

Table S6: d spacing corresponding to the spots indexed on Figure S5.

Spot number	d spacing (nm)
1	0.4635
2	0.4017
3	0.4642
4	0.4635
5	0.4017
6	0.4642

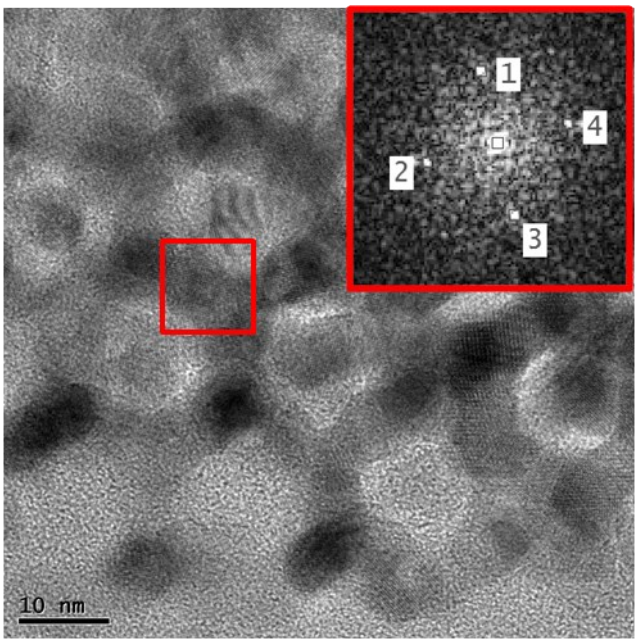

Figure S7: HRTEM image and Fourier transform of a selected area obtained on a $NiCo_2O_4$ single crystal. Zone axis: <1, 0, 0>.

Table S8: d spacing corresponding to the spots indexed on Figure S6.

Spot number	d spacing (nm)
1	0.2815
2	0.2851
3	0.2815
4	0.2851

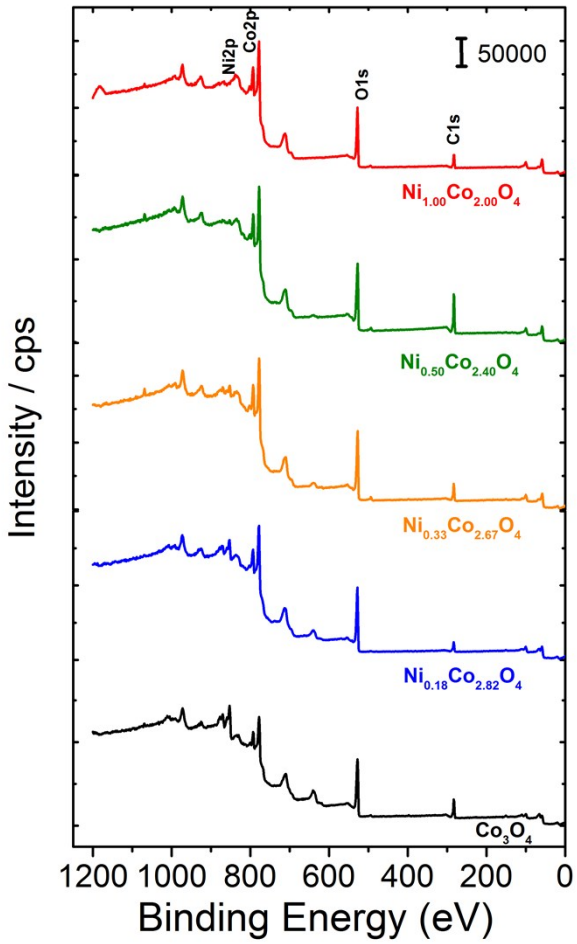

Figure S9. XPS survey spectra for the different catalysts.

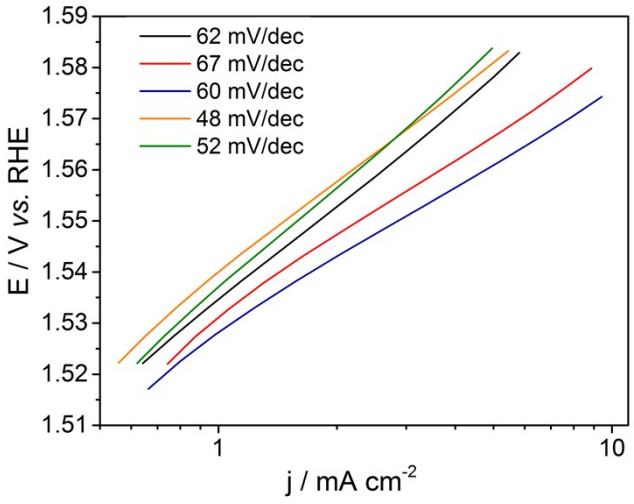

Figure S10. Tafel plots for the different catalysts. Co_3O_4 (black solid line), $Ni_{0.18}Co_{2.82}O_4$ (red), $Ni_{0.33}Co_{2.67}O_4$ (blue), $Ni_{0.60}Co_{2.40}O_4$ (orange), $Ni_{1.00}Co_{2.00}O_4$ (green).

Table S11. EIS fitting parameters for $Ni_{0.60}Co_{2.40}O_4$ obtained from the equivalent circuit presented on Scheme 1.

at 1.3V *vs.* RHE	R_{cell} / Ω	C_{dl} / F	p_{dl}	R_{ct} / Ω	C_{ads} / F	P_{ads}	k_{ET} / s^{-1}	D
Before cycling	7.83	$1.13\ 10^{-4}$	0.621	38.6	$1.59\ 10^{-3}$	0.930	8.14	2.61
After cycling	7.48	$3.24\ 10^{-5}$	0.693	91.1	$2.34\ 10^{-3}$	0.823	2.34	2.44