Electronic Supplementary Material (ESI) for Journal of Materials Chemistry
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Supporting information for *Journal of Materials Chemistry*

Olivine $LiCoPO_4$-carbon composite showing high rechargeable capacity

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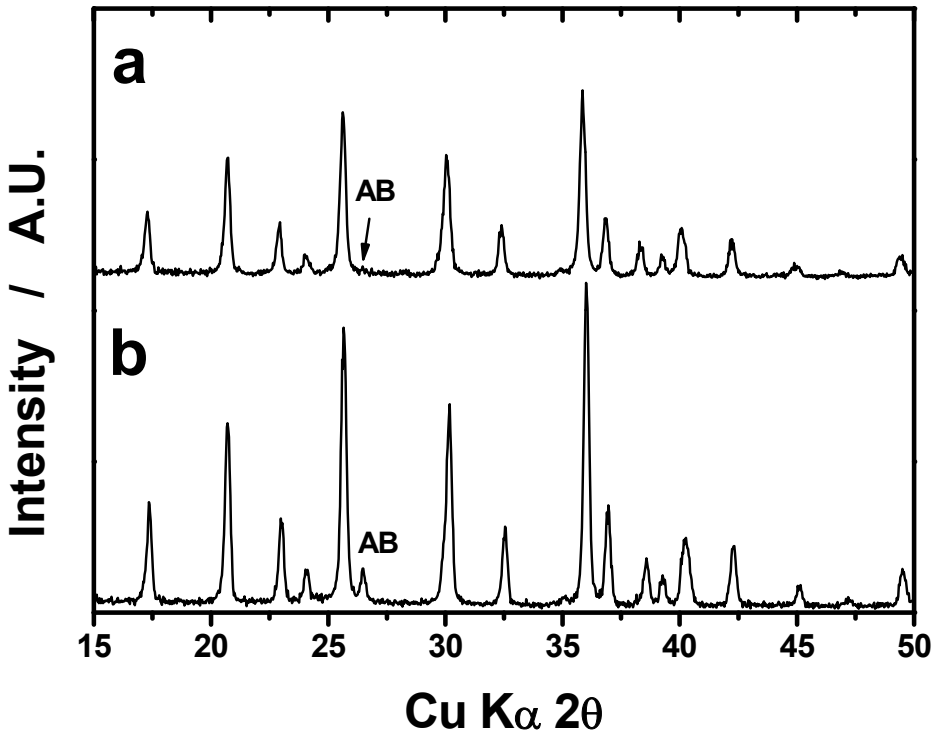

S-Figure 1. XRD patterns of C-$LiCoPO_4$ powders using different precursors; (a) Co_3O_4, (b) $Co_3(PO_4)_2$

S-Table 1. Lattice parameters of precursors; (a) Co_3O_4, (b) $Co_3(PO_4)_2$

Precursor	a / Å	b / Å	c / Å	R_{wp}
Co_3O_4	10.189(3)	5.929(2)	4.696(1)	12.1
$Co_3(PO_4)_2 \cdot 2H_2O$	10.153(2)	5.917(2)	4.708(1)	13.3

S-Table 2. Rietveld refinement results of XRD pattern of $LiCoPO_4$ (AB 3 wt%).

Formula		$LiCoPO_4$				
Crystal system		Orthorhombic				
Space group		*Pnma*				
Atom	Site	x	y	Z	g	B / Å^2
Li	4a	0	0	0	1	0.8
Co	4c	0.279(2)	0.25	0.977(4)	1	1.0
P	4c	0.095(3)	0.25	0.420(7)	1	1.5
O1	4c	0.095(8)	0.25	0.742(14)	1	1.7
O2	4c	0.455(8)	0.25	0.204(12)	1	0.6
O3	8d	0.165(6)	0.050(8)	0.281(8)	1	0.9

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Cell parameters	a = 10.191(3) Å b = 5.921(1) Å c = 4.697(1) Å
R_{wp}	13.9 %
R_p	11.7 %

S-Table 3. Rietveld refinement results of XRD pattern of $LiCoPO_4$ (AB 5 wt%).

Formula				$LiCoPO_4$		
Crystal system				Orthorhombic		
Space group				*Pnma*		
Atom	Site	x	Y	Z	g	B / Å^2
Li	4a	0	0	0	1	0.8
Co	4c	0.279(2)	0.25	0.977(5)	1	1.0
P	4c	0.096(4)	0.25	0.420(7)	1	1.5
O1	4c	0.095(8)	0.25	0.744(14)	1	1.7
O2	4c	0.455(8)	0.25	0.202(13)	1	0.6
O3	8d	0.165(6)	0.050(9)	0.282(9)	1	0.9
Cell parameters				a = 10.199(3) Å b = 5.922(2) Å c = 4.699(2) Å		
R_{wp}				15.7 %		
R_p				14.0 %		

S-Table 4. Rietveld refinement results of XRD pattern of $LiCoPO_4$ (AB 10 wt%).

Formula				$LiCoPO_4$		
Crystal system				Orthorhombic		
Space group				*Pnma*		
Atom	Site	x	Y	Z	g	B / Å^2
Li	4a	0	0	0	1	0.8
Co	4c	0.278(3)	0.25	0.973(9)	1	1.0
P	4c	0.094(6)	0.25	0.424(14)	1	1.5
O1	4c	0.094(15)	0.25	0.748(26)	1	1.7
O2	4c	0.455(15)	0.25	0.197(22)	1	0.6
O3	8d	0.165(11)	0.058(15)	0.281(15)	1	0.9
Cell parameters				a = 10.204(6) Å b = 5.924(3) Å c = 4.701(2) Å		

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R_{wp}	27.1 %
R_p	19.8 %