

Electronic Supplementary Information

Design and synthesis of one-dimensional $\text{Co}_3\text{O}_4/\text{Co}_3\text{V}_2\text{O}_8$ hybrid nanowires with improved Li-storage properties

Yang Li^a, Long Kang^{a,b,*}, Ling-Bin Kong^{a,b,*}, Mao-Cheng Liu^{a,b}, Xi-Xin Wang^a, and Wei-Bin Zhang^a

^a *State Key Laboratory of Advanced Processing and Recycling of Non-ferrous Metals,
Lanzhou University of Technology, Lanzhou 730050, P. R. China*

^b *School of Materials Science and Engineering, Lanzhou University of Technology, Lanzhou
730050, P. R. China*

* Corresponding author. Tel.: +86-931-2976579, Fax: +86-931-2976578,

E-mail: kangl@lut.cn, konglb@lut.cn

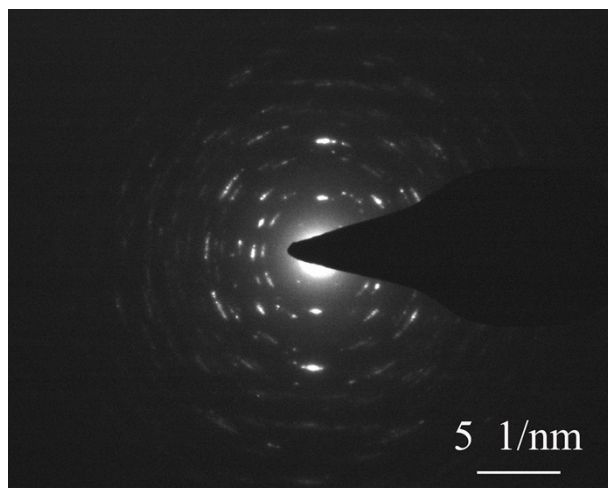


Fig. S1. Selected Area Electron Diffraction (SAED) pattern of $\text{Co}_3\text{O}_4/\text{Co}_3\text{V}_2\text{O}_8$ hybrid nanowires.

