

**High electrochemical performance of 3D highly porous
 $\text{Zn}_{0.2}\text{Ni}_{0.8}\text{Co}_2\text{O}_4$ microspheres as an electrode material for
electrochemical energy storage**

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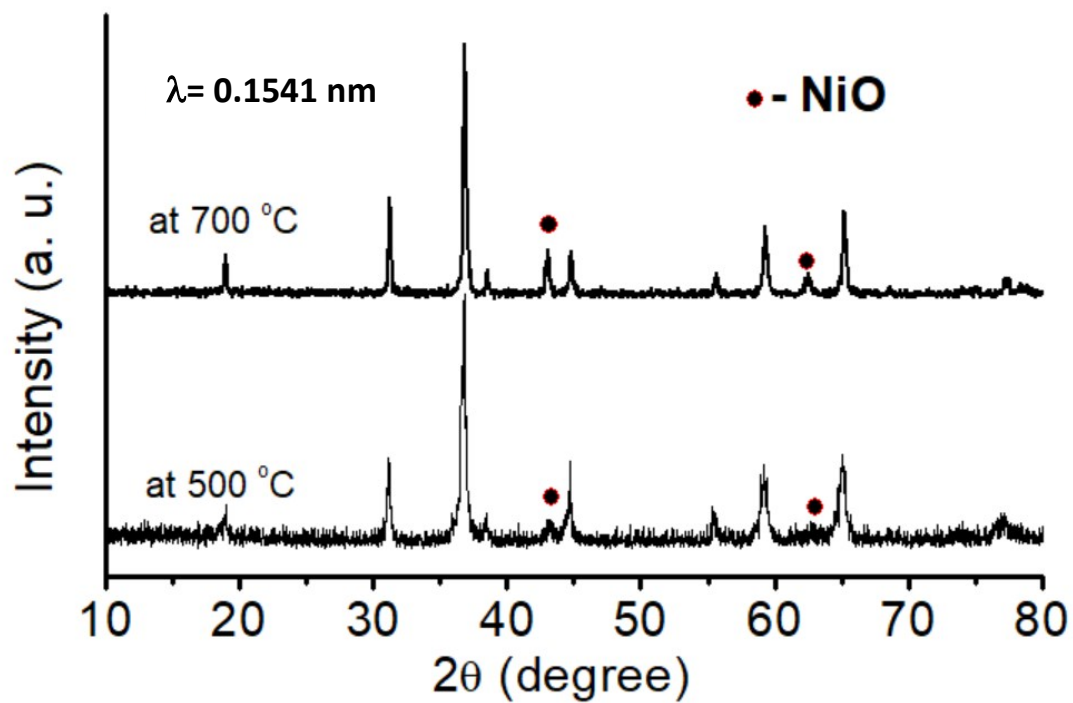


Fig. S1: XRD of highly porous spinel-type $\text{Zn}_{0.2}\text{Ni}_{0.8}\text{Co}_2\text{O}_4$ calcined at different temperatures.

