

Electronic Supplementary Information

Simple hydrothermal synthesis of mesoporous spinel NiCo_2O_4
nanoparticles and their catalytic behavior in CH_3OH
electro-oxidation and H_2O_2 electro-reduction

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Table S1 The fitted values of EIS parameters of the NiCo₂O₄ electrode
for CH₃OH electro-oxidation

State	Impedimetric parameters										
	<i>L</i> (H cm ²)	<i>R_e</i> (Ω cm ²)	<i>Q1, Y₀</i> (Ω ⁻¹ s ⁿ cm ⁻²)	<i>R_{ct}</i> (Ω cm ²)	<i>W, Y₀</i> (Ω ⁻¹ s ^{0.5} cm ⁻²)	<i>Q2, Y₀</i> (Ω ⁻¹ s ⁿ cm ⁻²)	<i>C</i> (F cm ⁻²)	<i>n1</i>	<i>n2</i>	<i>f_{knee}</i> (HZ)	<i>χ²</i> (E-3)
Blank	7.2E-8	0.38	0.0015	0.72	1.10	0.11	–	0.82	0.90	37.6	1.28
Fresh	5.2E-8	0.26	0.0049	0.80	0.33	0.16	–	0.75	0.94	31.5	1.42
1000th	–	0.40	0.0045	0.91	0.35	–	0.21	0.75	–	25.7	0.76

Table S2 The fitted values of EIS parameters of the NiCo₂O₄ electrode
 for H₂O₂ electro-reduction

State	Impedimetric parameters										
	<i>L</i> (H cm ²)	<i>R_e</i> (Ω cm ²)	<i>Q1, Y₀</i> (Ω ⁻¹ s ⁿ cm ⁻²)	<i>R1</i> (Ω cm ²)	<i>W, Y₀</i> (Ω ⁻¹ s ⁿ cm ^{-0.5})	<i>Q2, Y₀</i> (Ω ⁻¹ s ⁿ cm ⁻²)	<i>R2</i> (Ω cm ²)	<i>n1</i>	<i>n2</i>	<i>f_{knee}</i> (HZ)	<i>χ²</i> (E-3)
Blank	6.1E-8	0.28	0.0050	0.65	0.28	0.26	–	0.78	1.0	46.5	0.87
0.1 M	2.5E-8	0.34	0.00039	1.0	0.023	0.16	2.73	1.0	0.76	25.7	0.98
0.3 M	6.3E-8	0.24	0.0032	0.79	–	0.16	1.76	0.81	0.68	25.7	1.0
0.5 M	6.8E-8	0.22	0.0024	0.76	–	0.16	1.19	0.85	0.68	25.7	1.4
0.7 M	7.2E-8	0.20	0.0024	0.87	–	0.16	1.12	0.86	0.63	25.7	0.41