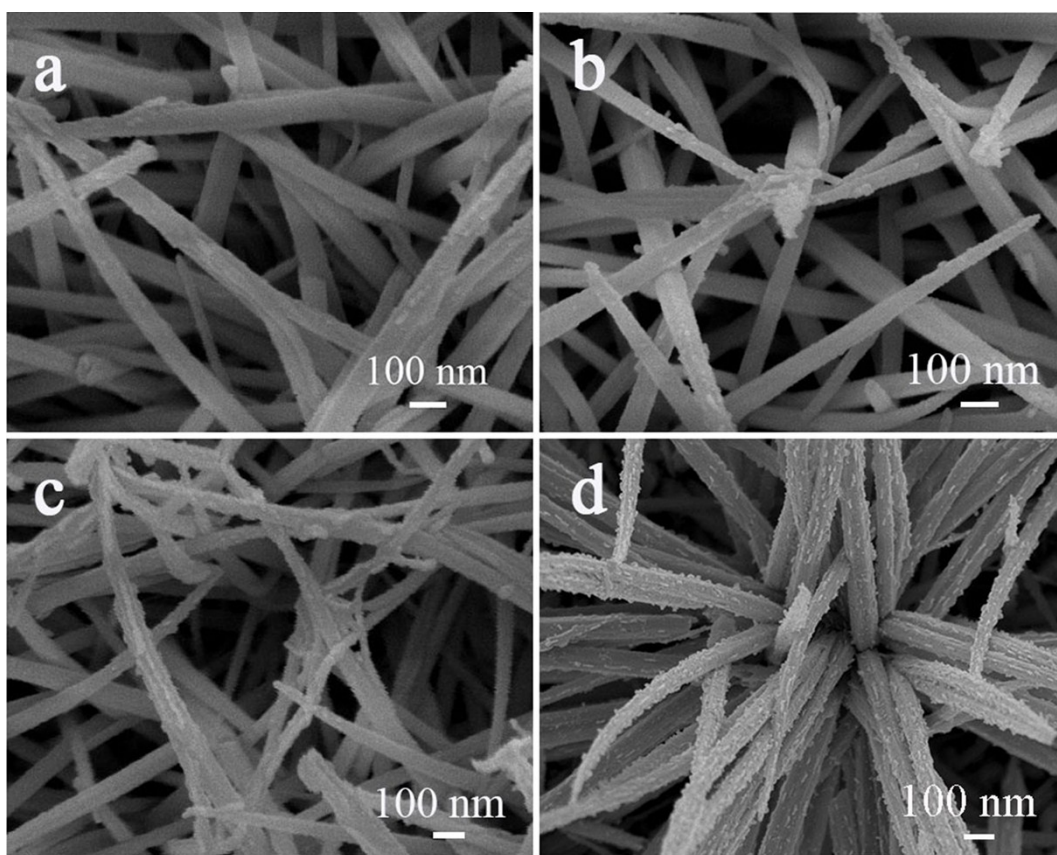


Fig. S2. SEM images of $\text{Co}_3\text{O}_4/\text{Co}_3\text{V}_2\text{O}_8$ hybrid nanowires with different reaction times: (a) 0.5 h, (b) 1 h, (c) 2 h, (d) 6 h.

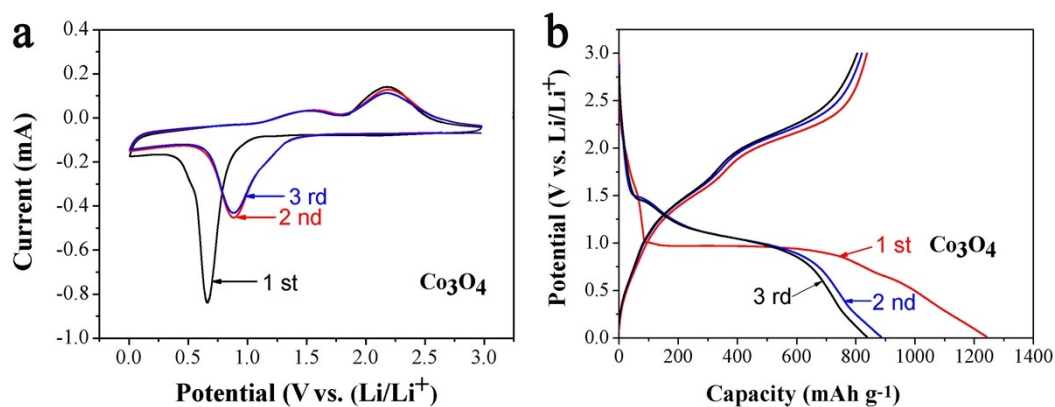


Fig. S3. (a) CV curves of Co_3O_4 nanowires for the first three cycles; (b) the charge-discharge profiles of Co_3O_4 nanowires.

Table S1. The comparison of the electrochemical performance of $\text{Co}_3\text{O}_4/\text{Co}_3\text{V}_2\text{O}_8$ hybrid nanowires with the reported results.

Nanomaterials	Current density (mA g^{-1})	Cycle Number	Capacity (mAh g^{-1})	Referenc e
Foam-like freestanding Co_3O_4 nanosheets	150	50	631	[5]
Porous $\text{Co}_3\text{O}_4/\text{CuO}$ composite	100	150	1151.2	[47]
Hierarchical $\text{Fe}_2\text{O}_3@\text{Co}_3\text{O}_4$ nanowire array	200	50	1005.1	[48]
$\text{NiO-Co}_3\text{O}_4$ nanoplate composite	100	70	663	[26]
Branched $\text{Co}_3\text{O}_4/\text{Fe}_2\text{O}_3$ nanowires	100	60	980	[46]
$\text{Co}_3\text{O}_4/\text{TiO}_2$ hierarchical heterostructures	200	480	632.5	[49]
$\text{Co}_3\text{O}_4/\text{SnO}_2$ hollow nano-spheres	100	100	962	[28]
$\text{Li}_4\text{Ti}_5\text{O}_{12}/\text{Co}_3\text{O}_4$ composite	160	50	300	[27]
$\text{Co}_3\text{V}_2\text{O}_8$ multilayered nanosheets	1000	100	1114	[34]
$\text{Co}_3\text{V}_2\text{O}_8 \cdot n\text{H}_2\text{O}$ hollow hexagonal prismatic pencils	500	225	847	[35]
$\text{Co}_3\text{O}_4/\text{Co}_3\text{V}_2\text{O}_8$ hybrid nanowires	200	200	1251	This work