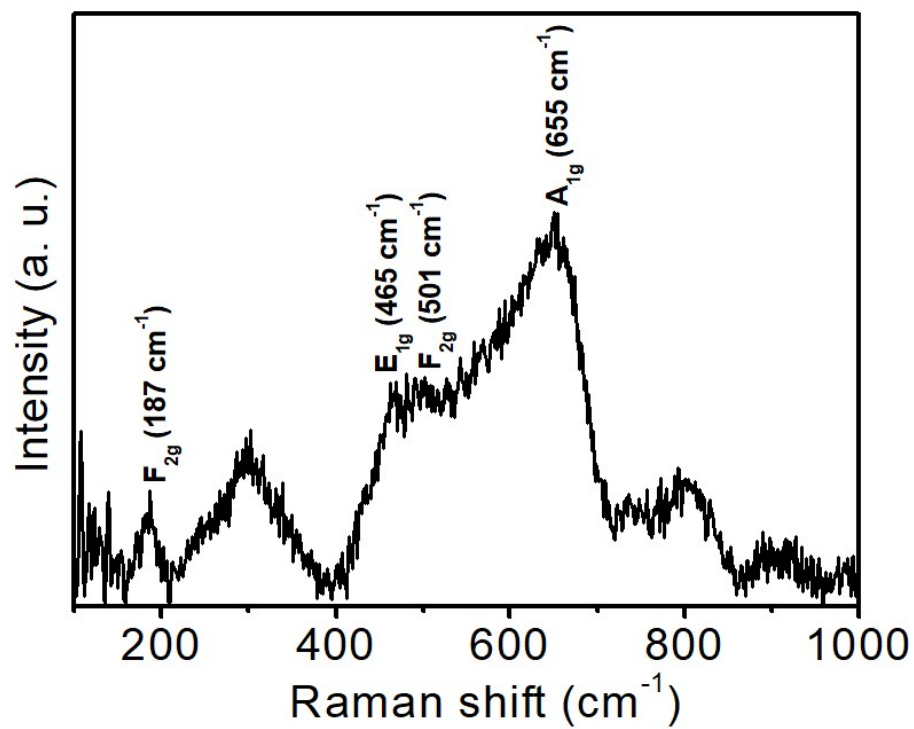


Fig. S2: Raman spectrum of mesoporous Zn_{0.2}Ni_{0.8}Co₂O₄ microspheres.

Table S1:

Fitted equivalent electrical circuit parameters for electrode before cycles (initial) as well as on the one that went through different cycles in pseudocapacitor studies.

Components	Initial	After 200 cycles at 2.5 Ag ⁻¹	After 400 cycles at 5 Ag ⁻¹	After 400 cycles at 10 Ag ⁻¹
R _s	0.51 (±0.01) Ω	0.52 (±0.01) Ω	0.72 (±0.02) Ω	0.71 (±0.01) Ω
R _{ct}	1.34 (±0.14) Ω	1.19 (±0.04) Ω	8.55 (±0.71) Ω	8.63 (±0.15) Ω
W-R	3.41 (±0.67)	10.17 (±1.03)	10.33 (±1.41)	13.17 (±0.49)
W-T	0.59 (±0.06)	15.87 (±1.97)	0.63 (±0.09)	0.49 (±0.03)
W-P	0.37 (±0.04)	0.31 (±0.01)	0.35 (±0.01)	0.36 (±0.01)
CPE _{dl} -T	7.15 (±0.04) × 10 ⁻⁴	1.14 (±0.07) × 10 ⁻³	1.94 (±0.01) × 10 ⁻³	1.10 (±0.01) × 10 ⁻³
CPE _{dl} -P	0.77 (±0.02)	0.78 (±0.01)	0.74 (±0.01)	0.71 (±0.01)
CPE _{ps} -T	0.02 (±0.001)	0.13 (±0.002)	0.11 (±0.01)	0.23 (±0.01)
CPE _{ps} -P	0.71 (±0.01)	0.90 (±0.01)	0.93 (±0.03)	0.99 (±0.04)

Table S2:

Fitted equivalent electrical circuit parameters for electrode before cycles (initial) as well as on the ones that went through 20 cycles in lithium ion battery studies.

Components	Initial	After 20 cycles
R _s	4.56 (±0.11) Ω	4.53 (±0.09) Ω
R _f	53.53 (±7.05) Ω	47.24 (±0.15) Ω
CPE _f -T	6.23 (±0.5) × 10 ⁻⁵	2.53 (±0.004) × 10 ⁻⁵
CPE _f -P	0.67 (±0.02)	0.79 (±0.01)
R _{ct}	98 (±13) Ω	15.71 (±0.57) Ω
Z _w -R	1878 (±280)	45.36 (±2.27)
Z _w -T	0.76 (±0.13)	9.16 (±0.64)
Z _w -P	0.42 (±0.01)	0.40 (±0.01)
CPE _{ct} -T	3.00 (±0.18) × 10 ⁻⁵	2.03 (±0.14) × 10 ⁻³
CPE _{ct} -P	0.90 (±0.12)	0.98 (±0.02)